

BRITISH MEDICAL JOURNAL

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

SUPPLEMENT

containing

Notes on the Work of the Association

Future of Health Services

General Medical Council

Postgraduate News

Meetings of Branches and Divisions

Service Appointments

Correspondence, etc.

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between the degree of distension of the bladder and the incidence of stress incontinence. The symptom was just as evident, sometimes more so, when the bladder was empty as at full distension, conforming with the clinical observation that the symptom was often quite troublesome soon after the bladder had been emptied voluntarily, in fact, owing to the pressure of the refractory phre at the beginning of distension it might be more so. As a minor way of combating the symptom he advised these patients to refrain from any sudden effort for a short period after micturition. In stress incontinence the control of micturition itself was normal and patients were able to stop the flow immediately they desired—an observation supporting the view that the lesion responsible for the stress incontinence was extrinsic to the bladder neck and the urethra. One group in which the jet escaped under pressure, and a second and smaller group, in which the urine leaked on any sort of effort, not necessarily an effort raising the intra-abdominal pressure, might be distinguished by the fact that in the first group the ordinary methods of repair proved adequate in the second group more specialized methods might be required.

A lateral cystogram gave much more information than an antero-posterior film, because the vesico-urethral junction was higher than the most dependent part of the bladder and could not be seen except in a lateral view. If changes in the contour of the bladder were to be seen, a weaker solution of sodium iodide than that usually employed was preferable, so the variations in the density of the shadow due to variations in the diameter of the bladder could then be picked out. In the descent of the bladder on straining noted in cases of cystocele and stress incontinence, the bladder appeared to descend as a whole. The vesico-urethral junction was situated far more in the mid-pelvis than was commonly supposed, this had a bearing on the operative repair of these cases. It was important to avoid any operative procedure which would approximate the bladder neck to the back of the symphysis. In many cases in which a repair operation had failed to relieve stress incontinence it would be found that this had been done—the urethra and anterior vaginal walls were closely applied to the back of the symphysis and had lost their normal curve. The good results sometimes obtained by a Goebbel-Stoeckel-Aldridge fascial sling operation were probably due to the fact that the operation ensured an upward rather than a forward displacement, but with great care it was possible to achieve this end by means of the more conventional techniques.

Finally, Mr Malpas showed a series of lateral radiographs taken during pregnancy and labour, mainly illustrating two points: the normal appearances and their variations from the non-pregnant condition and the significance of an "abdominal bladder" during the first stage of labour. In most cases of trial labour in which an "abdominal" bladder could be seen during the first stage, the bladder shadow being completely above the pelvic brim a Caesarean section would be necessary. In a normal labour the elevation of the bladder into the abdomen occurred quite late in the second stage, and even then was often incomplete in cases of easy labour. There was much to be said for combining the lateral radiograph with a lateral cystogram in the course of a trial labour.

Secondary Carcinoma of the Vulva

Prof T. N. A. JEFFCOATE reported a case of carcinoma of the vulva secondary to a primary growth in the breast. The patient was a nulliparous widow, aged 65, first seen in Oct., 1944, complaining of a small swelling in the groin, which she had had for the past six months. This had given rise to an occasional pricking sensation on walking. A little haematuria had been noted two months previously for two days. A radical mastectomy had been performed eight years before for carcinoma. The site of the scar showed no sign of recurrence either in the skin or in the axilla.

On examination the patient looked well, she was thin but did not show any obvious signs of loss of weight. Just lateral to the left pubic spine was a shallow ulcer covering an area of about that of a sixpence, with a serpiginous outline. Its base was rather hard but freely mobile on deep structures, the edges slightly raised. It had the appearance of umbilication. There was no enlargement of the glands in the groin. Beneath the skin of the left labium majus the position of Bartholin's glands a nodule

about the size of a pea could be felt. This was also mobile on deep structures, but was fixed to skin. The patient was admitted to hospital for investigations. The Wassermann was negative. A local excision was performed of the ulcer and nodule in view of the possibility of its being an intradermal carcinoma. Cystoscopy revealed an area on the right bladder wall the appearance of which was identical with that of the ulcer, about the same size and uniloculated. X-ray examination of the chest showed the lower lobe to be collapsed. Histological examination revealed that both lesions were probably metastatic growths, the primary being the previous breast carcinoma.

No further treatment was possible and the patient was kept under observation. Death occurred in 1945. The post-mortem examination showed widespread small metastatic growths, all secondary to the old breast carcinoma, the distribution was bizarre in the extreme, and involved parietal and visceral peritoneum, stomach muscle, the pancreas and even the appendix, both adrenals, the sternum, ribs, and vertebrae, both submaxillary glands, both ovaries, and the left Fallopian tube. It would seem that the secondaries appeared first in the mediastinal glands and were then disseminated in the blood stream. The extraordinary feature was that the vulva was chosen as the site of the first metastasis to attract attention, and that the patient's deterioration was so slow in view of the blood-borne spread.

Fatal Air Embolism in Pregnancy

Dr C. H. WALSH read a paper on fatal air embolism following vaginal insufflation during pregnancy.

The patient, a primigravida aged 17, was being treated by picric acid insufflations for leucorrhoea at about the thirtieth week of pregnancy. The first insufflation produced no discomfort, but the second a week later was followed by disaster. Insufflation was performed by a nurse with the patient lying in the left lateral position. Six or seven squeezes of the bulb were made. In a matter of seconds the patient became cyanosed, fought for breath, and became unconscious, dying in four or five minutes. Post-mortem examination revealed the uterus to be 30 to 31 weeks pregnant and to contain a normally developed foetus. The placenta was situated in the posterior upper segment and showed a small detachment at its lower border and stripping of the membranes down to the cervix, with a minute trace of picric acid powder in a maternal sinus. The inferior vena cava was ballooned with air and the right auricle markedly dilated and containing frothy blood. No other abnormality was observed in any other structure in the body. The immediate cause of death was pulmonary artery obstruction and right-sided heart failure due to air embolism.

It was pointed out that the insufflator delivered about 50 c.c.m. of air and powder, and in the average vagina, if the rubber cone made an airtight connexion with the introitus six or seven squeezes would blow in some 350 c.c.m. of air and powder, delivered at a pressure of at least 150 mm. Under these conditions even a small patent venule was capable of gobbling up air with fatal consequences. Some very interesting radiographs of intravasation of lipiodol occurring in the course of tubal patency tests were shown. The conclusions were mainly that the forcing of air under pressure into any cavity in the body might cause sudden death from air embolism. Pregnancy or a bleeding surface favoured air entry. Therefore it was suggested that vaginal insufflation was contraindicated in pregnancy or in the presence of bleeding from the uterus, and that tubal insufflation should be discarded in favour of lipiodol technique.

* Air embolism in pregnancy was the subject of a question and answer in the *Journal* of Dec. 1 (p. 793).

DUTCH PHARMACY UNDER THE NAZIS

Pharmaceutical conditions in Holland under the German occupation were reviewed in a lecture to members of the Pharmaceutical Society of Great Britain on Dec. 13 by Dr C. J. BLOK, chief pharmacist to the University and Municipal Hospitals, Amsterdam.

About 1943, said Dr Blok, many articles became so scarce that the General Office of Public Health found it necessary to limit the prescribing of the doctors. Cod-liver oil was only to be prescribed for tuberculosis, atropine only for Parkinsonism and as eyedrops, pilocarpine only for eyedrops, luminal only for epilepsy, ropan for serious stomach cases, dermatol only for epilepsy. After the Germans had robbed the safe of the Organon factories insulin also

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- Nurse's Textbook of Anatomy and Physiology (A. M. Spencer), 918
- Nursing Anatomy and Physiology for Nurses (J. L. Hamilton-Paterson), 918
- Demonstrations of Operative Surgery for Nurses (Hamilton Bailey), 356
- Principles of Internal Medicine: Course for Nurses (D. M. Baitz), 956
- Urological (David M. Davis), 4th ed., 955
- Nutrition and Chemical Growth in Childhood (Irene G. Macy), vol. 2, 723
- Obstetrics, Midwife's Textbook of the Principles and Practice of Midwifery (R. W. Johnstone), 2nd ed., 651
- Ocular Prosthesis (J. H. Prince), 918
- Oesophagus Injuries and Diseases of (G. Grey Turner), 989
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- Ophthalmology Biologie de la Vision (Marie-Louise Verrier) 91
- Ophthalmia Neonatorum The Problem after Thirty Years of Statutory Notification and Sixty Years of Credé Prophylaxis (Arnold Sorsby), 53
- Refraction of the Eye (Alfred Cowan), 2nd ed., 879
- Textbook of (Sanford R. Gifford), 3rd ed., 130
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be gradually established and the subscriptions of individuals and of associated libraries should enable the Royal Society of Medicine to continue the service without further help from the Rockefeller Foundation.

Preliminary work on detail of this scheme is in active progress. A conference will be convened by the Society at an early date to which institutions concerned in its original scheme will be invited to send representatives in order that the new plan may be laid before them.

LONDON VOLUNTARY HOSPITALS

INCREASING PUBLIC SUPPORT

King Edward's Hospital Fund for London has performed another service by producing an elaborate analysis of the finance and work of 167 voluntary hospitals in London in 1944.¹ The financial tables show the impressive volume of public support which these hospitals continued to command even in the year when London was subject to flying bombs and other war distractions and when in consequence the hospitals themselves had fewer beds occupied and fewer people coming to the out-patient departments. The subscriptions and donations rose by £80,000 over the amount for the previous year and reached a figure of £1,144,000. Contributory schemes brought in a further £733,000, again a considerable increase, but patients' payments were, of course, down.

The amount derived by the voluntary hospitals from the public authorities worked out at just over 30% of their total maintenance income. This amount differs widely as between different classes of hospitals and as between different hospitals in the same class. For the twelve teaching hospitals the total sum received from public authorities was £725,429, being 32.9% of income, and in the larger general hospitals without medical schools the percentage was higher, and in some of the special hospitals—the chest hospitals, for example—it rose to more than half the income. The total sum received by all the hospitals from public sources was £1,803,000, an increase of £373,000 on the year, the increase being due to grants under the E.M.S. scheme and towards the increase in nurses' salaries. The public is generous to the voluntary hospitals, but, on at any rate a superficial reading of these figures, erratic in its preferences. The teaching hospitals receive only 15% of their income from subscriptions and donations, but the larger non-teaching hospitals receive a considerably larger proportion—possibly a reflection of local pride. Of the teaching hospitals the favoured one in 1944 was the Royal Free, which received 45% of its income in the form of voluntary gifts, whereas St. Bartholomew's received only 11%; but St. Bartholomew's has a far larger income from invested property than any other hospital.

The total bed complement of these 167 hospitals at the end of 1944 was 23,377, but the number of beds open to patients was 17,721, and the average number occupied daily during the year was 10,405. One perplexing feature at first sight is the great difference between the average periods of residence of patients in different hospitals, even hospitals of the same class. In the teaching hospitals the average period varies from 21.4 days at the London to 12.9 days at St. Bartholomew's. It is a little difficult to see why the average period of residence should be twice as long at the Metropolitan Hospital as at St. John's, Lewisham, or twice as long at Hendon as at Purley. Among the children's hospitals the average stay of patients at Queen Elizabeth's is 21 days and at Paddington Green 11 days. No doubt the position is influenced by the number of patients who stay, particularly at certain hospitals, for very short periods. For example, at St. Bartholomew's 1,488 patients were in the wards for three days or less, as compared with 564 at Middlesex and 587 at Westminster, each of the hospitals having about the same total number of in-patients. Other factors may be the ratio of medical to surgical beds in different hospitals and the existence of convalescent-home facilities.

CARE OF CHILDREN UNDER FIVE

Recognizing as an "unattainable ideal for the present" a situation in which mothers of children under 2 years of age will be discouraged from going out to work, the Ministers of Health and of Education have in a recent circular, asked local authorities to make plans for adapting wartime nursing services to present needs and to submit these plans by the end of February. It is pointed out that for some time to come the need for women workers in certain vital industries may be as urgent as it was in wartime, and thus, with housing and shopping difficulties, makes it necessary that provision for the day-time care of children up to the age of 5 should continue, including some for the "under 2's," who are not admitted to nursery schools and classes. The methods to be adopted will rest with the local authorities, but the circular suggests a combination of the following: nursery schools, nursery classes, day nurseries, and schemes of day guardians, using maternity and child welfare centres on two or three afternoons a week as temporary crèches; organizing responsible women or older girls as volunteers to "sit in" at the homes of children while the parents go out together in the evening. Local authorities are asked to consider which wartime nurseries should continue to be run under maternity and child welfare powers; which should be taken over and run as nursery schools or nursery classes; and which should be closed. The cost of running wartime nurseries and wartime nursery classes will continue to be borne by the Exchequer until March 31. From that date such wartime nurseries as become nursery schools or nursery classes will attract the normal education grant from the Ministry of Education. Wartime nurseries continuing as day nurseries will receive a similar grant from the Ministry of Health. This grant will also be payable for registered day guardian schemes, afternoon crèches, and evening "sitters in."

MEDICAL FOUNDATION OF EPSOM COLLEGE

In spite of a long list of pensions, annuities, and scholarship, totalling over £13,000, awarded during 1945 the Royal Medical Foundation of Epsom College has to announce that owing to lack of funds many deserving applicants—medical men and women, and children of school age—remain unassisted. There is a waiting list of 28 applicants for pensions and 24 for annuities. The object of this Foundation is to help the families of less fortunate colleagues, and that this aid is given far and wide is seen from the following list for 1945:

General pensions	£
41 Foundation scholarships for boys educated, clothed, and maintained entirely free of cost	1,593
13 school trips for girls	676
15 exhibitions for boys	570
133 pensions and annuities of varying amounts	615
Grants towards education of 38 boys and girls	2,935
Grants to widows and spinsters	949
	322

When it is realized, however, that to maintain this assistance the Foundation has to rely upon the generosity of subscribers for over £10,000 a year, then the need for more and larger subscriptions is only too apparent. An appeal is therefore made for all who can to help the Foundation in its work in 1946. Subscribers may, if they wish, ask for their contribution to go to some particular beneficiary, and here it may be mentioned that the Sherman Bigg Fund enables the Foundation to make educational grants for those who cannot obtain scholarships. Subscriptions and donations for whatever aspect of the work may be sent to the Secretary, Epsom College Surrey.

A POLICE EXHIBITION IN 1946

A Police Exhibition is to be held at Brighton from June 4 to 22, when the Chief Constables' (Cities and Boroughs of England and Wales) Association will hold its fifteenth conference. The Brighton Corporation is lending part of the Municipal Art Galleries and Museum for the exhibition. Its objects will be to create a wider public interest in the preventive and detective aspects of crime, and to draw attention to the advances made in forensic science. Certain scientific and criminal exhibits will be shown privately in the Royal Pavilion. Invitations will be extended to members of the legal, medical, and scientific professions, magistrates, and police to visit this.

The Home Secretary has shown his interest in the exhibition, and the Home Office is helping in the preparatory work. The Commissioner of Police of the Metropolis is lending exhibits from the Museum at New Scotland Yard, and chief constables and directors of Home Office Forensic Science Laboratories are contributing from their collections. Offers to lend documents, records, and exhibits of historical, legal, criminal, or scientific interest will be welcomed, and correspondence should be addressed to the Chief Constable of

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between the degree of distension of the bladder and the incidence of stress incontinence. The symptom was just as evident, sometimes more so, when the bladder was empty as at full distension, conforming with the clinical observation that the symptom was often quite troublesome soon after the bladder had been emptied voluntarily, in fact, owing to the pressure of the refractory phre at the beginning of distension it might be more so. As a minor way of combating the symptom he advised these patients to refrain from any sudden effort for a short period after micturition. In stress incontinence the control of micturition itself was normal and patients were able to stop the flow immediately they desired—an observation supporting the view that the lesion responsible for the stress incontinence was extrinsic to the bladder neck and the urethra. One group in which the jet escaped under pressure, and a second and smaller group, in which the urine leaked on any sort of effort, not necessarily an effort raising the intra-abdominal pressure, might be distinguished by the fact that in the first group the ordinary methods of repair proved adequate in the second group more specialized methods might be required.

A lateral cystogram gave much more information than an antero-posterior film, because the vesico-urethral junction was higher than the most dependent part of the bladder and could not be seen except in a lateral view. If changes in the contour of the bladder were to be seen, a weaker solution of sodium iodide than that usually employed was preferable, so the variations in the density of the shadow due to variations in the diameter of the bladder could then be picked out. In the descent of the bladder on straining noted in cases of cystocele and stress incontinence, the bladder appeared to descend as a whole. The vesico-urethral junction was situated far more in the mid-pelvis than was commonly supposed, this had a bearing on the operative repair of these cases. It was important to avoid any operative procedure which would approximate the bladder neck to the back of the symphysis. In many cases in which a repair operation had failed to relieve stress incontinence it would be found that this had been done—the urethra and anterior vaginal walls were closely applied to the back of the symphysis and had lost their normal curve. The good results sometimes obtained by a Goebbel-Stoeckel-Aldridge fascial sling operation were probably due to the fact that the operation ensured an upward rather than a forward displacement, but with great care it was possible to achieve this end by means of the more conventional techniques.

Finally, Mr Malpas showed a series of lateral radiographs taken during pregnancy and labour, mainly illustrating two points: the normal appearances and their variations from the non-pregnant condition and the significance of an "abdominal bladder" during the first stage of labour. In most cases of trial labour in which an "abdominal" bladder could be seen during the first stage, the bladder shadow being completely above the pelvic brim a Caesarean section would be necessary. In a normal labour the elevation of the bladder into the abdomen occurred quite late in the second stage, and even then was often incomplete in cases of easy labour. There was much to be said for combining the lateral radiograph with a lateral cystogram in the course of a trial labour.

Secondary Carcinoma of the Vulva

Prof T. N. A. JEFFCOATE reported a case of carcinoma of the vulva secondary to a primary growth in the breast. The patient was a nulliparous widow, aged 65, first seen in Oct., 1944, complaining of a small swelling in the groin, which she had had for the past six months. This had given rise to an occasional pricking sensation on walking. A little haematuria had been noted two months previously for two days. A radical mastectomy had been performed eight years before for carcinoma. The site of the scar showed no sign of recurrence either in the skin or in the axilla.

On examination the patient looked well, she was thin but did not show any obvious signs of loss of weight. Just lateral to the left pubic spine was a shallow ulcer covering an area of about that of a sixpence, with a serpiginous outline. Its base was rather hard but freely mobile on deep structures, the edges slightly raised. It had the appearance of umbilication. There was no enlargement of the glands in the groin. Beneath the skin of the left labium majus the position of Bartholin's glands a nodule

about the size of a pea could be felt. This was also mobile on deep structures, but was fixed to skin. The patient was admitted to hospital for investigations. The Wassermann was negative. A local excision was performed of the ulcer and nodule in view of the possibility of its being an intradermal carcinoma. Case report revealed an area on the right bladder wall the appearance of which was identical with that of the ulcer, about the same size and uniloculated. X-ray examination of the chest showed the lower lobe to be collapsed. Histological examination revealed that both lesions were probably metastatic growths, the primary being the previous breast carcinoma.

No further treatment was possible and the patient was kept under observation. Death occurred in 1945. The post-mortem examination showed widespread small metastatic growths, all secondary to the old breast carcinoma, the distribution was bizarre in the extreme, and involved parietal and visceral peritoneum, stomach muscle, the pancreas and even the appendix, both adrenals, the sternum, ribs, and vertebrae, both submaxillary glands, both ovaries, and the left Fallopian tube. It would seem that the secondaries appeared first in the mediastinal glands and were then disseminated in the blood stream. The extraordinary feature was that the vulva was chosen as the site of the first metastasis to attract attention, and that the patient's deterioration was so slow in view of the blood-borne spread.

Fatal Air Embolism in Pregnancy

Dr C. H. WALSH read a paper on fatal air embolism following vaginal insufflation during pregnancy.

The patient, a primigravida aged 17, was being treated by picric acid insufflations for leucorrhoea at about the thirtieth week of pregnancy. The first insufflation produced no discomfort, but the second a week later was followed by disaster. Insufflation was performed by a nurse with the patient lying in the left lateral position. Six or seven squeezes of the bulb were made. In a matter of seconds the patient became cyanosed, fought for breath, and became unconscious, dying in four or five minutes. Post-mortem examination revealed the uterus to be 30 to 31 weeks pregnant and to contain a normally developed foetus. The placenta was situated in the posterior upper segment and showed a small detachment at its lower border and stripping of the membranes down to the cervix, with a minute trace of picric acid powder in a maternal sinus. The inferior vena cava was ballooned with air and the right auricle markedly dilated and containing frothy blood. No other abnormality was observed in any other structure in the body. The immediate cause of death was pulmonary artery obstruction and right-sided heart failure due to air embolism.

It was pointed out that the insufflator delivered about 50 c.c.m. of air and powder, and in the average vagina, if the rubber cone made an airtight connexion with the introitus six or seven squeezes would blow in some 350 c.c.m. of air and powder, delivered at a pressure of at least 150 mm. Under these conditions even a small patent venule was capable of gobbling up air with fatal consequences. Some very interesting radiographs of intravasation of lipiodol occurring in the course of tubal patency tests were shown. The conclusions were mainly that the forcing of air under pressure into any cavity in the body might cause sudden death from air embolism. Pregnancy or a bleeding surface favoured air entry. Therefore it was suggested that vaginal insufflation was contraindicated in pregnancy or in the presence of bleeding from the uterus, and that tubal insufflation should be discarded in favour of lipiodol technique.

* Air embolism in pregnancy was the subject of a question and answer in the *Journal* of Dec. 1 (p. 793).

DUTCH PHARMACY UNDER THE NAZIS

Pharmaceutical conditions in Holland under the German occupation were reviewed in a lecture to members of the Pharmaceutical Society of Great Britain on Dec. 13 by Dr C. J. BLOK, chief pharmacist to the University and Municipal Hospitals, Amsterdam.

About 1943, said Dr Blok, many articles became so scarce that the General Office of Public Health found it necessary to limit the prescribing of the doctors. Cod-liver oil was only to be prescribed for tuberculosis, atropine only for Parkinsonism and as eyedrops, pilocarpine only for eyedrops, luminal only for epilepsy, ropan for serious stomach cases, dermatol only for epilepsy. After the Germans had robbed the safe of the Organon factories insulin also

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BRITISH MEDICAL JOURNAL

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THE SURGERY OF ARTERIAL DISEASE AND INJURY*

BY

Prof. J. PATERSON ROSS, M.S., F.R.C.S.

The early diagnosis and treatment of arterial injuries have been well described in the Medical Research Council's War Memorandum No. 13, but with the end of the war the problems of peripheral vascular disease will again become the more important, and therefore I intend to consider them first. I would like to make it clear from the start that they are not so intricate that only the specialist, working with a highly trained team at a special centre, can hope to understand them and to undertake the treatment of vascular disease. It should be the duty of those occupied in clinical research to correlate the results of their elaborate investigations with clinical methods of observation, so that the practitioner may be able to form a pretty accurate estimate of the nature and extent of the disease he has to treat. The surgical specialist should aim at simplification and standardization of technique, so that it may be easy or others to follow his lead, and thus the advances in surgical treatment may become widely known and practised.

Difficulties must arise when unusual features present themselves, and it is under such circumstances that the experience and judgment of the specialist are required in the selection of the patients who are likely to benefit from surgical treatment.

Raynaud's Disease

It is now customary to refer to any condition in which coldness and cyanosis of the digits occur on exposure to a moderately low temperature as the "Raynaud phenomenon." It may be seen in association with any form of obliterative or degenerative arteritis, it may be secondary to pressure by a cervical rib, or it may follow frost-bite or injury from the use of vibrating tools. It is unfortunate that Raynaud himself did not describe a single clinical entity, yet there is a clearly defined condition to which the term Raynaud's disease should be limited. It is characterized by colour changes in the digits produced by cold, occurring in attacks which show a rapid onset and recovery, and affecting the extremities symmetrically. The peripheral pulses are preserved, and if there is any loss of tissue it is never more than shallow ulceration close to the finger-tips; true gangrene is extremely rare. The disease is seen almost exclusively in the female sex—in fact, if a male patient presents a similar picture it is likely to be an early stage of obliterative arteritis and not Raynaud's disease.

A patient who suffers from Raynaud's disease in this country will be relieved of her symptoms by going to live in a warm climate, and even a change of occupation so as to avoid local exposure to cold will produce some improvement. We have not found emotion to be a common exciting cause of attacks; either is excessive sweating of the extremities at all frequent in our experience. For these and other reasons we follow Lewis's teaching that the disease is due to a local fault in the small arteries, and not to a central affection of the sympathetic nervous system. Furthermore, it must be pointed out that by the term "local fault" Lewis did not mean that even in mild Raynaud's disease there is some structural change in the vessels; he fault is an abnormal sensitivity to local cooling.

On the other hand, it can be shown that the more severe forms of Raynaud's disease are complicated by structural

changes in the arteries—obliterative arteritis and thrombosis—and this is the most important of the factors determining whether a patient is likely to benefit from surgical treatment. In the mildest form there are only colour changes in the digits, and the arteries are still able to dilate rapidly and completely as the attack passes off. There is an intermediate group of moderate severity complicated by shallow ulceration of the finger-tips, in which vasodilatation occurs more slowly and is incomplete. In the most severe group, which shows sclerodactyly or hypodermolihthiasis in addition to the other manifestations of Raynaud's disease, structural changes in the small arteries may prevent vasodilatation, so that the response to vasomotor inhibition or paralysis may be identical with that seen in advanced arteriosclerosis.

In Raynaud's disease the stimulus of cold almost obliterates the lumen of the digital arteries. After section of the vasomotor nerves their lumen is permanently increased, so that the same stimulus, while still reducing it greatly, does not arrest the circulation completely. The very different response to cold after sympathectomy in a person with normal vessels and in a patient with Raynaud's disease is further evidence in favour of the view that the vessels themselves are peculiarly susceptible to stimulation by cold.

It is clear, however, that unless sympathetic denervation is complete, vasodilatation will be inadequate, and the possibility of the obliteration of the artery by cold will persist. The importance of this factor is demonstrated by patients who show a good result in one hand and a poor result in the other after what were intended to be identical operations on the two sides. Anatomical variations in the origin and distribution of sympathetic rami are well known, and it is therefore essential to plan our operations so that there is the least possible risk of missing a few of them. It must not be forgotten that nerve impulses are mediated by chemical substances liberated at nerve endings, and widespread contraction of muscle may therefore result from the sparing of single nerve filaments.

For this reason we now favour the posterior approach to the upper thoracic sympathetic trunk as modified by White and Smithwick (1942). Though the anterior approach as modified by Telford (1935) can achieve the same object in skilled hands, the less experienced are likely to find the posterior approach a simpler operation, and resection of the medial ends of the second and third intercostal nerves is a good safeguard against sparing any anatomically abnormal filaments.

It will be noted that these operations are designed to make a preganglionic section of the vasomotor supply to the arm. Removal of the second, third, and fourth lumbar ganglia, the usual operation for sympathetic denervation of the lower extremity, is a purely preganglionic section for the foot. It is well known that the sensitization of sympathetic nerve endings to adrenaline is less after preganglionic than after postganglionic section; and as this sensitization plays a part in restoring a degree of vasoconstriction and so producing "recurrences" after operation for Raynaud's disease, the importance of planning a preganglionic operation is manifest. The uniformly better results obtained by operation for Raynaud's disease of the feet are often accounted for entirely on the ground that the lumbar operation is preganglionic, whereas in the thoracic operation some postganglionic elements also may be damaged. But it must be remembered that the disease

* From the Surgical Professorial Unit, St. Bartholomew's Hospital. Lecture given at the Royal College of Surgeons of England, Nov. 29, 1945.

is never as severe in the foot as in the hand. Ulceration and sclerodactyly of the toes are almost unknown.

It is often said that sympathectomy is effective only for a few months or a year, suggesting either that nerve regeneration is the rule or that the peripheral remnants of the sympathetic can function independently. But the sympathetic denervation following a well-planned and correctly executed operation is permanent, as shown by sweating tests in addition to vasomotor reactions. In progressive structural disease symptoms may persist and increase in severity; certain organs may be capable of acting without nervous control; but these manifestations must not be misinterpreted as evidence of failure of sympathectomy. They show that there may have been an error of judgment in selecting patients for operation, and so far as Raynaud's disease is concerned the predominant consideration must be the severity of the disease. Milder forms react favourably to sympathectomy: the operation is often futile in the presence of complications, especially scleroderma.

Obliterative Arteritis

Structural disease in the arteries of the leg is of many varieties with many different causes, ranging from injury to thrombo-angitis and arteriosclerosis—presenile, senile, and diabetic. But whatever may be the aetiology, it is the level of the block in the arterial tree which determines the clinical picture and the value of sympathectomy in its treatment. This important fact was demonstrated arteriographically by Boyd in 1938, yet it is still commonly taught that in any form of obliterative arteritis the disease runs a progressive course characterized by intermittent claudication in the early stages, followed later by rest pain.

Actually three clinical groups may be recognized. In one a main vessel such as the femoral or more commonly the popliteal artery is thrombosed and the presenting symptom is intermittent claudication in the calf muscles. Though the foot may be appreciably colder than the other—for the disease is often unilateral—the nutrition of the skin of the foot remains good and gangrene does not occur, since the proximal vessels alone are involved and an adequate collateral circulation develops to keep the distal vessels supplied. It must be noted that if the posterior tibial artery is blocked in this way intermittent claudication in the muscles of the sole of the foot is the result, but may be mistaken for "foot strain."

When the popliteal artery is thrombosed the sural arteries supplying the gastrocnemii are likely to be permanently blocked, causing irreparable damage because of the poor anastomosis within the muscle itself. It is therefore not surprising that sympathectomy is of little or no value for claudication arising in this way. If, however, the block is in the external iliac or femoral arteries the outlook is much better, since the post-operative improvement in the collateral circulation at the level of the block provides a considerable increase in the blood flow to the calf and we have had enough experience to convince us of the great value of sympathectomy in these more proximal blocks.

The diagnosis can be made by anyone who has learnt to feel the pulse in the popliteal artery. This is too often regarded as a difficult examination and is therefore neglected. All the pulses in the leg—femoral, popliteal, posterior tibial, and dorsalis pedis—must be felt for as a routine examination. More accurate information is obtained by oscillometry, but this is rarely required for diagnosis: it is of much value in assessing the severity of the disease, and is therefore useful for prognosis.

The intensity of postural colour changes in the foot, and the rate at which superficial veins refill after they have been emptied by elevating the limb, are helpful in indicating the degree of arterial obstruction.

These simple clinical methods usually provide all the information required to make a decision for or against sympathectomy, but brief reference must be made to the more complicated tests with local or spinal analgesia, and to arteriography. Spinal analgesia produces vasomotor paralysis, but the local blocking of sympathetic trunks with procaine has the advantage that muscle power is preserved, and so it is possible to test the effect upon claudication by getting the patient to carry out repeated movement against resistance under controlled conditions before and after the injection.

The duration of the sympathetic paralysis in these tests is brief, and whereas a good response is an argument in favour of operation, a poor response should not be sufficient in itself to deny a patient any chance of relief by sympathectomy. The improvement in collateral circulation which accounts for any post-operative improvement in the limb is a gradual process, and this explains the well-known fact that the results of sympathectomy for obliterative arteritis are usually better than tests by temporary nerve-blocking might lead us to expect.

It is often said that it is only when spasm is an important factor in the disease that sympathectomy is worth while. But an improvement in the blood flow after spinal analgesia is not evidence that spasm has been relaxed, for it is the reaction produced in any normal individual. It really means that the arteries are capable of relaxing fully when vasoconstrictor impulses no longer reach them, and a poor response indicates that the structural changes of degeneration or inflammation interfere with this normal reaction. No doubt spasm does play a part in obliterative arteritis, but its importance has been greatly exaggerated.

Another disturbing dictum is that sympathectomy is contra-indicated for claudication because, if the operation is successful and the circulation in the skin is improved, there must necessarily be a corresponding impairment of the deep circulation to the muscles. There is experimental evidence that sympathetic impulses are vasodilator to the arteries of skeletal muscle, and this provides a strong theoretical argument against sympathectomy for claudication. We have enough practical experience, however, to show that the operation is often beneficial, and our disappointments are to be explained by the obliteration of certain important muscular branches. Arteriography is the only pre-operative examination which can give us information on this point, but it must not be assumed that this test is often necessary, as the decision about operation can usually be made without its aid.

In the second clinical group the distal arteries, of the size of the plantar arch and its digital branches, are principally affected, and the characteristic features are pain in the foot at rest, often worst in bed at night, and nutritional changes in the skin—discoloration, ulceration, and gangrene. When dependent the toes or the whole foot are of a reddish-blue colour, and they blanch when elevated above heart level. Permanent discoloration of the affected parts heralds the onset of gangrene. The pulse in the main vessels, at the knee and even at the ankle may be present, and under such circumstances there is a abrupt drop in the surface temperature at the level of the arterial obstruction.

Sympathectomy can achieve a great deal in this distal group: the intense pain is often abolished, and if it persists it is because gangrene has already been established. The improvement in the circulation in the foot after two or three weeks may be sufficient to permit the successful local amputation of toes and if the stump fails to heal and pain recurs we know that major amputation is necessary, though it may be done below the knee.

In the third group there is widespread narrowing of the lumen throughout the arterial tree. Rest pain follows closely upon intermittent claudication, and gangrene of the toes occurs with loss of the pulse in the main vessels at the knee or at the groin. Under such circumstances sympathectomy is useless, and amputation above the knee becomes inevitable.

Arterial Injuries: Early Treatment

For small lacerations simple suture may be effective, and it is available fibrin foam is valuable in strengthening the repair. For more extensive wounds, in which suture would narrow the lumen unduly, complete division with axial anastomosis, or the re-establishment of the stream using a cannula or vein graft is preferable to complete division and ligation of each end, though the last may be the only possibility under conditions of stress. It is unfortunate that so often the conditions under which the wound has to be treated preclude any long and delicate procedure requiring special apparatus. The attempt to restore the lumen, even if it succeeds only for a short period, may be of the greatest value if it gives time for the establishment of a collateral circulation before the vessel finally becomes blocked.

It must always be remembered that, if the artery has to be ligated, double ligation by itself is not enough—in fact, it is dangerous because the longitudinal tension in the artery increases the risk of secondary haemorrhage. The damaged segment must be excised, and not for this reason alone, since it may set up spasm in the peripheral arteries. Excision may be regarded as the most radical form of periarterial neurectomy, which explains the post-operative improvement in the colour and temperature of the limb.

These remarks also apply to contusion of an artery such as may follow a "near miss." It may be a difficult matter to determine whether an artery is constricted because it is bruised or merely because it is in spasm, from which, of course, it may recover within 24 hours. If there is much discoloration it is more than likely that intimal damage will cause thrombosis, and it will usually be wise to excise the damaged portion. If in such a case it is decided to postpone excision because blood is still flowing through the constricted part of the artery the surgeon should be prepared to reopen the wound within 12 or 24 hours if there are no signs of improvement in the peripheral circulation. By this time the appearance of the vessel should indicate clearly what ought to be done.

When an artery has to be tied soon after an injury we would follow Makins's teaching and tie the companion vein. Reference will be made later to the inadvisability of tying the vein in the later stages.

Should sympathectomy be performed—or at least injection of the sympathetic supply with local analgesic solution or alcohol—to encourage collateral circulation after the sudden block of a large artery? There are animal experiments to show the value of sympathectomy under such circumstances, gangrene being greatly limited in extent or avoided altogether. There is also much clinical evidence of the value of sympathectomy as a preliminary to ligation of a main vessel, such as the popliteal artery, which is known to carry a serious risk of gangrene. But the assessment of sympathectomy after wounding of a main artery is a different matter, and we must await the full report of the Army's forward surgical teams before drawing any conclusions. My own experience of a few patients upon whom sympathectomy or injection had been performed shortly after wounding was unfavourable, but there may have been many successfully treated at the front who were therefore never sent to a vascular centre at the base.

There are, however, many other measures which should be taken to give the best chance of survival to a limb threatened with gangrene. The most simple, and perhaps the most important, is attention to the position of the limb. If it is too much elevated it will become pale and cold, because of the free drainage of blood out of a limb which has a very limited supply. If it is allowed to hang down it will become cold and blue from venous congestion. In both of these positions pain may be severe, but an optimum position may be found which is most comfortable, and in which the limb is warmest and of the best colour—it is usually with the limb extended at or just above heart level.

Reflex vasodilatation of collateral vessels may be brought about by heating the trunk and the healthy extremities, but the affected limb must be kept cool—either exposed to room temperature, or even cooled by a fan or ice packs. Warming a limb increases the local tissue metabolism and therefore the demand for blood, cooling has the opposite effect, and thus tends to reduce the need for oxygen to approximate to the amount which can be supplied by the impaired circulation.

Rapid transfusion of a pint (473 ccm) of blood may have the effect of forcing open collateral vessels, and is naturally especially valuable after severe blood loss.

Traumatic Aneurysm and Arteriovenous Fistula

In managing these later results of arterial injury it is most important to bear in mind that the safety of the limb depends upon delaying operation to provide time for an adequate collateral circulation to develop. As a rule there is no difficulty about waiting for three months or more when there is a fistula, since the force of the arterial pulse can diffuse easily into the open vein without much, if any, increase in the size of a false aneurysm sac. But with an injury which is purely arterial it

happens not infrequently that a steady increase in the size of the false sac, and in the severity of pain, necessitates intervention at an earlier date. In our own limited experience I have been forced to operate upon one brachial and three axillary false aneurysms within a month of wounding.

This experience has brought it home to me that the usual description of the production of a traumatic false aneurysm does not cover all of them. It is said that the haematoma which forms immediately upon the arterial wound becomes hollowed out like a cup, the original clot thus forming the wall of the sac. When this happens the wall must be fairly substantial and when organized should provide a strong fibrous barrier against the arterial pressure. Fresh layers of clot would form within the sac, so that spontaneous cure of a small aneurysm may follow. I believe that I have seen this occur in two of our soldiers.

But the aneurysms which demanded early operation gave clinical signs of having thin walls which yielded alarmingly to the pulse beat, and when they were opened there was a central mass of blood-clot surrounded by fluid blood within the very thin and imperfect sac wall formed by the surrounding muscle and connective tissue. I wonder how frequently this may be the state of affairs in traumatic false aneurysms. I suspect more frequently than current teaching would lead us to expect.

The definitive treatment of a traumatic aneurysm is extirpation of the sac whenever this is possible, but for the brachial aneurysm and two of the axillary aneurysms which required earlier operation I performed proximal ligation as close as possible to the aneurysm as a preliminary measure ("immediate proximal ligation"). This was done to reduce the size of the swelling, which threatened to rupture and also compressed neighbouring collateral vessels, to give further time for the development of a collateral circulation, and to facilitate the direct approach to the aneurysm itself three or four weeks later. For one of them—an aneurysm of the third part of the axillary artery—I combined the preliminary ligation with upper thoracic sympathectomy. The nutrition of the limb did not suffer, nor was the second stage of the operation rendered more difficult by the first stage of this double procedure.

Before deciding upon proximal ligation however, it must be clearly established that the lesion is purely arterial for this operation carried out on an arteriovenous fistula is fraught with grave danger and may be disastrous because the ligature interferes seriously with the developing collateral circulation at the level of the fistula, without impeding in any way the too easy return flow of blood into the veins. The danger was well illustrated by a patient transferred to us after ligation of the external iliac artery for a large varicose aneurysm of the femoral artery which also involved the origin of the profunda. As soon as he had recovered from the anaesthetic he was found to have an external popliteal nerve palsy and a cold painful foot which showed all the manifestations of severe ischaemia, though gangrene fortunately never became fully developed.

Diagnosis of Arteriovenous Fistula

An arteriovenous fistula can be recognized by the character of the bruit which is heard over it and is conducted for great distances proximal and distal to it. It is a continuous whirling clattering sound with a systolic crescendo, and well deserves its common designation of "machinery murmur." This should be sufficient in itself to distinguish a fistula from an arterial aneurysm with its systolic bruit.

There are many other associated signs, of which tachycardia and an increase in pulse pressure, owing to a drop in the diastolic blood pressure, are usually the first to be recognizable. The increase in pulse rate may not be noticed until the remarkable slowing of the pulse which follows obliteration of the fistula by digital compression has been observed. Only one of our 34 arteriovenous fistulae was associated with a cardiac murmur, and overfilling of superficial veins was rarely seen. These would appear to be later developments. All of our patients showed some degree of enlargement of the heart though very few were reported by the radiologist to be beyond the normal limits, the heart decreased in size in every one after closure of the fistula, yet it is clear that the diagnosis cannot be made by this method. The blood volume also was less after

closure of the fistula in every patient thus examined; but although it is possible in the end to say that the blood volume was shown to be increased on the average by about 15%, as the "normal" blood volume of a given individual is not known the pre-operative figure can scarcely be expected to provide evidence of a fistula.

It is much more difficult to decide where the fistula is and what vessels are involved. The loudness of the bruit is deceptive, and the determination of the point where pressure will abolish it may not be an accurate guide, because compression of the main vessel proximal to the fistula can give the same result. Arteriography, which is a great help when a main vessel is obstructed, usually fails to give a clear picture of a fistula, especially if it is large enough to allow the opaque material to diffuse rapidly into the vein. The track of the missile as shown by a through-and-through wound or a retained foreign body is often the best guide. But the decision usually has to be made by guesswork, and over and over again one has felt that the whole undertaking would have been so much simpler had one started with the information which has to be gathered in the course of the operation.

Treatment of Arteriovenous Fistula

We learnt that for safety it is necessary first to pass controlling tapes round the artery and vein involved as near as possible above and below the fistula without opening into it. In a bullet wound this may be comparatively simple, but as most of the wounds were caused by fragments of mortar shell or bomb, and as there had clearly been widespread haemorrhage with subsequent scarring inside and outside the vessel sheath, it was often a tedious dissection to clear the required length of the artery without damaging branches which were needed as collaterals. For the same reason it is often difficult to find healthy enough vessel wall to hold sutures, especially with varicose aneurysms, and I often felt humiliated by my lack of enterprise, for we were commonly reduced to quadruple ligation instead of carrying out the various forms of arterial reconstruction which we had hoped to attempt. On the other hand, it must be admitted that the results obtained by this "old-fashioned" method were not unsatisfactory.

We carried out lumbar ganglionectomy two to three weeks before all our operations for arteriovenous fistula in the lower extremity, with the single exception of a fistula between the peroneal artery and vein. We did this partly because our series was intended to link up with that of Lieut.-Col. A. M. Boyd, and I understood that this was also his practice; partly because, even in spite of waiting for a collateral circulation to form, damage might be done to it in the course of the dissection of the lesion, and the best possible collateral circulation therefore seemed to be desirable; and partly also because I knew that at other centres these fistulae were being treated without sympathectomy and I hoped our series might form part of an interesting controlled experiment. It may yet appear that we were unnecessarily over-cautious, but we never saw anything approaching gangrene of a toe. It would be wrong to draw conclusions from our small numbers—1 common femoral, 3 superficial femoral, 5 profunda femoris, and 7 popliteal lesions—but they all recovered with good function. The most critical was in the man who had already had his external iliac tied in continuity for a common femoral arteriovenous fistula: after a preliminary lumbar ganglionectomy I was forced to do a "triple arterial" ligation of his common, superficial, and deep femoral arteries, yet six months later he was able to walk four miles without pain, his residual disability being due to the ischaemic palsy of the external popliteal nerve, which was steadily recovering.

While quadruple ligation was in our experience the usual treatment for arteriovenous aneurysm, it may be possible to vary the procedure for aneurysmal varix. The scarring is less as a rule—no doubt the direct opening of the artery into the vein serves to limit the amount of blood extravasated into the surrounding tissues—and the dissection of the lesion is more straightforward. In two popliteal fistulae after the vein had been tied above and below the fistula it was possible to narrow down the communication till it could be safely ligated as though it were a branch of the artery, and thus the artery itself was spared.

Syndrome of Venous Obstruction

We were rather surprised, however, to note that these patients whose popliteal artery was preserved at the cost of the vein were less comfortable than those who had had both vessels blocked by quadruple ligation. They complained of aching pain and a bursting feeling in the lower leg, ankle, and foot produced by lowering the leg, which was more severe in the standing than in the sitting position, though sitting in one position for an hour or so may be almost intolerable. The pain may be relieved by walking for a short distance, but the quickest and most effective method of easing the pain is by lying down with the legs raised above "heart level." Swelling round the ankle may accompany the pain.

We came to recognize these symptoms of venous obstruction in many patients after injury or operation, but we also noticed that they are more marked when the arterial supply is unimpaired. Being persuaded that when ligating an artery immediately after an injury simultaneous ligation of its companion vein is advisable or is at least harmless, it took us a long time to realize that the different conditions under which ligation is undertaken at a later stage may call for different treatment. We had thought, with others, that in the treatment of an arteriovenous fistula, while immediate proximal and distal ligation of the artery would be sufficient to stop the vicious circulation the additional ligation of the vein would be better (Maybury 1945).

But the recognition of these symptoms as those of venous obstruction made us think again, and we were able to put the matter to the test in two fistulae—one between the profundus femoris artery and the common femoral vein, and the other between the superficial femoral artery and vein. For both of these we ligated the artery as close as possible above and below the fistula but left the vein intact. Neither of the patients complained of any of the symptoms of venous obstruction, and both had an adequate peripheral-arterial supply. It is therefore our impression that the collateral circulation resulting from an arteriovenous fistula safeguards the arterial flow to the limb after ligation of the artery, and that it is a distinct advantage to preserve the vein whenever this is possible.

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OBSERVATIONS ON CASES OF STARVATION AT BELSEN*

BY

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Belsen was a detention and not an extermination camp—that is to say, not a camp where organized extermination was carried out. Originally devised for perhaps a few thousand people, it became progressively more overcrowded in the early part of 1945 as the Allied armies closed in from west and east and forced the Germans to evacuate other concentration camps. At its peak it is said to have contained over 66,000 persons. The majority of these were Jews of Polish or Hungarian origin, but almost all countries and religions were represented. Many of the patients had spent only short periods in Belsen, having previously been interned in other concentration camps, such as the notorious one at Auschwitz. However the following notes, based on information given by a Hungarian woman doctor who was in Belsen for four months, convey some idea of the diet on which they had existed before the liberation of the camp.

In Jan., 1945, there was already very little food, but the quality was not so bad. Each person got one-sixth of a loaf a day (the loaf was black and weighed about 1.4 kg.), and sometimes potatoes and pieces of meat. For instance, there was occasionally a thin slice of sausage for supper and a little meat in the soup. On Sundays tinned meat was distributed; 15 persons shared one tin. By February everybody was getting

* An abstract of a report to D.M.S. 21 Army Group.

thin and the epidemic of typhus started. From then onwards the food steadily deteriorated. For a time they received soup on three nights a week and a little margarine or jam on the other four nights (only one twelfth of a loaf each during March and no bread at all in April). When there was no bread they were given mangel wurzels so that sometimes supper would consist of mangel and margarine. For the last fortnight before the camp was relieved (i.e. for the first fortnight in April) mangel-wurzels were the only food. These were distributed in a form of soup sometimes made from flour and salt, sometimes from neither. During this final period each internee was getting about a half-litre of this soup a day and nothing else. It is evident that throughout the last weeks of the camp's existence a gruesome form of the law of the survival of the fittest was in operation. The distribution of food was arbitrary, and those that still had some strength left obtained more than their share. An idea of the general conditions prevailing during the few weeks before the arrival of the British may be gained from the official statement that 10 000 unburied corpses lay among the living when the camp was first reached by them.

The original concentration camp, where the thousands of internees lay in crowded huts, was gradually evacuated between late April and the end of May. During this time innumerable seriously ill patients had of necessity to await their turn and to remain in the huts for a further period of days or even weeks under most unfavourable conditions. The patients were first seen after they had been brought from the concentration camp passed through the 'human laundry' for disinfection, and taken to beds in the barrack rooms that formed the 'hospital' accommodation. The following description of the clinical state is based on the appearance of patients in the middle of May—about four weeks after the first arrival of the British in the area.

A Typical Clinical Picture

The patient lay flat in bed without acute distress, yet with a miserable expression. He showed no interest in anything except his own needs, and appeared completely indifferent to the deaths that occurred so frequently. Moreover, death was a very public affair, since there were no screens and beds were crowded together. He talked with a whining voice and complained continually, usually of his severe diarrhoea. 'Schweizerei' was the commonest word. Second only to this complaint was unfavourable comment on the diet, the soup being blamed for the diarrhoea. Black bread was next in unpopularity. Patients who were a little less ill asked continually for white bread and complained that they were being starved. The truth was that there was enough food in terms of calories, but much of it was unpalatable. Although starving they were extremely particular about their diet and very difficult to please. Most of them did not fancy sweet things, and almost all wanted solid food rather than soup. When they wanted a drink, lemonade or something sour was most often asked for. They were all sure that soup and cold food made the diarrhoea worse. Although milk was available as an alternative to the full diet, many of the patients didn't want it, and, if given it, complained that they were not getting enough to support life. Because of their poor appetite, many of them left their food untouched, and as there were insufficient nurses to feed them their state rapidly became worse. The orderly simply put the food beside the bed and left it. Later the untouched food would be collected if the patient had not secreted it in his bedding for future use. Fear of being without food was so great that even dying patients would put bread and butter and meat under their pillows.

All the seriously ill were incontinent of faeces, and their beds were continually soiled as there were not enough orderlies to change them and, in any case, many of them had no sheets but simply lay on covered pallets. Almost every patient when first seen had diarrhoea—varying from two to three loose stools a day to an almost continuous production of watery stools. In the latter cases a movement of the bowels invariably followed immediately after taking anything by mouth, so that the patient was afraid to eat or drink. The stools did not as a rule contain blood or pus. They were often light brown in colour, smelt offensive, and consisted of fluid and lumps of undigested food.

On examination the patient had an appallingly thin face. The eyes were sunken and the cheek bones jutted out. These

extreme changes made all the patients look alike, so that it became difficult to distinguish one from another. This difficulty was accentuated by the fact that all patients had had the bulk of their hair shaved off. The skin of their arms, legs, and anterior abdominal wall was often rough, dry, and scaly. There were large bed-sores on the buttocks and the lower part of the back. The ribs stuck out, and it was difficult to use a diaphragm type of stethoscope because it simply bridged across two ribs and made no contact with the skin dipping down in between. The anterior abdominal wall was concave, falling away from the ribs above and from the anterior superior iliac spine below. The greatest muscle wasting was around the pelvis. The iscal tuberosities stood out prominently and the posterior surface of the ilium was almost devoid of muscle. There was a depression below the anterior superior iliac spine, and the hip flexed to the thigh in a fold. The legs were fuller owing to oedema, but this was often confined to the ankles and feet, so that a common appearance was of a leg as thin as a stick with a fat swollen foot on the end of it.

The face and hands were pale. The conjunctivae were pale but otherwise normal. The sclerae were clear. The tongue was often red and smooth around the edges but extensive changes were not seen. Koilonychia was not seen in a single case. Many patients had sore dirty mouths with gingivitis when they first arrived in the hospital area, but this condition cleared up in a few days without special treatment. Angular stomatitis was present in a small proportion of cases. The pulse was usually rapid (average approximately 100 beats a minute) and the blood pressure low (the average in 12 emaciated patients being 91/60). No abnormalities were discovered in the heart apart from a reduced intensity of the sounds.

The average weight of 18 males who were strong enough to stand upright on scales was 44 kg (38.7–59.7). 11 females averaged 35.3 kg (25–45.5), i.e. males just under 7 st., females about 5 st. In 11 of these 29 the previous weight was known and the loss was calculated as a percentage of the figure in health (the average loss was 38.8% (29–57%)—see Table I. The

TABLE I—Relation between Loss of Body Weight and (1) Haematocrit and (2) Serum Protein Concentration in 11 Subjects

Case	Date	Body Weight (Kg)			Loss of Weight (%)	H _{ct} (%)	Serum Protein (g/l)
		Now	Originally	Loss			
M 42	June 8	35.0	80.0	45.0	56	14	4.9
F 116	July 5	25.0	70.0	45.0	64	6	4.8
F 1	June 19	34.0	63.0	29.0	45	12	4.3
M 37	June 7	39.0	67.0	28.0	42	2.0	4.6
M 114	July 3	35.1	56.0	20.9	37	31.0	4.6
F 119	June 19	52.0	62.0	10.0	16	3	3.7
M 35	June 7	32.0	40.0	8.0	20	2.0	6.9
F 111	July 3	31.0	47.0	16.0	34	20.2	4.0
F 124	July 18	33.2	45.0	11.8	26	3.0	4.0
F 101	June 8	33.0	47.0	14.0	30	2.0	4.0
F 4	May 25	40.0	33.0	7.0	18	31.9	6.0

Ave. = 0.5 all 11 cases 38.8%

* B—All above patients except M 37 and *1-2 were non-tuberculous. No patient with more than a trace of oedema was included.

patients in this latter group were weighed at a comparatively late date (6 in June, 5 in July and 1 in May) and, although all were very thin and at least one case of extreme emaciation included (F 116) the figures do not on the whole represent the most severe cases. The thinnest patients died earlier and had been too ill to be weighed. As shown in the table, there was no correlation between percentage loss of body weight on the one hand and either haematocrit or serum protein concentration on the other.

Pulmonary Tuberculosis

Those who were free from pulmonary tuberculosis and had not reached the stage of extreme emaciation usually made rapid progress. They were soon able to eat almost any kind of food and their diarrhoea diminished although they continued to be very prone to loose stools and hurried evacuation of the bowels after meals. It was quickly realized that any patient whose progress was unsatisfactory was likely to have tuberculosis. During the last week in May it became possible to screen the chests of a few of those whose blood had been examined. Later some patients were transported to a static x-ray plant and chest films were taken. From this evidence and from post mortem findings it was possible to say with some precision that certain

patients had tuberculosis and that certain patients were free from it. There were left some who were not x-rayed and who had no clinical signs of the disease.

Of 36 males 13 were free from tuberculosis, 7 were probably free, and 16 were affected. Of 28 females 9 were free, 8 were probably free, and 11 were affected. Thus, in all, the incidence of definite pulmonary tuberculosis in this series was at least 27 out of 64 cases, or approximately 40%, and it may have been higher. This incidence is of course in no way representative of all the victims of Belsen Concentration Camp, since many were never admitted to the hospital area. Furthermore, patients whose blood was examined were selected mainly on the grounds of being more sick than the average. On the other hand, some were selected for reasons irrelevant to their state of health—e.g., because they were doctors. All that this figure represents, therefore, is the approximate incidence of pulmonary tuberculosis among those who appeared rather more ill than the average. The incidence in those who died was probably considerably higher. Thus among 18 cases in which the cause of death was established an extensive tuberculous infection was present in 12.

TABLE II.—Summary of Blood Findings

Group	No. in Group	R B C per c mm	Hb (%)	Hb (g. %)	Hmt. (%)	M.C.H.C. (%)	C I	M C V. (μ^3)	Serum Protein (g. %)
Starvation cases (males)									
Non-tuberculous									
Good evidence	9	3,403,000	62.2	9.7	30.9	31.4	0.91	91.4	5.6
Insufficient evidence	7	3,610,000	66.9	10.4	33.6	30.9	0.93	93.4	4.7
Tuberculous									
Pleural effusions only	5	3,450,000	61.4	9.6	29.8	32.2	0.89	86.6	4.8
Active pulmonary Tb	9	3,380,000	60.1	9.4	29.8	31.8	0.90	88.6	5.4
Average	30	3,450,000	62.5	9.8	31.0	31.5	0.91	90.2	5.2
Starvation cases (females)									
Non-tuberculous									
Good evidence	8	3,310,000	60.2	9.4	29.3	31.7	0.91	89.0	4.3
Insufficient evidence	6	3,060,000	52.7	8.2	27.5	29.9	0.86	90.0	5.2
Tuberculous									
Active pulmonary Tb	9	3,130,000	57.9	9.0	29.2	30.9	0.92	94.0	5.2
Average	23	3,180,000	57.3	8.9	28.8	31.0	0.90	91.0	4.9
Starvation cases (children)	7	3,520,000	61.2	9.6	29.9	31.9	0.87	85.5	6.0
Controls (healthy British males)	12	5,255,000	98.7	15.4	47.2	32.7	0.94	90.0	6.7

It was noted that some of the very frail patients remained afebrile despite tuberculosis—e.g., M 37, an extremely emaciated man of 50 years, whose temperature, taken twice daily for the last three weeks of his life, never exceeded 37°C., but who at necropsy was proved to have had active recent tuberculosis with cavitation. It was also frequently observed that patients coughed far less than would be expected from the extent of the pulmonary lesion, and several patients with active infection did not cough at all.

Typhus

The typhus epidemic in Belsen apparently started in February, and cases continued to occur until about the end of May. It was very difficult to discover in any individual cases whether or not a patient had had typhus, because so many had been desperately ill and weak for some time before the liberation and could not give any exact description of the kind of illness they had had. Weil-Felix tests were carried out in 48 cases: 21 were positive in a titre of 150 or more; 27 were negative or gave titres lower than 150. Of 26 of these tests made in May, 12 were positive; and of 22 made in June or early July, 9 were positive. Of 19 patients who said they had not had typhus 10 had negative and 9 had positive Weil-Felix reactions. Of 9 patients who said they had had typhus 5 had positive and 4 had negative Weil-Felix reactions. (I am indebted to Majors Griffin, Morris, and Prior for performing these tests.)

The general conclusion reached must be that the majority of patients in Belsen had recently had typhus.

Blood Examinations

Notes on Methods.—(1) All blood examinations were made on venous samples. (2) Haemoglobin was estimated as alkaline haematin; the majority of the measurements were made in a photo-electric colorimeter. Solutions were prepared from

crystalline haemin (81 mg. to a litre of N/10 NaOH) to make standards corresponding to 15.6 g. haemoglobin % (King *et al.*, 1937). The average density of these solutions, when checked against a standard grey screen, was found to be within 0.5% of that given by King *et al.* (3) Serum protein concentrations were deduced from specific gravities, using the copper sulphate method of Phillips *et al.* (1945). (4) Plasma volume was estimated by the dye dilution method, using Evans blue. A single blood sample was obtained 10 to 15 minutes after the injection of the dye. The dyed plasma was sometimes measured directly; in other instances the plasma was first treated to remove other pigments (methods of Crooke and Morris, 1942, or Morris, 1944).

Findings

(The majority of the estimations were made between May 14 and June 14—that is to say, within 4 to 8 weeks of the first arrival of the British Army in Belsen.)

Widespread Anaemia (see Table II).—75 starvation cases (36 males, 32 females, 7 children) were tested. Many of them were chosen because they were pale or oedematous or rather more wasted

than the average, but some included were less severe cases of starvation who later showed rapid improvement. With the exception of a few severely dehydrated patients (excluded from this series), all persons examined were found to be anaemic. Tuberculosis was evidently not the main cause of this anaemia, since there was very little difference between the Hb levels of the non-tuberculous and the tuberculous cases.

Haemoglobin Values.—The average haemoglobin in 30 males was 62.5%, in 23 females 57.2%, and in 7 children 61.2%. Almost all these observations were made between the middle of May and the middle of June (males, 19 in May and 11 in June—latest June 19 females, 17 in May, 2 in June, 4 in early July). One feature of the observations was the comparatively small scatter of the haemoglobin values. The following indices were calculated:

Group	No	Mean Hb %	S D	Coeff of Variation
Belsen males	30	62.5	7.3	11.6
Belsen females	23	57.3	9.3	16.6
Controls (males)	12	98.7	4.6	4.6

Characteristics of the Anaemia: Normochromic, Normocytic.—A striking feature was the absence of any evidence of iron deficiency. Thus the M.C.H.C. in a group of 30 males was 31.8% (lowest 29.4%), and in a group of 23 females 31.0% (lowest 26.7%). These averages do not differ materially from the average M.C.H.C. found in a group of 12 healthy British Army personnel—viz., 32.7%. Mean corpuscular volumes showed slightly larger variations than those of the control group; but average figures were normal—namely, 90.2 μ^3 in a group of 30 males and 91.0 μ^3 in a group of 23 females, compared with 90.0 μ^3 in the control group. The examination of stained films confirmed the absence of any significant change in average cell size, though some cases showed a rather greater degree of anisocytosis than normal. The features of normocytosis and normochromia of the erythrocytes suggest a simple diminution of production rather than any abnormality of maturation. This conclusion receives support from examination of the few marrow films that were made, on which Dr. J. F. Louit reported as follows:

"Erythropoiesis is normoblastic, and so far as one can tell there is no maturation defect." The reduced metabolic rate which is known to prevail in starvation was probably one of the chief causative factors in this diminution of production, and doubtless in many cases infection of one kind or another had also contributed to a depression of bone marrow. The lack of correlation between haemoglobin and serum protein levels (see below) suggests that protein deficiency was not the main cause of the anaemia.

Reticulocytosis Present.—Reticulocyte counts were made on 20 patients who had been on a normal diet for at least five weeks but had received no iron or liver or other special treatment. The average was 1.6%. In 10 non-tuberculous subjects the average was 1.9% (range 0.6-3.6%); in 10 tuberculous subjects the average was 1.3% (range 0.5-2.4%).

Hypobilirubinemia.—Although serum bilirubin estimations were not made, it was repeatedly observed that the sera were pale and often almost colourless.

Leucocyte Counts, including Differential Counts.—Only a few leucocyte counts were made; these were within normal limits. The height of the leucocyte column in the centrifuged haematocrit was measured in all cases. The average was 0.8 in 40 males and 0.9 in 26 females. In 12 normal soldiers the average was 0.8. In 7 of the 66 cases the column was less than 0.4 of a division. However, 5 of these 7 died within four days of taking the samples. There is therefore some evidence that leucopenia was not a striking or consistent feature of these cases of starvation.

Serum Proteins.—Total serum proteins were estimated in 43 cases. In 18 males the average figure was 5.2 g.%. In 19 females the average was 5.0 g.%. In the oedematous cases the levels were on the average lower than in the non-oedematous, although in many individual cases there was a lack of correlation between total serum protein concentration and degree of oedema (see Table III).

TABLE III.—Relation of Serum Protein Levels to Oedema

Group	No. of Cases	Average Serum Protein Conc. (g. %)	Range of Serum Protein Conc. (g. %)
Severe oedema	4	4.0	3.6-4.4
Moderate oedema	10	4.7	3.5-6.5
Slight oedema	13	5.1	4.5-5.6
No oedema	23	5.8	4.5-7.5

N.B.—Slight oedema was defined as oedema involving only the feet and ankles. Moderate oedema was defined as oedema involving the legs as well as the feet; in some of these cases the oedema extended to the lower part of the back; in others it did not extend above the knee. The term "severe oedema" was reserved for those cases which had generalized oedema involving the face. In all these cases the urine was either completely free from protein or contained at most a trace.

Lack of Correlation between Haemoglobin Values and Serum Protein Concentrations.—No correlation was observed between haemoglobin levels and serum protein concentrations. It is noteworthy that the average haemoglobin level was proportionately more depressed than the average serum protein concentration—viz., average haemoglobin level about 60% of normal, average serum protein concentration about 75% of normal.

Blood Volumes (see Table IV)—Plasma volumes were estimated in 6 males and 10 females, and blood volumes were deduced there-

TABLE IV.—Blood Volumes

Case	Weight (kg.)	Oedema	P.V. (litres)	Hmt (%)	B.V. (litres)	S.Pr. (g. %)	B.V. in c.cm., kg.
M 2*	43	+	2.9	28.6	4.1	—	95
M 9*	43.5	+	2.5	40.2	4.3	—	110
M 23*	39	—	3.4	32.1	5.0	5.5	125
M 30*	43	+	2.7	35.0	4.1	—	95
M 45	45	++	3.2	26.0	4.3	5.3	99 (a)
M 50	45	—	2.7	32.6	4.0	—	89
AV.				29.0 (6 cases)	4.3	—	—
F 5	(Very wasted)	++	2.2	32.0	3.0	5.2	—
F 100	49.3	++	2.0	28.0	3.6	4.7	69
F 110	59.3	+++	2.5	28.0	4.0	5.7	61
F 111	47.0	++	2.5	36.8	4.0	—	84
F 112	31.0	—	2.3	20.2	2.9	4.6	93
F 113	35.1	—	2.2	29.0	3.1	5.6	88 (b)
F 114	36.0	+	1.7	37.2	2.7	5.0	112
F 116	25.0	—	2.4	36.0	3.7	5.5	103
F 117	36.0	+	2.3	31.4	3.3	4.0	92
F 122	36.0	++	1.9	33.0	2.8	5.0	85
F 124	33.2	—	2.7	26.5	3.7	—	63
F 125	59.0	+++	—	26.5	3.7	—	—
AV.				29.0 (10 cases)	3.7	—	—

* In these cases the dyed serum samples were not measured directly, as they were in the others, but were first treated to remove other pigments, etc.
(a) Blood volume estimated 12 hours after a serum transfusion, which had lowered the haematocrit from 29% (before the transfusion) to 26% (at the time the blood volume was estimated).
(b) Blood volume estimated after an infusion of 500 c.cm. inulin-saline solution. The haematocrit before the infusion started was 32% and at the time of estimation of the blood volume 30%.

from, using haematocrit readings. The average figure for total blood volume was 4.30 litres in the males and 3.17 litres in the females. It is felt that the figures for females are the more reliable, as these were, with one exception, estimated by the same technique—namely, the direct measurement of the dye in serum.

In 12 of the 15 cases in which body weight was known, the relation of blood volume to body weight varied from 85 to 125 c.cm./kg., averaging 101 c.cm./kg. in 6 males and 95 c.cm./kg. in 6 females. These figures are high compared with the normals of Gibson and Evans (1937)—viz., 77.7 c.cm./kg. for males and 66.1 c.cm./kg. for females. Thus it appears that blood volume in seriously undernourished subjects is not reduced in proportion to body weight. Three other females were found to have far lower ratios of blood volume to body weight—viz., 61, 63, and 69 c.cm./kg. respectively. These three patients all had considerable oedema. However, at least one other patient with a corresponding degree of oedema did not show this relation. All that can be said, therefore, is that, in the presence of oedema, blood volume either bore the usual relation to body weight or was relatively lower. In Case F 110 the blood volume was estimated a second time, after a considerable amount of oedema fluid had been lost; a slightly higher figure was obtained on the second occasion, although the patient had lost 12 kg. in weight. This observation is in agreement with the hypothesis that blood volume in severely oedematous cases is related to the tissue mass and is not increased in proportion to the extra weight of oedema fluid.

Serum Urea.—Serum urea was estimated in over 40 patients, and in some cases serial observations were made. Excluding children and five severely dehydrated adults, the average in 33 cases was 32 mg. per 100 c.cm. In the five adults the figures were 157, 79, 63, 67, and 70 mg. respectively.

Sedimentation Rates.—During May and June, when other haematological observations were being made, it was repeatedly observed that blood samples sedimented very rapidly. The sedimentation rate was recorded in 28 cases between June 7 and July 6 and was increased in every one, the drop varying from 22 to 69 mm. in one hour, with an average fall of 53 mm. In 12 of these patients who were radiologically free from tuberculosis the average sedimentation rate was 49 mm. in one hour, and in 7 of the 12 we had probably not had recent typhus (Weil-Felix reactions negative in all dilutions, 2 positive in 1 in 8% but not higher); the average was 45 mm. in one hour. The average haematocrit reading of these seven cases was 35.0 and the average serum protein 6.7 g.%. It appears, therefore, that a rapid sedimentation rate is characteristic of starvation cases whether or not infection is present, and that the main cause of this increase in rate is not simply the anaemia of starvation.

Serial Blood Examinations.—Great difficulty was encountered in following up patients, because as soon as they were well enough they were liable to be moved to other camps or to be evacuated from Belsen to their native lands. However, serial observations over periods ranging from 9 days to 45 days were made on 22 patients, and some evidence was obtained that recovery from the anaemia did not depend on the administration of liver or iron. For instance, in three patients who were closely observed and were known to have had no medicine or injections and to have received simply the ordinary diet, the changes in the blood were as follows.

Case	Date	R.B.C.	Hb (%)	Hmt (%)
M 2	May 14	2,790,000	57	25.5
	June 9	3,920,000	51	37.6
M 8	May 31	4,010,000	65	32.0
	July 7	4,650,000	76	35.6
M 15	May 30	2,610,000	51	24.6
	June 21	3,640,000	66	36.8

These rates of recovery were greater than those observed in many of the other cases, and some patients showed a very slow rate of improvement, with some tendency of the rate of increase in haemoglobin value to lag behind the increase in red cell count. Very few of the tuberculous patients showed any increase in values, and a few became more anaemic while under observation.

Serial Observations on Serum Proteins.—Between six and ten weeks after the initial liberation of the camp serial observations on serum protein concentration were made in 16 cases over periods extending from 12 to 45 days (average, 23 days). In 11 cases an increase of between 0.8 g. and 3.3 g. % was observed (average, 1.7 g. %). In 5 other cases changes from a fall of 0.2 g. % to a gain of 0.4 g. % were found. In three of these the period of observation was short (12 to 15 days), but in two the period was 37 days. These two patients were non-tuberculous; one had no diarrhoea and the other only very slight diarrhoea. The failure of the serum protein to show an appreciable increase in these two is attributed primarily to a poor intake, since both had indifferent appetites and ate but little. It is of interest that as late as seven weeks after the liberation (that is to say, the first week in June)

none of the 16 cases appeared to have reached their maximum serum protein concentration, since even cases which had by this time reached figures within the normal range showed a further increase subsequently.

Urinary Examinations.—In the majority of starvation cases examined no abnormalities were found in the urine. However, in the remainder two features occurred unduly frequently. First, urinary infections were found in five out of 21 cases taken at random; secondly, evidence of subacute nephritis was present in six out of 14 cases of persistent oedema examined about two months after the liberation of the camp. The most likely cause of this nephritis seems to be typhus.

Renal Function

From the evidence of the estimations of blood urea alone it may be concluded that there is no gross disturbance of renal function in cases of starvation, except in so far as extrarenal azotaemia occurs when there is severe dehydration.

Evidence of a normal glomerular filtration rate in emaciated patients was obtained by estimating the inulin clearance in two female subjects who had lost 36% and 37% of their body weight respectively. The actual inulin clearances observed were within normal limits (see Table V), and when corrected for surface

thus appears that in at least some cases of "hunger oedema" which clear up slowly there is an impairment of renal function, although the cause of this is not known.

Inulin and diodone clearances were carried out in two patients who had been diagnosed as cases of nephritis. Very low clearances were found in both instances.

[In estimating inulin and diodone clearances the routine followed did not differ in any essential from that described by Smith (1943) and co-workers (Goldring *et al.*, 1940). Inulin was estimated by an unpublished method of Dr. S. W. Cole, and diodone by Alpert's (1941) method.]

Summary

Observations were made on Central European subjects, of both sexes, who had survived conditions of very severe starvation. The average loss of body weight in a group which included some of the less severely affected cases was 39%, and in individual cases the loss was as great as, or slightly greater than, 50% of the original weight. The majority of the patients had recently had typhus, and in one group examined 40% had pulmonary tuberculosis.

All subjects examined were anaemic, the average Hb value in 30 males being 62.5% (9.8 g.%), and in 23 females 57.3% (8.9 g.%); children were similarly affected. In all cases the type of anaemia

TABLE V.—Renal Function Tests (Inulin/Diodone Clearances) in a Miscellaneous Group of Starvation Cases

Patient	Age	Weight (kg.)	Previous Weight (kg.)	Height (cm.)	Surface Area (sq. m.)	B.P. during Clearances	Plasma Clearances (c.cm./min.)				T _M D mg./min.		
							Inulin		Diodone		Obs.	Corr.	
							Obs.	Corr.	Obs.	Corr.			
(A) Simple Cases of Emaciation without Oedema and without Albuminuria													
Normal female*	—	—	—	—	1.73	—	—	117	—	594	—	42.6	
F 124	25	33.2	48.0	153	1.22	102/70-108/76	88	124	241	340	32.0	45.3	
F 114	21	35.1	56.0	150	1.24	88/52-88/60	102	141	501	710	—	—	
(B) Cases of Generalized Oedema without Albuminuria													
F 110	50	59.3	80.0	160	1.62	90/60-92/60	66	70	182	194	—	—	
.. ..	—	42.0†	—	—	1.40	—	—	80	—	230	—	—	
F 122	50	43.9	80.0	155	1.39	90/60	43	53	228	283	17.7	22.0	
(C) Cases of Nephritis													
F 102	21	—	—	—	—	132/84	58	—	211	—	15.8	—	
F 116	23	25.0	50.0	159	1.11	74/54	41	64	135	210	—	24.7	

* From Smith (1943). † Weight after loss of most of oedema fluid.

(N.B.—Figures are based on the average of three clearance periods in those cases in which only the inulin clearance (C_{IN}) and the diodone clearance (C_D) were measured. When the maximal secretory power of the tubules for diodone (T_{MD}) was also measured, C_D is based on two periods, T_{MD} on two periods, and C_{IN} on four.)

area were slightly higher than the normal average. The renal plasma flow, as estimated by the diodone clearance, was normal in one case but reduced in the other. It is possible that in the latter case apprehension was responsible, since the patient was rather restless throughout the test. In any event, the maximum secretory power of the tubules in this case, as measured by the diodone excretion at a saturation level, was normal. In both these patients blood pressure was low, and it is of interest that renal function was still normal when, as in the first case, the pressure was approximately 88/58.

Inulin and diodone clearances were also measured in two patients with severe generalized oedema. One of these patients was of great interest from several points of view. She had very swollen face, swollen arms, ascites, oedema of the back, and gross oedema of the legs and feet. Her urine was tested repeatedly and never contained albumin. Her blood pressure was 90/60; there was no dyspnoea or engorgement of the veins. Her serum protein concentration when she was first seen on June 29 was 4.2 g.%. Although there was thus evidence of considerable protein deficiency she had retained quite a large amount of her body fat, as was discovered when "cutting down" to expose a vein. While she was still in this very oedematous condition her renal function was estimated. The inulin clearance was only 66 c.cm./min. and the diodone clearance 182 c.cm./min. Even if these figures are corrected for surface area, using the weight to which the patient was reduced after the loss of most of the oedema fluid, they are still below normal (inulin 80 c.cm./min., diodone 230 c.cm./min.).

The second case of gross oedema with hypoproteinaemia (serum protein 4.0 g.%) but without albuminuria gave similar results. This patient died shortly afterwards, and it was thus possible to examine kidney sections. The only histological change was a slight desquamation of tubular epithelium. It

was the same—namely, normocytic and normochromic—indicating a reduction in the total output of erythrocytes from the marrow rather than any interference with maturation. There was little difference in haemoglobin values between tuberculous and non-tuberculous subjects, indicating that tuberculosis was not the chief cause of this anaemia. In uncomplicated cases, recovery from anaemia proceeded satisfactorily with ordinary feeding and without the addition of liver or iron to the diet.

Total serum proteins were reduced to an average figure of 5.1 g per 100 c.cm. (normal British soldiers, 6.7 g. per 100 c.cm.). There was a correlation between the degree of oedema and the total serum protein levels when averages were compared, although in individual cases there was some overlap. The serum protein levels in individual cases were not correlated with Hb levels. The return of serum protein concentrations to normal was slow, and on the average was still incomplete two months after the camp was liberated.

Blood volume was reduced, but to a less extent proportionately than body weight. In oedematous subjects the blood volume tended to be lower relative to the total body weight.

There was no evidence of any interference with renal function in severely starved non-oedematous patients, apart from cases complicated by dehydration. However, two subjects with gross oedema (severe hypoproteinaemia; no albuminuria) showed considerably reduced clearances of inulin and diodone.

Starving patients are fastidious about their food, and it does not suffice to provide a diet which merely satisfies theoretical nutritional requirements.

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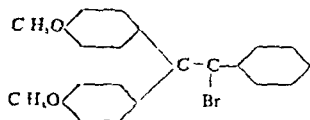
D.B.E.: A NEW SYNTHETIC OESTROGEN

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Robson and Schonberg reported in 1942 the synthesis of the pro-oestrogen α -di (p ethoxyphenyl) β phenyl bromoethylene the formula of which is



This substance known as DBE is absorbed from the alimentary tract but differs from other orally active oestrogens in having a prolonged action whether it is given by mouth or by injection. By experiments with oophorectomized mice Robson and Schonberg showed that DBE has an oral threshold similar to that of oestradiol and much higher than that of stilboestrol. Its action differs from those of oestradiol and stilboestrol in that a small increase in the dose produces a great prolongation of action. It appears therefore, that DBE is stored in the body and slowly released. The main site of storage was shown to be the fat (Robson and Ansari 1943) substantial amounts being present in the body fat of mice a fortnight after administration, by which time it has been eliminated from other tissues.

At first sight it seemed doubtful whether such a substance would be of more than academic interest. Further consideration suggested the possibility that in certain menopausal patients who are liable to hypochondriasis some psychological advantage might be obtained by the administration of a drug at say, weekly intervals rather than several times a day or even daily. It was therefore decided to investigate the effects in women complaining of severe menopausal symptoms. Such patients are especially suitable for trials of oestrogenic substances for the effects may be numerically, if roughly, gauged by the number of "flushes" and more exactly by the examination of vaginal smears. During the trial three cases of carcinoma of the prostate became available and it was hoped that in these the level of serum acid phosphatase might act as a numerical expression of oestrogenic effect. Unfortunately the shortage of staff in pathological laboratories at present made it impossible to carry out this plan completely. The effects were examined also in three cases of uterine atrophy.

Menopausal Patients

Six patients were chosen in whom the only menopausal symptoms were hot flushes. They were all women whose general demeanour and past history suggested that they were mentally stable. It is of interest in this connexion that one patient not included in the series was entirely unrelieved by DBE and by stilboestrol but was completely cured by phenobarbitone.

Each patient was given an inert tablet for a month before the trial and the daily flushes were counted. The daily average was in no case significantly affected by "dummy" treatment.

Case 1—Average in the control period 20 flushes a day. Preliminary experiments with doses of from 0.1 g and upwards showed that clear cut results were not obtained with a single dose of less than 1 g. A dose of 1 g was followed four days later by a steady fall in the number of flushes the improvement reaching a maximum in a fortnight. A maintenance dose of 300 mg weekly kept the flushes at the intended level of about 4 a day. Of late, on the same dose, they have averaged 2 a day.

Case 2—Average in the control period 22 flushes a day. Preliminary experiments with doses of from 0.5 g and upwards showed that satisfactory results were not obtained with a single dose of less than 1 g. This dose was followed by an immediate fall to an average of 3 flushes a day, which was maintained for 3 weeks. A maintenance dose of 300 mg weekly maintained the flushes at an average of 5 or 6 a day, though an occasional additional loading dose has been needed.

Case 3—Average before treatment, 18 flushes a day. The effect of a single dose of 1 g was studied. The improvement was not

evident until the beginning of the second week, but continued steadily for 6 weeks, when a sudden deterioration occurred. Daily vaginal smears showed an improvement, beginning on the sixth day. They became normal on the eighth day, and despite continued flushes remained substantially normal until the clinical deterioration set in this deterioration being "mirrored" by the histological appearances. The deterioration was stopped by 500 mg. and maintenance dose of 300 mg has been needed.

Case 4—This patient had originally been treated successfully with another oestrogen and had relapsed after cessation of treatment. She was having about 4 flushes a day. One gramme of DBE was given. An improvement began in a few days and with a maintenance dose of 200 mg weekly, flushes entirely disappeared in 10 days. When the maintenance dose was reduced to 100 mg the flushes gradually reappeared in the succeeding fortnight.

Case 5—Before treatment this patient had only 2 or 3 flushes a day but was greatly disturbed at night, when the flushes usually occurred 4 times and at the worst were almost continuous. She was given 1 g of DBE with no maintenance dose. Improvement began in 3 days and in the second week the flushes averaged 2 in the 24 hours. This state was maintained for a further 6 months when a gradual deterioration set in. The loading dose was repeated and she has remained well on a maintenance dose of 200 mg weekly.

Case 6—Before treatment she had 12 flushes a day. A dose of 1 g of DBE gradually reduced her flushes. After 3 weeks they averaged 1 or 2 a day. On a maintenance dose of 200 mg weekly they ceased altogether, but when this was reduced to 100 mg they reverted in a month to 6 or 7 a day.

Cases of Carcinoma of the Prostate

Case 7—Aged 76. Admitted to hospital under Mr R. H. Gardiner complaining of symptoms of prostatic enlargement for over a month. The prostate seemed to be benign. The vasa were tied and a suprapubic cystostomy performed on Oct. 5, 1943. He was discharged and readmitted for the second operation. Cystostomy on Jan. 21, 1944, disclosed that the prostate was malignant and inoperable. He was transferred to a medical ward, where further investigation failed to reveal the presence of metastases. The serum acid phosphatase was 30 units per 100 ccm. He was given 1 g of DBE. The S.A.P. was re-estimated by Dr Douglas Robertson at frequent intervals until April, 1944, when shortage of staff made a continuation impossible. During this time he received no additional DBE as it was hoped that the biochemical estimations would indicate the necessary frequency of administration. He began to micturate per urethram, the suprapubic opening closed, and he was discharged in good order on March 8, 1944. When it became impossible to continue the frequent S.A.P. estimations he was given 1 g of DBE and a weekly maintenance dose of 200 mg. He remained well until Jan., 1945, when he began to have dysuria and frequency of micturition with occasional incontinence. The symptoms increased in severity and he was readmitted on Feb. 20. There was no change in his clinical condition and x-rays still failed to show any metastases. His S.A.P. had however risen to 144 units. His urine was grossly infected with *B. coli*. When this had been treated he became symptom free and insisted on going home. Meanwhile he was given 3 g of DBE with a maintenance dose of 0.5 g weekly. The S.A.P. dropped only to 120 units and thereafter rose again. The maintenance dose was then increased to 1 g weekly but with little effect. On June 8 a change was made to 5 mg of stilboestrol three times a day. On July 2 the S.A.P. was 43 units per 100 ccm.

Case 8—Aged 70. This patient was admitted on June 16, 1942, with the symptoms of enlarged prostate. Carcinoma was suspected for he had severe pain in the lower part of the back and in the thighs. The x-rays showed osteoarthritis only and the S.A.P. was 0.9 unit. The prostate was enucleated by Mr Gardiner and was found by Dr R. W. Searf to show an area of epithelial-celled carcinoma. He was given 1 g of DBE with a maintenance dose of 200 mg weekly, and has remained free from prostatic symptoms since. X-rays show no secondaries and the S.A.P. has remained normal.

Case 9—Aged 51. The patient was under treatment for post-operative pneumonia following appendicectomy. There had been no symptoms of prostatic enlargement before his admission but while in bed in hospital he began to have slight difficulty in beginning micturition and to complain of backache which rapidly became very severe. The prostate did not seem to be enlarged but it was hard. X-rays showed extensive secondaries in the pelvis, sacrum, lower lumbar vertebrae and ribs. The S.A.P. was 462 units. Treatment was begun with 1 g of DBE. Relief from pain was satisfactory for a day or two after each dose, but gradually increasing doses up to 5 g weekly failed to prevent a steady rise in the S.A.P. After seven weeks it had risen to 105 units. DBE was stopped and 5 mg of stilboestrol t.d.s. given instead. The S.A.P. fell to 89 units in three weeks.

Patients with Uterine Atrophy

Case 10.—Her periods began at 14 and occurred regularly for 3 days at intervals of 30 days until the birth of a child at the age of 23. After 10 months of lactation, menstruation was again normal for three years. It then ceased, and had not occurred for 17 months before her first attendance. The uterus was found to be very small. Treatment with D.B.E. was begun, but soon afterwards she received serious injuries in an air raid and was lost to view. In Oct., 1944, treatment was begun again with 1 g. of D.B.E. and a weekly maintenance dose of 200 mg. Treatment for 5 months produced neither menstruation nor increase in size of the uterus.

Case 11.—Since the menarche began at 14 the periods had occurred at irregular intervals of 2 to 6 months. The uterus was minute and the physical make-up suggested hypogonadism. A loading dose of 1 g. of D.B.E. with a maintenance dose of 200 mg. weekly produced no change in three months. During the succeeding three months she was given 5 mg. of oestradiol benzoate intramuscularly twice weekly. The uterus increased in size and menstruation occurred more frequently. A change to oestradiol benzoate, 5 mg. twice weekly during the first fortnight only of the intermenstruum, produced regular menstruation, which has been maintained less regularly since cessation of treatment.

Case 12.—This patient complained of dysmenorrhoea. The menarche had begun at 11 and menstruation had occurred for 5 days every 21 to 56 days. It was very scanty. The uterus was minute. During a period of a year a total of 12 g. of D.B.E. was given. Her menstruation became distinctly more regular (3-4/28-33), but the dysmenorrhoea was not relieved and the size of the uterus was only doubtfully increased.

Toxic Effects

D.B.E. is of very low toxicity. Two menopausal patients treated with the substance felt sleepy on the day after each administration. The symptom was not regarded as serious by the patients, and was mentioned only in answer to a leading question. Lassitude occurs occasionally during the administration of other oestrogens. Only one patient complained of nausea. This symptom occurred on the same day as the administration of the loading dose, and was not severe. The patient who received 5 g. a week had no unpleasant symptoms. Uterine bleeding, leucorrhoea, and headache were not reported.

Discussion

It is clear from the results obtained in six patients suffering from the vasomotor symptoms of the climacteric that D.B.E. given orally is an effective oestrogen with a prolonged action. A loading dose of 1 or 2 g. brought relief of symptoms for two or three weeks. The good effects can be maintained by a weekly dose of 100 to 300 mg.

Less satisfactory results were obtained in three cases of uterine atrophy; but little can be learned from this, for the response of this condition to other oestrogens is very uncertain. D.B.E. failed in carcinoma of the prostate. One of the three patients has remained well for three years, but his prostate was removed at so early a stage of the disease that it is possible to ascribe his good health to the operation rather than to the medical treatment. The other two patients showed no significant improvement under treatment with D.B.E., but responded dramatically to stilboestrol.

This failure may be due to insufficient dosage. It is possible to judge this question by two criteria—comparison with stilboestrol or comparison between the two classes of patient. It is difficult to compare the effective dose of two oestrogens which are absorbed and destroyed or excreted at different rates. Judging from mouse experiments (Robson, personal communication) it would seem that from 20 to 50 times as much D.B.E. is required to produce the same effect as stilboestrol, but allowance must be made for species differences. Taking this figure with reservations, it would appear that at the time of maximum dosage one patient with carcinoma of the prostate was having the equivalent of 80 to 200 mg. of stilboestrol a week and the other 200 to 500 mg. Both responded dramatically to about 100 mg. of stilboestrol weekly. Moreover, one was given about four times and one about ten times the amount required to relieve menopausal symptoms and to change the vaginal smear. It must be remembered that some menopausal women are relieved by extremely small doses of oestrogens, but, taking the two criteria together, it seems unlikely that the dose was too low in the carcinoma cases. The possibility should be borne in mind that there may be a sex difference in the rates of absorption of oestrogens, so that a dose sufficient to treat

a woman may be insufficient for a man. No data on this question seem to exist. It should also be remembered that D.B.E. is not strictly an oestrogen but a pro-oestrogen, and that pro-oestrogens may be less effective than oestrogens in the control of carcinoma. The oestrogenic effect of a pro-oestrogen depends not only on the dose but on the rate of its conversion into an oestrogen. An increase in the dose beyond the amount which can be converted by the body would not produce any increase in the oestrogenic effect. It may well be that the body is capable of converting from pro-oestrogen to oestrogen a sufficient amount to deal with menopausal symptoms, but not enough to control carcinoma of the prostate, which probably demands a higher oestrogenic level. Robson (personal communication) has found that the administration of large doses of D.B.E. to oophorectomized mice does not induce mating, whereas large doses of oestrogens (for example, oestradiol and triphenyl-chloroethylene) do so. Since the oestrogenic level necessary to induce mating is about 200 times that necessary to produce vaginal cornification, it seems probable that in this experiment the D.B.E. was not converted into an oestrogen at a sufficient rate to produce the concentration necessary for mating. A similar failure may be the explanation of the ineffectiveness of D.B.E. in controlling carcinoma of the prostate.

D.B.E. is a substance of great theoretical interest, but in some respects it is inferior to the other synthetic oestrogens, and it is doubtful whether the advantage of weekly over thrice-daily administration is sufficient to warrant the general introduction of yet another.

I would like to express my gratitude to Prof. McIntosh, Dr. Douglas Robertson, Dr. John Murray, and Mr. R. H. Gardiner for their collaboration, and to Dr. A. N. Macbeth, of Organon Laboratories, for supplies of D.B.E.

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D.B.E. IN TREATMENT OF MENOPAUSAL SYMPTOMS

BY

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The chemical and pharmacological properties of this new synthetic oestrogen are summarized in the accompanying paper by Dr. Raymond Greene. The aims of the work described in that paper were: (1) to confirm that the prolonged action of D.B.E. occurs in the human subject; and (2) to establish a dosage suitable for clinical use.

My own aspect of the work has been confined to patients suffering from symptoms due to the premature cessation of ovarian function brought about by surgical and radiological means. Some degree of selection was used in choosing the subjects. This was done as follows. Twenty-five case records were selected at random—7 of these were discarded as they were not experiencing menopausal symptoms at the time; 4 were rejected because they lived more than 20 miles from Newcastle and it was felt that they might not attend regularly on this account.

Fourteen attended, and were offered treatment for their "hot flushes." No previous therapy with oestrogens had been given to any of them. For the first four weeks these patients were treated with inert tablets consisting either of 15 gr. (1 g.) of cane sugar or of 10 gr. (0.65 g.) of household flour coated with chocolate. On a chart provided for the purpose they kept a record of the number of flushes experienced. Three of the patients were relieved by these tablets and were dropped from the series.

The remaining 11 had no relief, and the weekly total of flushes remained constant. 10 patients were given an initial dose of 1 g. D.B.E. and one severe case received an initial dose of 2 g. 8 of the 11 had some reduction in the number of flushes one week after the administration, but only in two mild cases was the response pronounced. One of these, which

had been averaging 20 flushes a week, dropped to nil in two weeks, and this improvement was maintained for another two weeks without further treatment. Thereafter the flushes began to return. A dose of 2 g. brought about a marked improvement in 9 patients, and this effect lasted on an average three weeks without further administration. After this time the number of flushes increased again.

The next problem was that of a maintenance dose. This varied according to the severity of the symptoms, and it was eventually found that 0.2 g. per week was satisfactory. In this series it was administered in doses of 0.4 g. fortnightly. It was also found that if more than three weeks was allowed to elapse between the administrations it was advisable to give another initial dose. Increase of the maintenance dose was not satisfactory. Some of the side-effects of other synthetic oestrogens were observed. Four patients vomited after receiving 2 g. This started about 8 hours after taking the tablets, and continued for 36 hours. One of these patients had nausea but no vomiting after a small dose. Three others did not actually vomit but were nauseated by large doses. This began about 24 hours after taking the tablets and continued for some three days. Three patients had uterine bleeding or a brown discharge lasting for several days. In two this occurred two weeks after the last administration, and in one immediately after taking a large dose. Two other patients had severe uterine colic following a dose of 2 g., and one of these developed a white vaginal discharge which was found to be due to the excessive secretion of mucus from the cervical glands. Five patients experienced headache for 24 hours after a large dose; they had not previously suffered from headache. In those cases in which headache was a prominent feature of the menopausal syndrome it was relieved by D.B.E. Four patients complained of lassitude during the course of the treatment. Although this symptom does not appear to be generally recognized as an effect of synthetic oestrogens I have found that it frequently occurs in patients receiving stilboestrol. Most of these effects occurred only when large doses were given.

Results

Of the 11 cases 5 were completely relieved of their symptoms; 3 were greatly improved, and the average reduction in the weekly number of flushes in these patients was from 80 to 6. The remaining 3 patients failed to respond at all even after doses of 3 g.

The 3 who were improved but not completely relieved were put on to stilboestrol 1 mg. t.d.s. This brought about complete relief in all cases. Two of the three failures were similarly treated and were also completely relieved within three weeks of starting stilboestrol therapy. The third patient in this group suffered from disseminated sclerosis and failed to attend again. One of the patients had a severe leucoplakic vulvitis which did not improve on the doses given and has subsequently undergone vulvectomy.

Summary

D.B.E. (o-o-di-(p-ethoxyphenyl)- β -phenyl bromoethylene) is a synthetic oestrogen with a prolonged action.

This substance was used to relieve menopausal symptoms in 11 patients who had undergone surgical or radiological castration; 5 were completely relieved, 3 greatly relieved, and 3 showed no response.

The dosage required for the relief of these symptoms is an initial dose of 2 g. followed by a maintenance dose of 0.2 g. weekly. Mild cases may require only half this dosage.

The side-effects of other synthetic oestrogens have been noticed with D.B.E.

It appears from this small series that D.B.E. is probably not as effective as stilboestrol in the relief of menopausal symptoms.

It is probable that its sole advantage is that it needs to be administered infrequently and not daily as with other synthetic estrogens.

I should like to thank Dr. A. N. Macbeth for her help and advice, and Organon Laboratories Ltd. for the supplies of D.B.E. used in his investigation.

A. H. Williams (*Delaware State med. J.*, 1945, 17, 179) records a case of myelitis following chicken-pox in a boy aged 4. Recovery took place without specific therapy.

CONCENTRATING MALARIA PARASITES IN THIN FILMS

BY

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The diagnosis of malarial infection has often to be made on samples provided by practitioners, and the pathologist frequently finds fault with the smears provided—usually, because they are too thick, are unevenly spread, and are allowed to dry too slowly.

The thick-film technique is widely employed to give concentrated films, but the parasites are not intracellular and many pathologists do not like them. Wilcox (1942), in her monograph, describes the thick-smear technique very clearly, but obviously it is one that only the trained laboratory worker can employ; she states that the thin film is ideal for demonstrating the morphology of the individual parasites. Figures are given for the degree of concentration obtained by many authors using the thick-smear method; these vary from 10 to 50 times. Todd and Sandford (1943) quote the method of Bass and Johnson as described it is very laborious, but it does provide concentrated intracellular parasites.

There will be many cases of malarial relapse in the next few years, and it is hoped that the following technique may be of help in proving if such cases are suffering from a genuine relapse; the proof may be of great importance in the granting of a pension for the patient. The technique was evolved to secure the advantage of concentration as well as that of seeing intracellular parasites; it allows a practitioner to obtain the blood samples, using the technique he employs for obtaining blood for a Wassermann reaction and saves making blood smears.

Technique

Any blood may be used, but, if the blood has clotted, many of the white cells and all the platelets are avoided, making the slide easier to examine. When clotted blood is employed it is shaken and the serum drawn off and centrifuged for 2 to 3 minutes in a small tube; the serum is discarded. Except for a volume approximately equal to that of packed red cells. The residual serum and the red cells are mixed, and this blood is run into a capillary tube, the end of the capillary is sealed and the tube centrifuged hard (2000 to 3000 revolutions per minute) for 20 to 30 minutes.

The capillary is removed and a scratch made with a glass-cutter or diamond, about 1/8 in (0.32 cm) above the top of the packed red cells; the tube is held horizontally, and is broken at this mark. A second cut is made about 1/8 in below the top of the red-cell layer; the tube is again held horizontally, and is now broken at this second mark. The tube is held horizontally after the first cut to prevent the plasma running down over the operator's fingers, and, after the second, to prevent any loss of the contents of the wanted specimen.

The next stage was evolved to allow easy handling and mixing of the contents of this small segment of the capillary tube. The butt end of a Pasteur pipette, where it starts to narrow down, is heated in a Bunsen burner flame, and when soft the two extremities of the pipette are pressed towards each other, allowing the tube to bend into an S shape. The pipette is again heated in the Bunsen burner flame about 1 in. (2.5 cm) from this bend; it is drawn out and sealed taking care to make the terminal portion thin. If the end is not thin it is difficult to break off the tip later, and some of the specimen will be lost. The short piece of capillary tube is dropped into this prepared pipette with serum uppermost; the tube is then placed in the centrifuge, which is switched on for from 2 to 5 seconds. The blood is now in the capillary end of the pipette; the thinned tip of the pipette is cut off, a test is applied to the butt, and the blood is blown out on to a slide and a thin smear made. Alternatively, the blood is mixed on a wax slide. The edges of the film are examined for the parasites. The accompanying figure shows the completed slide.



Results

The degree of concentration has been estimated by counting the number of parasites seen, under the 1/12 objective, in an equal number of fields, usually 100, in both the plain and the concentrated films. In the last 22 positive bloods the average degree of concentration has been $\times 15.8$ —made up of 426 parasites in the plain, as against 6,718 in the concentrated films. The concentration has varied from $\times 5$ to $\times 56$. Eleven of these lay between $\times 10$ and $\times 24$; others were $\times 5$, $\times 6$ (twice), and $\times 9$. There were also specimens with $\times 56$, $\times 50$, $\times 35$, and $\times 33$ concentration. In a total of 52 positive bloods examined 5 were positive in the concentrated films only. These figures would seem to compare favourably with those obtained in the thick-smear method. Schüffner granules do not appear to stain well in the concentrated preparations made by me.

Since the technique was evolved only two cases of falciparum infection have been concentrated. The first was diagnosed as an M.T. infection on a thin smear provided on July 20, 1945; the hospital was informed by telephone and warned to apply intensive therapy, as a heavy infection with trophozoites was present. The patient had the following treatment:

July 20: 9 g. intramuscular quinine.

July 21: Mepacrine t.d.s.

July 22: Morning—mepacrine, 2 doses. Patient went into coma at midday. Afternoon—9 g. intravenous quinine.

July 23, 24, and 25: Mepacrine t.d.s.

On July 25 venous blood and thin smears were obtained and were sent by post to the laboratory; 7 gametocytes in 500 fields were seen in concentrated smears made on July 26; but several pathologists have failed to find parasites in the thin smears provided.

The other M.T. infection was a fatal case of gastro-intestinal and cerebral malaria (which it is hoped may be described in detail later). 1½-day-old blood, taken for a Widal test 18 hours before death, was used to provide the red cells; unconcentrated smears showed a very heavy infection with trophozoites (1 in every 3 of the red cells were infected). With such a heavy infection, it is hard to demonstrate concentration, but the concentrated smears showed parasites in 2 out of every 3 red cells, and also demonstrated gametocytes and schizonts which were not seen in the plain smears.

Evidence of concentration of crescents based on two cases is not sufficient, and I would be grateful for both thin smears and venous blood samples from proved cases of M.T. infection, as I would like to use the method on more such cases.

Other Possible Uses for the Method

The method described has been used several times to concentrate the nucleated cells in marrow obtained by sternal puncture, to facilitate the search for Leishman-Donovan bodies. The marrow was placed in a tube containing dried heparin (the mononuclears tend to pick up the crystals of Wintrobe's oxalate mixture, so this could not be employed). Very good concentration of the nucleated cells was obtained, but no L.D. bodies were seen; in whole blood heparin often causes agglutination of the white cells; but, even after two hours and the centrifuging in capillaries, there was no tendency for the cells to clump in these sternal-marrow specimens. It may be that the technique could be used for the diagnosis, on stained smears, of other protozoal and spirochaetal infections, but I have not had the opportunity of trying it.

I would like to express my thanks to Sir Philip Manson-Bahr for his encouragement and advice, to Dr. C. M. Wenyon for his helpful criticisms, and to the Regional Adviser in Pathology, Prof. Bernard Shaw.

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J. K. Mohanty (*Ind. med. Gaz.*, 1945, 80, 187) treated 62 cases of whooping-cough by injection of maternal whole blood. It was efficacious in about 61% and was followed by some improvement in another 9.7%.

Medical Memoranda

Immunity to Sandfly Fever

In a previous article (Cullinan and Whittaker, *Journal*, 1943, 2, 543) an outbreak of sandfly fever in two adjoining hospitals in the Middle East, occurring in the summer of 1942, was described. In that outbreak most of the N.C.O.s and men of the staffs of the two hospitals and, later, large numbers of patients admitted for other diseases to Hospital A were attacked (Hospital B was not at first functioning). In the summer of 1943 sandfly fever was rampant in the surrounding district, and close on 1,000 patients suffering from the disease were admitted to Hospital A from outside (Hospital B had now left). Inside the hospital, however, far fewer members of the staff and patients admitted for other diseases were affected. This lower morbidity within the unit may have been related to improvements in the camp site. Measures for "control" were the same in both years.

In 1942 both hospitals were newcomers to the district. Although Hospital A had been in the Middle East for a considerable time, it had come from an area where sandfly fever was unknown. Hospital B had recently arrived from the United Kingdom. In the 1942 outbreak it was recorded that 15% of the N.C.O.s and men had two and sometimes three attacks of sandfly fever at intervals ranging from 2 to 12 weeks during the period of the epidemic. Moreover, it was obvious that these later attacks were not relapses but were caused by reinfection. This suggested that one attack of sandfly fever conferred little or no early immunity, or that, if it did, it was remarkably short-lived.

In the 1943 outbreak, however, there was evidence that an attack of sandfly fever might confer a more distant immunity. During the time of this outbreak the average daily strength of N.C.O.s and men in Hospital A was 240. Between June 1 and Sept. 30, while 55 of the 142 who had not been with the unit in the previous summer caught sandfly fever, only 13 of the 98 who had been with the unit during both summers were affected. In other words, the disease was roughly three times less common among those who had been present in the 1942 epidemic than among those who had not.

The evidence suggests that while an attack of sandfly fever does not confer an early immunity, or that if it does it is short-lived, it may confer a more distant immunity.

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Frontal Lobe Abscess Treated with Penicillin

Spreading acute osteomyelitis of the frontal bone is a well-recognized complication of frontal sinus suppuration and carries a high mortality. When complicated by a frontal lobe abscess the prognosis is well-nigh hopeless. The following case illustrates, I think, not only the efficacy of penicillin in this condition but also the necessity for adequate surgery if treatment is to be successful.

CASE RECORD

A boy aged 16 was admitted to hospital on May 14, 1945, with a history of frontal and occipital headache, vomiting, and restlessness of a week's duration. There was no history of trauma. Temperature 101.6°, pulse 90 a minute. There was a red fluctuant swelling overlying both frontal sinuses, but no nasal discharge. A diagnosis of frontal sinus empyema was made, and this was confirmed by skiagrams. On the 16th both sinuses were drained externally and thick offensive pus evacuated. It contained *Staph. aureus* and diphtheroids which were 100% penicillin-sensitive. On May 31, in spite of good drainage and sulphathiazole in full doses, the boy became drowsy and irritable, and a spreading diffuse oedema of the frontal region extending backwards was now evident. On June 1 he became semiconscious and his temperature fell to 96° F. and pulse to 48. The right pupil became widely dilated and fixed, while the left pupil remained contracted. On June 2, under local analgesia, supplemented by chloroform on an open mask, a large semicircular flap was turned down over the frontal region. There was widespread necrosis of bone with some loose sequestra. All necrosed bone was removed, and a sinus was found in the anterior aspect of the right frontal lobe through which pus flowed out under tension. This sinus was utilized later for the insertion of a small rubber drainage-tube which was sutured to the dura. Several ounces of pus were aspirated from the abscess cavity. On June 4 penicillin therapy was begun, 2 c.cm. (123,500 units) being injected intramuscularly every 3 hours for a period of 10 days and 6 c.cm. instilled into the abscess cavity twice daily for 5 days. Rapid improvement was soon manifest, and the drain was removed after 3 weeks. The frontal sinuses, however, continued to drain, and on July 9 they were again exposed by an upturned flap and multiple poly-

removed from both sides. On July 30 all the wounds were dry and he was allowed up. No obvious change for the worse had occurred in his mental condition. X-rays of the skull revealed a gap in the frontal bone measuring 3 in by 2 in (7.5 x 5 cm). It is proposed to close this gap by a bone graft at a later date.

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A Case of Locked Twins

This note on a case of locked twins is offered in the belief that all such cases should be reported to assist future compilations.

CASE HISTORY

Mrs. A., aged 23, a para-1 gravida 2, was admitted to Dilston Hall Maternity Hospital at 6 a.m. on April 17, 1944. The patient was at full term by dates and had been in labour for about two hours. On admission the fact of labour was confirmed, and her case was diagnosed as a singleton breech presentation with membranes ruptured. At 8.40 a.m. the day-staff labour ward sister first saw her, and on separating the labia she noted (a) two small feet presenting which from their size she diagnosed as belonging to a twin, and (b) a short loop of prolapsed cord which was thin and almost pulseless. She called me, and I was available in a matter of minutes.

I found the patient in the lithotomy position ready for delivery with both feet protruding from the vulva and a 5-in (12.5-cm) loop of cord with them. The feet showed signs of life. The cord was not palpated. The cervix was fully dilated and withdrawn. The feet, knees, and breech were extracted and delivery was made as far as the umbilicus. Progress then ceased. Chloroform induction was begun, but before anaesthesia was established I was able to reach up on the maternal left side of the pelvis and feel a vertex about 1 in (2.5 cm) above the level of the ischial spine of that side. While the uterus was relaxed it was easy to push back this vertex, using two fingers only, and to secure the posterior arm of the leading twin. The anterior arm was then freed. The first twin was then easily delivered by extension-traction, using the left hand, while two fingers of the right hand were employed in holding back the second vertex above the brim of the pelvis.

The first twin was "shocked," but responded to treatment quickly. The second twin was born spontaneously by the vertex ten minutes later. It was in very good condition. The prolapsed cord belonged to the first twin.

The twins were both males and appeared to be uniovular, weighing 4 lb 10 oz (2.1 kg) and 5 lb 3 oz (2.35 kg) respectively. They made normal progress, being discharged on the 22nd day weighing 5 lb 4 oz (2.38 kg) and 5 lb 6 oz (2.44 kg) respectively. The maternal recovery was satisfactory and afebrile.

Interesting points in the above case are the presentations were breech-vertex; the twins were uniovular, both bags of membranes had ruptured spontaneously; early diagnosis was facilitated by the need for medical aid for prolapse of the cord; obstructed labour did not arise; in the easy conditions it was possible to make the required manipulations before anaesthesia was established; and both twins were secured alive.

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Penicillin in Chronic Ear Disease

The persistence of treatment-resistant cases of chronic ear disease in personnel of H.M. ships not only causes despondency in the medical department but debars these men from certain duties, such as those necessitating wearing ear-phones, etc., where they are liable to pass on their infection to the next "watch." Therefore it was decided to treat a number of cases in our ship with local penicillin in the hope of getting better results. Conditions were ideal in that the ship was operating in a temperate climate with normal humidity.

Cases with histories of chronic ear disease each of which had been under treatment for exacerbations of their chronic condition in the ship but were then in a more or less quiescent state, were selected. A careful history of each case was taken, though records of previous examinations and treatment were lacking in several instances. Bacteriological cultures were grown and white cell counts were done before and after the experiment. Those men, whose ears produced growths of organisms which are not sensitive to penicillin, were treated in like manner, as it was considered that they would be useful controls.

TECHNIQUE

Using every possible aseptic precaution including the wearing of sterile gown and mask, a solution of penicillin was prepared by dissolving 100,000 units of penicillin in 64 ccm of sterile distilled water, this was divided equally into four sterile bottles for use on four successive days.

The aural meatuses were carefully mopped out with pledgets, followed by the instillation of 1 ccm of solution (approximately

1,560 units of penicillin). The patient's head was kept tilted for at least five minutes, after which the solution was encouraged to remain in the meatus by the introduction of small sterile gauze wicks. This routine was repeated every twelve hours for four days. Each case thus received 12,500 units of penicillin. In cases with tympanic perforations the solution went in easily enough and did not tend to run out, but in cases with intact drums and narrow meatuses 1 ccm of the solution could be instilled therein only with care and patience. These cases were followed up for two months after treatment.

SUMMARY OF RESULTS

(1) All cases caused by penicillin-sensitive organisms (e.g., *Staph. albus*) were cured. (2) Where mixed infections existed the condition was improved only—leaving the penicillin-resistant bacteria unchanged. (3) Where only penicillin-resistant organisms (e.g., *B. proteus*, *Ps. pyocyanus*, and *M. catarrhalis*, etc.) were demonstrated the condition remained unaltered. (4) Comparatively small doses of penicillin eliminated penicillin-sensitive organisms. (5) The local application of penicillin solution only was tried—insufflation of powdered penicillin might offer an improved technique. (6) The raised white blood cell count returned to normal within two to three weeks in those cases which were cured. (7) It was demonstrated that before treating suppurative otitis the causative organism must be identified, and only those cases which are caused by penicillin-sensitive organisms are worthy of penicillin therapy.

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Surgeon Lieutenant R.A.M.C.

Ether Convulsions with Hyperpyrexia

The following case of ether convulsions is of interest in that the high temperature recorded tends to support the heat-stroke theory of causation. One feels that the conditions under which this operation was performed were such as to produce a rapid rise in the patient's temperature, and as he was already pyrexial at the time of the operation a state of hyperpyrexia was attained, which, with the neurogenic stimuli postulated by Brennan (1941), may have been the precipitating factor in the convulsive attack.

CASE RECORD

The patient, a healthy young soldier, was admitted to the hospital on a sultry evening in Aug., 1943, with acute obstructive appendicitis and symptoms of peritonitis. His temperature on admission was 100° F. The operation was carried out under black-out conditions in an operating theatre of the wooden emergency hospital type the walls of which have considerable heat-retaining properties. The windows were covered with shutters of wall board so that ventilation was almost non-existent. As the operating room communicated freely with the main theatre the latter soon became uncomfortable, warm and humid, and with only one small fan of the suction type, little could be done to control the temperature. The anaesthetic little could be done to control the temperature. The anaesthetic was given with the standard Boyle apparatus a gas oxygen, and ether mixture being used. Macintosh shears were employed as well as towels to shut off the operation area, with the result that as the patient was completely enclosed with the exception of that portion of his face not covered by the anaesthetic mask and the Clausen harness little heat loss was possible.

The operation and anaesthesia proceeded smoothly at first, a gangrenous appendix being removed and a suprapubic drain inserted on account of the large quantity of thin purulent fluid found in the abdomen. The operation had been in progress for about half an hour and the peritoneum had, fortunately, just been closed, when ether convulsions began without warning. The patient's body and limbs were shaken by rapid clonic convulsions of moderate severity.

Owing to the involvement of the muscles of respiration cyanosis rapidly developed, and was only partially relieved by administering pure oxygen and applying artificial respiration. A solution of pentothal was quickly prepared and given intravenously, 3 ccm (0.15 g) being sufficient to stop the convulsions with dramatic suddenness, followed by the resumption of normal respiration.

The wound was now rapidly closed and at the same time the legs were then removed from the patient and rapid sponging of the chest, arms and legs begun, being continued until the temperature was reduced to 103° F., when the patient was returned to the ward. During the night the temperature continued to fall and next morning he appeared to have suffered no ill effects from his ordeal. He proceeded to make a complete recovery.

My thanks are due to the medical superintendent of the hospital for permission to publish this case.

H. H. WERT, M.B. B.Ch.,
Resident Surgeon Officer,
Cherry Knowle Emergency Hospital

REFERENCE

Brennan, H. J. (1941) *British Medical Journal*, 2, 765

Reviews

X-RAY DIAGNOSIS OF THE GASTRO-INTESTINAL AND URINARY TRACTS

The Gastro-Intestinal Tract. A Handbook of Roentgen Diagnosis. By Fred Jenner Hodges, B.S., M.D. (Pp. 320; illustrated, 33s.) Chicago: The Year Book Publishers, Inc.; London: H. K. Lewis and Co.

The Urinary Tract. A Handbook of Roentgen Diagnosis. By H. D. Kerr, M.D., and Carl L. Gillies, M.D. (Pp. 320; illustrated, \$5.50 or 33s.) Chicago: The Year Book Publishers, Inc.; London: H. K. Lewis and Co.

When one sits down to write a book on a medical subject it is well to have clearly in mind the object of the book and, in particular, who it is intended shall read it. This may seem to be emphasizing the obvious; it is, none the less, sometimes overlooked by authors. Witness two of the volumes of the "Handbook of Roentgen Diagnosis" series: *The Gastro-Intestinal Tract*, by Fred Jenner Hodges, and *The Urinary Tract*, by H. Dabney Kerr and Carl L. Gillies.

The object avowed in the preface of *The Gastro-Intestinal Tract* is "to present the subject in a manner most useful to physicians who are not and do not intend to become specialists in the field of roentgenology." Immediately after this preface is a 20-page introduction, largely concerned with the technique of examination, with which the physician has little or no concern. The remainder of the book—about 300 pages—consists of an x-ray atlas of the gastro-intestinal tract, with clinical notes of the cases illustrated and brief discussions on x-ray diagnostic signs. Many of these are typical cases, others are comparative rarities, and in some the diagnosis is not known. The last might well be omitted from a book of this size. The illustrations are clear and the paper good. The book will be of interest to clinicians who like atlases (and, curiously, some do: in the hope, perhaps, of finding a short-cut to the knowledge of a specialty).

The Urinary Tract also seems to hesitate about what it sets out to do. The authors' aim has been to produce a "low-priced handbook in which the roentgen appearances of the more common and some of the uncommon lesions are available for ready reference to the student, practitioners, urologists, and radiologist." The English price is 33s., and one can't see many medical students in this country buying it; or radiologists either, for whom it is too elementary to be of real value. A notable omission is the subject of intravenous pyelography. In the several hundred illustrations—very good ones and well produced—there are hardly half a dozen intravenous pyelograms. Indeed, throughout the book the hand (and catheter) of the urologist are much in evidence. But there is no doubt that most readers will find the book of great interest. As an atlas it is of high quality, and the letterpress is clear, straightforward, and very readable; and though the reviewer is not quite clear what the book really aims to do, he enjoyed turning its pages, which is more than he can say of many such volumes.

SETTING UP A RURAL HOSPITAL

Small Community Hospitals. By Henry J. Southmayd, Director, Division of Rural Hospitals, the Commonwealth Fund, and Geddes Smith, Associate, The Commonwealth Fund (Pp. 182. \$2.00 or 11s. 6d.) New York: The Commonwealth Fund; London: Oxford University Press.

In 1925 the *Journal of the American Medical Association* declared that the lack of hospitals was a prominent factor in the increasing trend of doctors away from the countryside. The Commonwealth Fund then offered to meet two-thirds of the cost of building and equipping one or two small hospitals each year in areas where the local community would provide sites, management, and maintenance. During the succeeding twenty years thirteen rural hospitals have been established, and this book deals with the experience thus gained. The questions posed were: What communities should have such hospitals; what areas should a hospital try to serve; who should run and staff them; how can they help their public to get better medical care?

The Fund believes that in helping the establishment of these hospitals it is assisting in the solution of a great national problem because the lack of good medical provision is evidently driving people off the land. Its thesis is that, "If 50-100,000 people will use a single hospital placed at the natural centre of a

homogeneous trading area, they can have about as good a hospital as the same number of people in a single city." The Fund claims that its experience has proved this thesis to hold good. One difficulty has been the fact that an ideal hospital area by no means necessarily conforms to local authority boundaries, and so all the usual local ambitions and traditions have had to be placated. The six chapters in the book deal in a very practical way with all the points which would confront a rural area considering the setting up of a hospital.

One problem which receives a good deal of attention is how to link up these rural hospitals with the consultant facilities commanded by the great city hospitals. On this question reference is made to the experience of our Nuffield Trust and its device of the "key" hospital. The opinion is expressed that hospital co-operation in England has long been "be devilled by the traditional differences between the voluntary and the public institution."

The book ends with the opinion that "in the long run the community will shape the hospital, the health department, and the practice of medicine, to its own purposes, and a great deal of experimentation is going to be needed in the process. The Commonwealth Fund is to be congratulated on a useful contribution to this.

PHYSICAL TRAINING

Médecine, Education physique, et Sports. By Dr. Albert Govaerts. *Actualités Sociales. Nouvelle Série.* (Pp. 162. No price given.) Brussels: Office de Publicité, J. Letégué et Cie, 36, Rue Neuve. 1945.

Dr. Albert Govaerts, the Director of the Physical Training Department in Brussels University, has written on physical education and sport in medicine an attractive contribution to new edition of the "Actualités Sociales," first published between 1904 and 1913. His paragraphs on physical education as builder of health are clearly written in easy (and therefore good) French and show that his reading has been wide and thoughtful. He describes simply and briefly the bearing of the work of a number of physiologists on the problems that "have to be understood by those who set out to train the body, especially during the malleable years of youth. His section on acids is particularly interesting. At the beginning of Chapter IV Dr. Govaerts states: "Among the many aspects of life changed by the profound evolution of which we are actually witnesses . . . the health of the youth of our nation is one that demands our urgent attention." This passage is typical of many in this chapter showing a deep regard and love of his country and of youth in particular. It is indeed charitable of Dr. Govaerts to look upon their ordeal as "an evolution"—as in fact it is. The spirit of study and service to youth shines throughout this small book; but with this is given an interesting number of scientific tables, that should prove helpful to students, of the reactions of the adolescent body. A translation of Dr. Govaerts's book into English should find a wide range of readers not only among medical men concerned directly with physical training, but also among educated medical laymen interested in the youth movement.

PLASTER TECHNIQUE

Plaster of Paris Technique in the Treatment of Fractures and Other Injuries. By Lieut.-Col. T. B. Quigley, M.C. (Pp. 107; illustrated. \$3.50.) New York: The Macmillan Company.

We lately had occasion in these pages to review a similar book on this subject, and it is interesting to find confirmation by Lieut.-Col. T. B. Quigley of the view that plaster technique is a craft, because, as he states, "it can be acquired by anyone with reasonable intelligence and a modicum of manual dexterity, under competent guidance." The present book is, we think, the best of its type that we have seen; for it does provide that guidance with simplicity and efficiency. It relates for the most part to the use of plaster-of-Paris in the treatment of trauma, particularly under military conditions. It shows how, in the absence of elaborate equipment and plaster tables, it is possible by careful improvisation to obtain perfect results. Even the most experienced workers with plaster-of-Paris using the most up-to-date equipment will probably find much to learn from Lieut.-Col. Quigley's common-sense approach to the matter. The book is well printed, perfectly illustrated, and packed with sensible information.

Notes on Books

Poet Physicians: An Anthology of Medical Poetry written by Physicians, has been compiled by MARY LOU McDONOUGH, and is published at \$5.00 by Charles C. Thomas, of Springfield, Illinois, U.S.A. The task was heavy but congenial, and though a lot of poor stuff is included there are also some lovely short pieces. Mrs. McDonough tried to restrict the scope of the book to "medical poetry," but she has been hard put to it to find any lines by, for example, Keats or Goldsmith which could come within that definition. By contrast, "On a Dead Child," by Robert Bridges, one of the most poignant poems in our language, could probably only have been written by one who had been a children's physician, as Sir Arthur MacNally said lately in his address on "Medical Poets." From the great but scattered mass of verse, bad and good, composed by medical men through the ages, Mrs. McDonough has chosen enough to make an agreeable bedside book. Each of the 110 authors held in her net is introduced with a brief biography, and the volume ends with a memorandum on medical poets by Dr. Merrill Moore, a selected bibliography, and a cumulative index of poet-physicians running to 12 columns of small type. The preface, dated Washington, Nov. 15, 1944, makes grateful acknowledgment to much help from many friends. To anyone who carps at her final choice out of an enormous field the compiler can fairly rejoin (in the words of Dr. Moore) that most medical verse is junk, that she has found this out, and that she has spared the reader 20 poems for every one included; also (in her own words) that she has tried to bring together representative poems from as many languages and from as many eras in the history of medicine as space and exigency make possible.

Dr. LYNN THORNDIKE, of Columbia University, has devoted scholarship of a high order to editing *The Herbal of Rufinus*, and the result is a handsome book published by the University of Chicago Press. Mr. Francis S. Benjamin junior transcribed the Latin text from a photograph of the Rufinus codex of the late thirteenth century and traced most of the citations under the direction of the editor, who supplies a learned introduction and five classified indexes. Although the book of Rufinus remained unknown to modern scholars and to historians of botany and of materia medica until Dr. Thorndike saw the manuscript in 1931 at Florence, it is a work of originality and independent value. Another reason for making his *De Virtutibus Herbarum* available in printed form is that in its quotations from past authorities Rufinus introduces the reader to a hitherto unknown version of Dioscorides. The agents for the book in this country are the Cambridge University Press and the price is 30s.

Dr. R. R. TRAIL's little book *Chest Examination* was written mainly to correlate the anatomy and physiology of the lungs with the physical findings—clinical and radiological. It first appeared in 1943, with a foreword by Sir Walter Langdon-Brown, and now comes to us in a second edition. Illustrative skiagrams have been added, and there are some changes in the order of the text. The illustrations, half-tone or line block, now number 100. J. and A. Churchill are the publishers and the price is now 12s. 6d.

Dr. ALBERT H. ROWE, of San Francisco, whose writings on allergy are well known to workers in that subject, has produced a second edition of his handbook *Elimination Diets and the Patient's Allergies* (Kimpton; 17s. 6d.). So many changes and additions have been made that the text is now entirely reset. Dr. Rowe continues to insist that his trial diets for the identification of possible food allergy should be used as a diagnostic aid, just as blood counts and other laboratory tests are employed in routine clinical pathology, and that detailed menus and special recipes are needed to make possible the total exclusion of all foods eliminated from the diet. He discusses the whole matter in great detail, and in this edition the instructions for elimination diets have been modified to meet wartime shortages of various foodstuffs.

The Garnered Sheaf is a little book of verses by Dr. J. SACKVILLE MARTIN, published at 3s. 6d. by Arthur H. Stockwell Ltd., temporarily housed at Ilfracombe. Many of the short poems are reprinted from the *Poetry Review* or from *Poetry of To-day*. The author has a turn for occasional verse in varying forms, the language is simple, and the mood ranges from tender meditation to playfulness.

The Friends Ambulance Unit has issued from 4, Gordon Square, London, W.C.1, a report of the work done in Europe and the East in September, October, and November, 1945. The F.A.U. comprises 700 men and women who have organized themselves for the relief of suffering wherever it occurs. The first winter of peace is expected to be a period of more widespread misery than any of the wartime winters.

Preparations and Appliances

A CORRECTIVE SPLINT FOR PARALYSIS OF THE THENAR MUSCLES

Mr. J. RUSSELL NAPIER, M.R.C.S., registrar P.N.I. Unit, and chief assistant Orthopaedic Unit, Hill End Hospital (St. Bartholomew's), St. Albans, writes:

This splint is designed to maintain the thumb in a position of function when the thenar muscles are paralysed and at the same time to allow the antagonist muscles to be exercised.

The splint is built round a spong-rubber wedge covered with soft leather that fits into the first interosseous cleft, maintaining the thumb in abduction. The wedge is anchored in position by two leather rings that slip over the index finger and thumb. Attached to the volar-radial aspect of the thumb ring is a strip

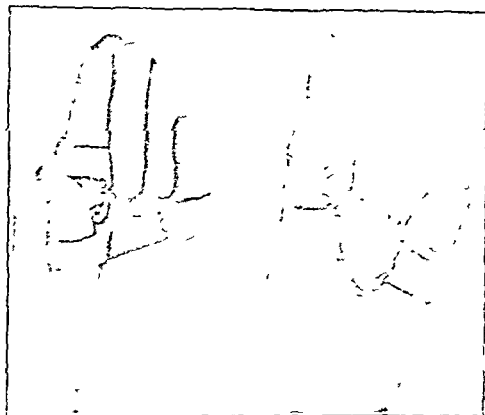


FIG 1

FIG 2

of elastic (approximately 2 in. \times 3/4 in. \times 2 cm) which terminates in a third leather ring which fits over the little finger. The leather ring for the index finger should fit loosely enough to allow it to rotate round the finger when the thumb is abducted (Fig. 3).

When the splint is in position the thumb is maintained in the mid-position of rotation (Figs. 1 and 2). The flexibility of the wedge allows a certain degree of palmar abduction and the stretch of the elastic allows a full range of radial abduction (Fig. 3), both these movements being performed against resistance.

Its construction throughout of soft materials eliminates the risk of pressure disturbances on insensitive bearing areas of skin, and permits a complete freedom of all unaffected movements of the wrist and hand.

A criticism that might be levelled against the splint is that it has no fixed anchorage, with the result that the little finger tends to be pulled into flexion and rotation at the metacarpophalangeal joint. Providing that the hypothenar muscles are unaffected, as they would be in a pure median palsy, the disadvantage is very slight and easily outweighed by the advantages of a flexible splint.

I wish to thank Messrs. Beckett and Bird Ltd., of 8, Bentinck Street, London, W.1, for their co-operation.

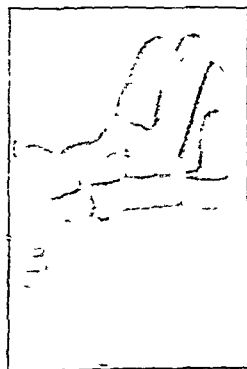


FIG 3

BRITISH MEDICAL JOURNAL

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THE STATE OF THE PUBLIC HEALTH

The health of England and Wales as measured by the statistics given in the Summary Report of the work of the Ministry of Health for the year ending with last March¹ would be a matter for congratulation at any time, but for this country to achieve such a state in the second half of the fifth and the first half of the sixth year of war is indeed remarkable. The year covered by the report extends from a short time before the invasion of Normandy almost to the end of hostilities in Europe—a period during which the war was at its grimmest, public anxiety at its height, and hardships and shortages felt most severely. The E.M.S. hospitals were already filled with the early instalments of nearly 150,000 casualties and sick from the advancing armies in Western Europe when they had to accommodate the victims of flying bombs and rockets in Southern England to the total number of 22,000. The first-aid posts of the London region had to deal with 38,000 air-raid cases in those summer and autumn months of 1944; over 100,000 homeless people passed through the rest centres, and one and a quarter millions migrated from the danger areas. In London itself, on some nights, not far short of half a million were sleeping in public shelters, and as many as 80,000 in tube railways. The presence of some thousands of refugees and the increasing numbers of British repatriates from the liberated territories complicated the problem of the public authorities. These perils to the health of the people had to be combated by a medical and nursing profession greatly diminished in numbers. One-fourth of the general practitioners of the country and one-fifth of the medical officers of the public health services were in the Forces. The local authorities were carrying on with a net shortage of 50,000 people on their staffs as compared with 1939; they were particularly handicapped by lack of professional and technical officers. Yet in such a year not only did the general death rate fall as compared with the year before but the maternal and infant mortality rates, and the mortality rates for the second, third, fourth, and fifth years of life, were the lowest ever recorded. With the exception of dysentery, the incidence of which has been gradually rising for a decade in this country, all the principal infectious diseases showed fewer notifications—notably diphtheria, measles, and pneumonia, which included influenza with pneumonic complications. Even tuberculosis, both in notifications of new cases and in deaths, and venereal diseases, in the numbers dealt with at the clinics, regressed a little, though, of course, both tuberculosis and venereal diseases were well above pre-war level.

¹ Summary Report of the Ministry of Health for the Year ended, March 31, 1945. Cmd. 6710. London: H.M. Stationery Office. (1s. 3d. net.)

To give a few figures: the infant mortality rate in 1944 was 45.7 per thousand live births, and the death rates in the next four years of life were 4.6, 2.6, 2.2, and 1.8 per thousand living; the lowest levels previously were 49.1, 5.8, 3.1, 2.4, and 2.0 respectively. The birth rate was 18.0, but this is based on the mid-1939 population and is subject to modification when the 1944 population is ascertained. The rate has not reached 18.0 since 1925; in the last year of the first European war it was 17.7. The maternal mortality rate was 1.95 per thousand total births, or 1.54 if deaths from abortion are excluded. Of the mothers who had babies during the year 76% had attended the ante-natal clinics, which now number just upon 2,000 in England and Wales, or had received ante-natal care through the welfare authorities' arrangements. Particulars are given in the report of the daily food value of the expectant mother's augmented rations and priority allowances, amounting to 67 g. proteins, 1,450 calories, 1,030 mg. calcium, 5,610 i.u. of vitamin A and 900 of vitamin D, and 39 mg. vitamin C. The vital statistics concerning mothers and infants in the war years are the most encouraging feature of the whole survey:

Year	Maternal Mortality Rate per 1,000 Total Births	Infant Mortality Rate per 1,000 Related Live Births	Stillbirth Rate per 1,000 Total Births	Neonatal Mortality Rate per 1,000 Related Live Births
1939	3.10	50.6	38.1	28.3
1940	2.60	56.8	37.2	29.6
1941	2.76	60.0	34.8	29.0
1942	2.47	59.6	33.2	27.2
1943	2.30	49.1	30.1	25.2
1944	1.95	45.7	27.7	24.5

The figures for 1944 are provisional. The illegitimacy rate is a less pleasing feature. It has gone up from 42 per thousand live births in 1939 to 72 in 1944.

For the third year in succession there was a decrease in both notifications of and deaths from diphtheria. In 1944 both the notifications, which were just upon 30,000, and the deaths, which were fewer than 1,000, were the lowest ever recorded. During the ten years before the war the average annual figures for notifications were twice, and those for deaths more than three times, as high. It is noteworthy that this decline took place at a time when diphtheria of a most severe kind was widespread in Europe. The number of children immunized under local authority arrangements during the year was 561,314. It is estimated that the number of children under 15 in England and Wales at the end of 1944 was 8,714,000, of whom between 60 and 65% had been immunized. The number of deaths from respiratory tuberculosis was 20,104, against 21,342 in 1943. The most serious problem concerning tuberculosis is the present inadequacy of institutional treatment, principally because of shortage of nursing and domestic staff. Up to the end of March, 1945, over 400,000 persons had been examined under the mass miniature radiography schemes, of whom 1 in 100 was suspected of being tuberculous or was definitely found to have tuberculosis. In venereal diseases, more encouraging than the slight improvement in the number of new infections is the number of new patients examined who have been found not infected. The war has delayed the develop-

ment of long-term schemes for the treatment of cancer under the Cancer Act, 1939, but some schemes are now well advanced. A North of England regional scheme based on Newcastle was submitted for the Minister's approval during the year. The Liverpool scheme has extended the area of its operations. Machinery for the preparation of draft schemes was set up during the year in Oxford, Leeds, and Sheffield, and preliminary activities were in progress in the regions centred on Birmingham, Cardiff, and Bristol. The number of deaths from cancer during the year was 72,110, almost exactly the same number as the year before. One person in rather more than seven dies of cancer.

The main statistics given in this report relate only to illnesses which have caused death or which are notifiable. The mass of minor ailments which in the aggregate accounts for the major invalidity of the nation goes unrecorded and any complacency we may feel must be halted by this fact. Until recently the only information about the extent of minor sickness came from approved societies, but since January, 1944, about 2,500 civilians, selected at random, have been interviewed each month through the Wartime Social Survey of the Ministry. A detailed history was taken of all departures from health during the three months preceding the interview. Out of every 1,000 civilians between 16 and 64 only four were reported to have had one or another of the notifiable diseases during 1944, and about six were registered as having died. But in a particular sample of about 5,000 people of those ages it was found that during an average three months period six out of ten had had some illness, not necessarily requiring absence from work, or had complained of a minor ailment of some kind. In the period November, 1944, to February, 1945, out of 100 men and women, 18 men and rather more than 18 women had had colds or influenza, and about four of each sex had been incapacitated. The Minister draws attention in his foreword to one other check to complacency. He points out that it is not at all certain that the improvement in vital statistics will be maintained. Continued vigilance is the condition not only of liberty but of health. Reaction after war strain may be more disastrous to health than war strain itself. Moreover, what Mr. Bevan describes as an "increasingly critical situation" has to be faced in the shortage of nurses, midwives, and domestic workers for hospitals, sanatoria, and maternity homes. The beds he says, are there in plenty (though that does not seem to be the opinion of some at least of the Ministry's surveying officers who have been gathering information about hospital facilities all over the country). It is the personnel which is lacking.

Among other points of interest in the report we note that 8,000 people in areas subject to enemy action, factory workers, and others of all ages in various parts of the country have been examined from a nutritional point of view, and the findings indicated that the state of nutrition was well maintained. The regulation making jaundice notifiable in the Eastern Civil Defence Region continued in force and 3,552 cases were notified—an attack rate of 13 per thousand population. Nine cases of malaria contracted in England were reported during the year—two at a naval establishment in Devonshire, three at Aldershot, and four in the county of Surrey. Periodical inspection

of the static water tanks in the London area (since drained) showed only a small number to be infested with mosquito larvae, the species being *Culex pipiens*, which does no bite human beings. During the year 669,000 gifts of blood were made to the Emergency Blood Transfusion Service. The Service's contribution to the Navy, Army, and Air Force for use over seas amounted to 50,000 bottles of whole blood, 31,000 bottles of dried plasma or serum, and 9,000 2½ litre Winchester bottles of unfiltered plasma and serum. The number of banks of whole blood maintained at hospitals and other blood centres was 441, and in addition there were 33 banks of Rh negative blood.

The report is unusually interesting this year because information can now be given of the measures taken to deal with the results of air raids. The full story of the war refugee scheme since it started operation early in 1940 is also told. One chapter is headed 'Reconstruction', but the reference to the proposals for a National Health Service is only an account of events which occurred in the Willink era. The Minister says that the road to a fitter Britain is now clearly marked. The present major task of his Department is 'a great drive to provide, as quickly as is humanly possible, the good housing on which the health and happiness of the people so largely depend'.

PENICILLIN IN OPHTHALMOLOGY

In diseases of the eye infective processes are largely confined to the outer eye and the various forms of purulent ophthalmia are classical examples, infections of the inner eye, such as panophthalmitis, are on the whole rare. Most inflammations of the eye, of which iritis and choroiditis are characteristic, do not produce pus and the inflammatory exudate does not contain organisms. These distinctions in ocular pathology have been well established for many years, but they gained added significance when the sulphonamides were introduced. It was found that the purulent infections of the outer eye responded readily to general sulphonamide therapy, but, while gratifying results were occasionally obtained in cases of iritis and iridocyclitis the intraocular inflammations generally responded but poorly. Since the sulphonamides easily penetrated the interior of the eye, since adequate concentrations of the drug could be obtained, and since the response in frank infections was better than in serous uveitis it became clear that the whole problem of intraocular inflammation required reassessment in the light of the new and positive knowledge. The sulphonamides have marked limitations. Though some experimental evidence has been advanced that they are effective in infections of the outer eye when used locally, it cannot be said that there is any real clinical support for these observations. It is questionable whether an adequate experimental lesion of the outer eye has yet been evolved, and there is little justification for the wide spread and misguided use of the sulphonamides locally in such infections, while their local use for infections of the interior of the eye has never seemed justifiable in view of their ready penetration through the blood-aqueous barrier. Sulphonamide therapy in eye disease is thus largely oral administration of the drug.

Experience with penicillin in many respects runs counter to that obtained with the sulphonamides. The same fundamental distinction between infection and inflammation has

still to be drawn, but in contrast to the sulphonamides penicillin does not readily penetrate into the interior of the eye when administered intramuscularly. This has been shown experimentally,¹⁻³ and has been confirmed in man.^{4,5} There is no evidence that in the inflamed eye the barrier is less absolute,³ but it appears that the intramuscular administration of penicillin in very many times the dosage currently used might allow some penetration of the drug into the eye.¹ Attempts to obtain more satisfactory penetration by procedures which either delay the excretion of penicillin or modify the blood-aqueous barrier still require fuller study. For the present it must be accepted that the use of penicillin intramuscularly, in contrast to general sulphonamide therapy, has but little scope in infections of the inner eye. A further contrast is in the local action of penicillin. Since penicillin is not inactivated by pus or peptone, as the sulphonamides are, it has proved invaluable as a local medication. This has been brought out in many reports on the use of penicillin locally in acute conjunctivitis, in blepharitis, and in various septic inflammations of the outer eye. The most extensive work on these lines has been recorded in our columns in two papers on ophthalmia neonatorum.^{6,7} However, it cannot be said that the many problems of the local use of penicillin have been solved. Local medication with penicillin requires knowledge of the limits of tolerance and of means for maintaining adequate concentrations. Clinically the limits of local tolerance with the available samples of penicillin have been found to be at about 2,500 units per c.cm. when used in the form of drops. Ointments have not so far been employed widely, as no adequate base has been available. Most of the penicillin ointments were quickly inactivated and became irritants rather than therapeutic agents.⁸ It is possible that this difficulty has now been overcome and more use may be made in the future of penicillin ointments and creams, though limits of tolerance to, and absorption from, such ointments have still to be established. Since penicillin fails to pass the blood-aqueous barrier, it is tempting to inject it directly into the aqueous and vitreous, but it seems that only relatively small quantities can be so injected without damage. The limit of tolerance of the anterior chamber is probably about 200 units, and perhaps rather less for the vitreous.⁹ Experimentally it has been found that massive quantities of penicillin injected into the vitreous produce extensive damage.^{9,10} A less drastic procedure—subconjunctival injection, and though relatively large quantities have been used by some observers¹¹ it appears that the limit of tolerance is again relatively low—injections of about 600 units repeated daily.⁹ With any of these methods concentration and the maintenance of concentration are poor. Drops are soon washed out from the conjunctival sac, and excretion from the anterior chamber of any injected penicillin is rapid. Penicillin

introduced into the vitreous persists for considerably longer, possibly for more than 48 hours,⁵ but injected subconjunctivally it is probably excreted in a matter of hours. The difficulties in obtaining and maintaining adequate concentrations by means of local applications are therefore considerable. These difficulties are illustrated by the studies recorded on ophthalmia neonatorum.^{6,7} Here penicillin in a concentration of 500 units per c.cm. instilled in the form of drops gave less satisfactory results than penicillin in double that concentration, while 1,500 units per c.cm. gave better results still, and with a concentration of 2,500 units per c.cm. recovery became the rule. Instillations at intervals of half an hour gave better results than hourly instillations, while remarkably rapid clearing of the infection took place when penicillin was instilled at intervals of five minutes. Even better results may be expected when penicillin is administered almost continuously—that is, at intervals of one minute for half an hour.¹²

It is generally accepted that penicillin, like the sulphonamides, is ineffective against virus diseases. There is, however, ample evidence that the sulphonamides are effective against some of the larger viruses, such as those of lymphogranuloma inguinale and rat pneumonitis. They have also proved invaluable in trachoma and in inclusion blennorrhoea. Successes with local penicillin in inclusion blennorrhoea^{5,7} suggest that it may also prove of value in trachoma—and presumably in other infections due to the larger viruses; and, indeed, promising results are already on record.^{9,13,14} In contrast to the uncertainty as to the action of penicillin on viruses is its established efficacy against the spirochaete. The possibilities thus opened in the treatment of ocular syphilis have as yet scarcely been explored.^{9,15} For the present the scope of penicillin in ophthalmology seems confined to its local use in external infections of the eye. Little is to be hoped for from general administration, while the introduction of penicillin directly into the eye still presents many difficulties that require intensive study. But if methods for the direct introduction of penicillin into the eye are evolved, then in many conditions treatment by the oral administration of sulphonamides may well be replaced by the local application of penicillin.

HEALTH OF FACTORY WORKERS IN 1944

In the report of the Chief Inspector of Factories for 1944¹⁶ Dr. E. R. A. Merewether, the senior medical inspector, is responsible for a very full and detailed article on "Industrial Health." It forms, in fact, nearly a third of the whole report, and Dr. Merewether points out that an increase in the importance of industrial health is evident in many ways. Several universities are establishing departments of industrial health, fellowships are being provided for those who wish to qualify for teaching and research posts, and the Medical Research Council has set up research units at several centres. Most industries can be improved so far as health and safety are concerned, and Dr. Merewether maintains that it is essential for industrial research and industrial health research to be closely integrated on a national scale.

¹ Struble, E. C., and Bellows, J. G., *J. Amer. med. Ass.*, 1944, 125, 685.

² von Sallmann, L., and Meyer, K., *Arch. Ophthalm.*, Chicago, 1944, 31, 1.

³ Leopold, I. H., *ibid.*, 1945, 33, 211; Leopold, I. H., and La Motte, W. O., *ibid.*, 1945, 33, 43.

⁴ Wright, R. E., and Stuart-Harris, C. H., *Brit. J. Ophthalm.*, 1945, 29, 428.

⁵ Rycroft, B. W., *ibid.*, 1945, 29, 57.

⁶ Sorsby, A., and Hoffa, E. L., *British Medical Journal*, 1945, 1, 114.

⁷ Sorsby, A., *ibid.*, 1945, 1, 903.

⁸ Parry, T. G. W., Laszlo, G. C., and Penistan, J. L., *Brit. J. Ophthalm.*, 1945, 29, 479.

⁹ Sorsby, A., *ibid.*, 1945, 29, 511.

¹⁰ von Sallmann, L., Meyer, K., and Di Grandi, J., *Arch. Ophthalm.*, Chicago, 1944, 32, 179.

¹¹ Rycroft, B. W., *Brit. J. Ophthalm.*, 1945, 29, 501.

¹² Sorsby, A., *British Medical Journal*, 1945, 2, 542.

¹³ Giltord, G. H., *ibid.*, 1945, 1, 232.

¹⁴ Darius, D. J., *Amer. J. Ophthalm.*, 1945, 28, 1007.

¹⁵ Greaves, A. R., *British Medical Journal*, 1945, 2, 542.

¹⁶ Annual Report of Chief Inspector of Factories for 1944. Cmd. 6698. H.M. Stationery Office. (1s. 6d.)

The statistical tables given in the report show that in 1944 lead-poisoning cases reached the lowest annual figure on record, and for the first year since official figures have been kept no case of poisoning in the pottery industry was notified. What a contrast with the experience of 1900, when no fewer than 210 cases were recorded! Perhaps the chief protecting factor is the almost universal adoption of leadless or low-solubility glazes. The poisonous effects of TNT were distinctly less marked than in 1943, there being 36 cases of "anilism"—i.e., haemolytic action on the red blood cells evidenced by cyanosis and shortness of breath—11 cases (1 fatal) of toxic jaundice, and 6 cases (5 fatal) of toxic anaemia. The cases of epitheliomatous ulceration of the skin numbered 205 (20 fatal), and showed a substantial rise on 1943, when they were 160 (15 fatal). Of the 45 cases due to mineral oil, cotton mule spinning contributed 38 (13 fatal), and it is much to be regretted that the effective modern methods of treatment in the early lesions of the skin from agents known to be carcinogenic were not always employed. The cases of gassing numbered 450 (25 fatal), and were only about two-thirds as numerous as in the immediately preceding years, those due to nitrous fumes being only about a fourth as numerous.

The subject of pneumoconiosis is discussed at some length, and Dr. Merewether points out that it is only by studying the cases statistically over many years in relation to the causative industries and processes, and to economic factors such as housing and nutrition, that it will be possible to assess the relative risks and the progress achieved in reducing them. One table sets out particulars relating to 1,750 fatal cases of silicosis, with or without tuberculosis, and 190 fatal cases of asbestosis, which have been investigated by the Factory Department since 1929. The average duration of employment in the cases of silicosis was 34.0 years, and in cases of asbestosis 15.1 years, the averages when these diseases were complicated by tuberculosis being 31.3 and 10.4 years respectively. In some cases it has been possible to replace siliceous by non-siliceous materials—e.g., in grinding wheels for metals, and by substituting alumina for flint in placing china. In other processes measures have been adopted to reduce dust, and these and other factors have resulted in a distinct lowering of mortality. A comparison of 1935–8 with 1941–4 shows that the yearly mortality in the pottery industry fell from 52 to 41, and that in sandstone industries from 95 to 67. However, deaths from fibrosis of the lung observed in coal mining have gradually increased.

The report gives a detailed account of the latest observations on the effects of radio active substances. The number of luminizers employed has risen steadily from year to year, and in 1944 they amounted to 561. The National Physical Laboratory examined them by a dental film test, and found that almost all were exposed to less than 10 roentgen per week. In half a dozen firms, however, groups of workers were exposed to much heavier dosages in some cases exceeding 50 roentgens per week, and the causation of the excesses is discussed. The health of 450 of the luminizers was investigated by Dr. Ethel Browning and was found to be remarkably good. The incidence of slight dermatitis of the skin of the fingers around the nail was considerably less than usual, owing chiefly to the use of a protective paint container, and the requirements of a Factories Order prescribing for all luminizers an interval of three months' removal from contact after one year's continuous employment. Disturbances of the blood picture were slight in character, and showed no tendency towards aplastic anaemia.

Medical and nursing services in industry continued to develop in efficiency. At the end of 1944 there were 180

doctors exercising full-time medical supervision in 275 factories, and 890 exercising part-time supervision in 1,320 factories. There were about 7,600 women nurses and 200 male nurses. The Docks Medical Services continued to develop and were highly successful. For instance, at Liverpool 9,034 new cases were dealt with, two-thirds of them relating to dockers. In summarizing his report Dr. Merewether emphasizes the immensity of the scene portrayed, and the widespread interest in industrial health evinced by all sections of the community.

THE METRIC SYSTEM

In a letter from Istanbul Prof. W. C. W. Nixon¹ made in our columns a plea for the adoption of the metric system in medicine. Other correspondents supported him, and if there were any whole-hearted advocates of the imperial and apothecaries' units they remained silent. The metric system is used universally in scientific work, and for all purposes in many countries, and it has the merit of practical simplicity. There are other good reasons for adopting this system in medicine. Sulphonamides are already prescribed and dispensed metrically, and so are numerous other drugs which have helped to alter prescribing habits. Doctors who have been abroad during the war and have had to use the metric system in prescribing seem to have done so without much difficulty.

An abrupt change to the exclusive use of the metric system would lead to confusion, but it seems that the time is ripe for the introduction of the metric system throughout the *Journal*. One of the principal reasons for doing this now is to enable the medical man abroad to read the *Journal* in terms of the system of weights and measures familiar to him. More than 15,000 copies of the *Journal* are sent abroad each week, and the foreign doctor is looking eagerly to this country for professional and technical information. We hope, too, that increasing familiarity with the metric system will encourage British doctors to hasten the end of a system which isolates us from the rest of the scientific world. Metric equivalents will be inserted parenthetically after each old style dose, weight, and measure from this issue onwards. This is the beginning of a phase of transition which we optimistically hope will end in the general use of the metric system in British medicine. How long this phase will last remains to be seen, but in the United States the same transition phase has recently ended.² It began in 1900 which is a sobering thought.

The War Office has announced releases of doctors from the R.A.M.C. for January and February as follows:—General duty medical officers: Groups 25–30 in January; Groups 31–38 in February. Specialist medical officers: Groups 25 and 26 in January; Group 27 in February. The greater age of entry of specialists has the effect of bunching the majority of specialists into the first thirty groups. The release of specialists in Groups 1–27 is proportionately equivalent to Groups 1–38 in the case of general duty medical officers. The Central Medical War Committee is taking steps with a view to securing the recruitment of further specialists to enable releases to proceed at a proportionate rate with general duty medical officers.

The first part of the New Year Honours List is published while this number of the *Journal* goes finally to press, and we must therefore wait a week to announce the medical names, of which there are many.

¹ *British Medical Journal* 1944, 2, 320.
² *J. Amer. med. Ass.*, 1943, 122, 900.

OCULAR SIGNS IN THE PRISONER OF WAR RETURNED FROM THE FAR EAST

BY

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Major, R.A.M.C.

AND

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Large numbers of men released from Japanese prison camps will soon be arriving in this country. At a military ophthalmic centre we have during the past two months examined some 30 men who were released at the recapture of Rangoon. They had all been prisoners of war for from two to three years. During this period they had been compelled to do hard manual work on a wholly inadequate diet, the bulk of which was rice. They had no headgear and little or no protection against the sun. Those who wore glasses had these removed when captured, and they were never replaced. The majority had suffered from dysentery (26 cases), malaria (15 cases), and beriberi (27 cases). The following ophthalmic case records of these men are submitted as a basis for discussion.

Report on Cases of Beriberi

Two of the men had suffered from "wet" beriberi, and three others had had both "wet" and "dry" forms of the disease. The other 22 had "dry" beriberi. The average duration of the disease was six months, and most of the men had noted that their sight was failing towards the end of their illness.

Ocular Signs.—On examination 10 cases were found to have bilateral central scotomata. In not one of these 10 was there contraction of the peripheral visual field either to white or to colours. There was no constancy in their colour scotomata. Five of the 10 had a degree of visual failure which prevented their corrected vision being brought above 6/60. The ophthalmoscopic examination of these 10 cases revealed that all 20 optic disks showed some degree of pallor. In the eight cases presently to be described four of the optic disks showed an apparent primary optic atrophy; four showed pallor of the papillo-macular bundle; in the remaining eight optic disks there was pallor of the temporal half. The four cases of apparent atrophy had pupils that were relatively enlarged, but these pupils retained their normal reactions to accommodation.

Among the 20 cases without scotomata, one man alone showed some difficulty in convergence; he had a long-standing defect in one eye—"amblyopia ex anopsia." The cases with scotomata did not reveal evidence of ocular muscle paresis. Another of those without scotomata achieved bilateral vision of 6/9 on correction. He stated that at the time of his "dry" beriberi he had suffered from a considerable amount of photophobia. He was treated with a "kind of bran," and indeed was the only man to receive anything but the most crude type of medication in captivity. His ocular symptoms had disappeared with the cure of the beriberi.

Earlier this year we examined two men who showed leucocoma but no optic nerve degeneration as a cause for visual failure. They had been for a long period prisoners of war of the Japanese, and had been rescued by a submarine that had torpedoed their prison ship. They attributed their eye condition to the long period of immersion in the oily sea.

It is of some interest that not one of the 30 men examined in this series showed ocular signs of ariboflavinosis. Yet during the same period we have seen two men back from German prison camps who, though they did not have beriberi, had a definite increase of limbal vascularization. The accompanying table summarizes the detailed investigation of eight of the ten cases of bilateral central scotomata.

Discussion on the Cases

General.—Elliott (1920) states that beriberi is mainly a disease of the young adult of between 16 and 30 years of age. In Japan the disease is apparently most common in the hot weather from July to September; while the ocular manifestations are most often seen in November, December, and January. Out of 6,000 patients examined by Ishihara, 32 showed amblyopia; 6 of the cases of amblyopia were due to beriberi. Elliott does not, however, say how many of the cases had bilateral amblyopia. Maynard of Calcutta associated glaucoma but not optic atrophy with "wet" beriberi. We have no evidence to offer in connexion with this point.

Retrobulbar Neuritis.—In 1895 Kono stated that the characteristic ocular signs of beriberi were: (a) central scotoma, (b) amblyopia, (c) contraction of the visual field. Elliott adds that as the scotoma increases the central vision rapidly falls to 6/60, but thereafter remains relatively constant. There has been considerable disagreement as to the constriction of the peripheral visual field. Coppez definitely states that there is no contraction. Ishihara says that it occurs, but only transiently. Yamaguchi claims that there is only constriction in the red and green peripheral fields.

Fundus Appearance.—Yamamoto states that there may be: (a) no apparent fundus lesion; (b) partial optic atrophy, limited to the temporal quadrant; (c) the whole optic-nerve head may show atrophy. Ishihara states that the papillo-macular bundle is most often affected.

Scotomata.—The resemblance of the scotomata of beriberi to those due to tobacco-alcohol, lead, quinine derivatives, and general cachexia was early recognized. Miyashita described the scotoma as "pestle-shaped," and said that it connected the blind and fixation spots. Aoki and Yamamoto stated that the colour scotomata lay within the white scotoma, in the following order of diminution: green, red, and blue. Over this point there has been much dispute. Miyashita says that the colour sense is often disturbed, especially for green. In our series there was a "tail" to the white scotoma leading from the fixation spot towards an enlarged blind spot. There did not appear to

Table giving Details of Eight Cases of Bilateral Central Scotomata

Patient	Age	Unaided Vision	Aided Vision	Date of Capture	Length of Captivity	Beriberi			Malaria	Dysentery	When Sight Failed	How Affected	Remarks
						Type	Duration	Onset					
A	27	Rt. 6/18 Lt. 6/18	6/18+ 6/18+	12/3/42	3 years	Dry	7-8 months	March, 1943	Yes	Yes	April, 1943	Centre of objects blurred.	Scotoma of rt. eye absorbs blind spot
B	31	R. <6/60 L. <6/60	<6/60 <6/60	24/2/42	3 years	Dry	7 weeks	April, 1943	4 attacks	No	April, 1943	Vision decreased before paresis appeared	—
C	26	R. 6/18 L. 6/60	6/9 6/36	12/3/42	3 years	Dry	—	Jan., 1943	2 attacks	Yes	Nov., 1943	Not recognize people 30 yds. and near sight	"Tailed scotoma"
D	23	R. 6/36 L. 6/36	6/24 6/18	29/3/43	2 years	Dry	6-9 months	Jan., 1944	Several attacks	Yes	Early 1944	Rapid onset: people's faces blurred, rest clear	"Tailed scotoma"
E	23	R. 6/60 L. 6/36	6/36 6/36	28/12/43	2½ years	Wet Dry	4 months	Dec., 1944	No	Yes	After beriberi	Noted gradual bilateral failure	"Tailed scotoma"
F	29	R. 6/60 L. <6/60	6/60 <6/60	Uncertain	3 years	Dry Wet	6 months	Sept., 1943	Yes	Yes	?	?	"Tailed scotoma"
G	29	R. 6/60 L. 6/60+	6/60 6/60+	12/3/42	3 years	Dry	8 months	Dec., 1942	No	Yes	Before beriberi	Noted improvement since repatriated	"L.E. tailed scotoma"
H	31	R. IV/60 L. IV/60	6/60 6/60	20/12/42	2½ years	?	?	?	Yes	Yes	12 months after capture	—	—

be any "nuclei" lying between the blind and fixation spots. Our colour scotomata were inconstant.

Paresis of Ocular Muscles—Manson states that such pareses are rare. Yamaguchi found all types of paresis and, above all, that of accommodation. Stitt merely states that there is no Argyll Robertson pupil. Da Silva Lima in his Brazilian case noted paresis of the sixth cranial nerve. Elliott found ptosis, and noted that most Japanese authorities agreed that there was some paresis of the sixth cranial nerve. We found no paresis in the 10 cases with scotomata.

Diminution of Sensitivity of the Cornea and Conjunctiva—In 1918 Ishizu referred to such diminished sensitivity. In 1899 Tzurumaru associated retrobulbar neuritis with xerosis and xanthopsia. In 1930 Ozuchi reported cases of superficial keratitis with a coincident retrobulbar neuritis in which there was a deficiency of vitamin A. We found no diminution of sensitivity in our series; neither was there evidence of xerosis. Photophobia had been noted by one man but no xanthopsia or hemeralopia.

"Dry" Beriberi: Pathology; Prognosis; Treatment

The pathological findings in the central nervous system are demyelination, haemorrhages and subacute inflammation of the white nerve-fibres and the surrounding membranes. Some axis-cylinders are found to be fragmented. In regard to the muscle pareses, Wright noted "a mild chromatolysis in the trophic cells of the affected nerve-fibres" (Nissl). Kagoshima, on post-mortem section of five cases that had shown scotomata, found a "distinct and limited atrophy of the fibres in the outer section of the optic nerve in all of them."

Miyashita holds that the poorly nourished individual is the most likely to develop eye symptoms. But even in the worst cases the central vision rarely falls below 6/60. Elliott only states that complete blindness need never be anticipated. The men of our own series of cases had been told that their sight might recover in the next eighteen months. We have been unable to find an authority for this prognosis. Even allowing for slight improvement due to diminution of inflammation, surely the damage to the optic nerve itself is irreversible. Also the prognosis in cases of bilateral retrobulbar neuritis from other causes is always gloomy.

Elliott states that in Japan it is usual to stop the intake of rice and to substitute a bean called "azuki" (*Phaseolus radiatus*). Aoki states that under this regime the scotomata rapidly diminish, only to return when the ingestion of rice is resumed. Yamamoto combined barley with the bean diet, and Yamaguchi claimed a total recovery of all eye symptoms in one case after a month's dieting. Elliott claims that "if this rational line of treatment is not adopted the prognosis is a bad one."

Vitamin Deficiency

All the early authors apparently associated beriberi with the removal of the pericarp of the rice in the process of "polishing." This removal of vitamins B₁ and B₂ has now come to be regarded as the main cause of the nerve signs. Lindsay Rea (1938) quotes Fitzgerald Moore (Nigeria, 1934) as noting that a deficiency of both vitamins A and B produced an optic neuritis. He states also that in the Philippines a lack of vitamin B was responsible for keratitis. Deficiency of vitamin A may lower the standard of resistance to infection, but it is not responsible for neurological signs (Woolbach). Hemeralopia, was not one of the symptoms that our patients complained of, neither had they signs of xerosis. Kemoto reports one case with hemeralopia and scotoma of 18 years' duration. Vedder, in 1940, stated that diets deficient in vitamins A and B cause nerve degeneration, and postulated an "X" cause for "dry" and "Y" for "wet" beriberi. But pellagra patients (B₃ deficiency) seldom show optic atrophy.

The modern theory of the causation of tobacco-alcohol amblyopia holds that defective intestinal absorption is responsible for a deficiency of vitamin B, and that this deficiency is responsible for the consequent optic atrophy. Vitamin B is not stored in the body, and the daily requirements of the adult are from 300 to 750 i.u. In hot climates there is increased consumption of B₁, especially when the subject is engaged in hard manual work. The intestinal upset of dysentery will prevent the absorption of B₁, and a starchy diet will make a

B deficiency manifest itself earlier. Rice that has gone mouldy loses most of its vitamin content. But increased vitamin B₁ in the diet will not restore visual function in either beriberi or tobacco-alcohol amblyopia, although the peripheral nerve symptoms of beriberi are ameliorated.

We feel, with Meiklejohn (Stitt, 1942b), "that the exact nature of the deficiency of nutritional neuritis remains obscure," but we do regard the damage done in beriberi to the optic nerve (a true portion of the C.N.S.) as final.

Conclusions

We trust that we have shown a relationship between the scotomata to white in our series of cases and those of the toxic amblyopias. The question of the shape of the colour scotomata can be settled only after examination of several hundred cases.

Deficiencies of vitamins B₁, B₂, and (very dubiously) A appear to have played their part in the ocular signs of beriberi.

We submit that bilateral optic nerve degeneration in beriberi is more common than the literature would indicate.

We think that the ocular signs of the disease do not of necessity include a contraction of the visual peripheral field, also that ocular pareses is uncommon.

We conclude that, as the optic nerve is part and parcel of the C.N.S., the damage done to the nerve proper by the acute optic neuritis of beriberi is final, and that any improvement of vision can be but slight.

Summary

Ocular signs in 30 recently rescued prisoners of war have been described.

Eight cases are discussed out of ten who showed evidence of: (a) bilateral retrobulbar neuritis; (b) no constriction of the peripheral visual field; (c) no ocular muscle paresis; (d) scotomata to a white target with a "tail" from the fixation point leading to the enlarged blind spot.

The relevant literature has been discussed. (Our main source of reference has been *Tropical Ophthalmology* (R. H. Elliott, Oxford Univ. Press 1920). This contains many references to Japanese authorities.)

We would be extremely grateful for any information on beriberi cases with similar ocular signs from the wealth of clinical material that will shortly be available.

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[Scotometric charts were submitted with the MS of the paper, but it was found impossible to include them in the published account.]

PARACENTESIS AND MYRINGOTOMY: A QUESTION OF TERMINOLOGY

BY

T. B. JOBSON, M.D., B.Ch.

There are two minor operations on the ear which are quite distinct in technique but confused in nomenclature. One is the withdrawal of fluid from the middle ear by means of a hypodermic syringe and a 2-in. (5-cm.) hypodermic needle bent at an obtuse angle. This operation is not mentioned in any of the books on otology that I have seen. It is a valuable diagnostic procedure. In many cases I have been able to establish the fact that fluid was present and to identify the causal organism—always a single organism, whereas the pus from a discharging ear often yields several organisms. This drawing-off of fluid by a syringe from other parts of the body—for example, from an empyema—is termed paracentesis. Unfortunately, the term paracentesis is used in a large number of the books on otology to imply making an incision in the tympanic membrane for the purpose of drainage.

The derivation of these terms, myringotomy and paracentesis, is interesting and should help us to make a choice.

Myringotomy is a comparatively modern word. It was first used by Gruber¹ in 1863 and appears later in Ravogli's "La Miringotomia."² Mr. Rome, our helpful librarian at the Royal Society of Medicine, has kindly found these references for me. The actual articles are not in the library and can be found in this country only in the library of the Royal College of Surgeons, which is at present dispersed. The term myringotomy, although a hybrid, expresses accurately the operation of incising the tympanic membrane. It is derived from *myringa*, the membrane, a modern Latin word, and *τεμνω*, I cut, a Greek word.

MYRINGOTOMY

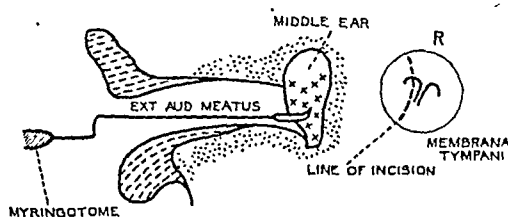


FIG. 1

When we come to paracentesis we are on more debatable ground. Paracentesis is a very old word, and was used by Galen, not as applied to the middle ear but in the sense of tapping for fluid in cysts, ascites, etc. It is interesting to read Galen's exact words on this subject. A friend (Mr. Burns) has kindly translated this extract for me.

"Tumours usually occur in the wrists and we remove them for the most part from women who are workers in wool; these also can be mollified by wax salve. Tumours and abscesses in the armpits we remove by cutting round them; similarly when they are found in the groin. In dealing with abscesses between the ribs, we make a distinction, and do not draw off all the matter altogether but little by little. . . . Sufferers from dropsy we tap slightly with an iron instrument shaped like a myrtle leaf, passing in from the left until it reaches the cavity."



FIG. 2.—A leaf of *Myrtus communis*.

Παρακέντησις means "poking through or across" and exactly expresses what Galen did. This is also what is done in drawing off fluid from the middle ear by means of a bent hypodermic needle attached to a syringe.

PARACENTESIS

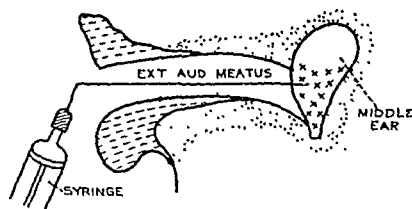


FIG. 3

suggest that this operation should be known as paracentesis. rue, it has not quite the Galenical meaning, but we need a word to denote the suction of fluid from the middle ear. It is incorrect to use this word to mean cutting the membrane.

¹ Gruber, I., "Die Myringotomie als Heilmittel gegen Schwerhörigkeit und Ohrensausen," *Allg. Wien. Ztg.*, 1863, 8, 305, 313, 321, 329, 338.
² Ravogli, A., "La Miringotomia," *Arch. di Med., Chir. ed. ig Roma*, 1875, 7, 321.

A David Anderson-Berry silver-gilt medal, together with a sum of money amounting to about £100, will be awarded in 1947 by the Royal Society of Edinburgh to the person who, in the opinion of the council, has recently produced the best work on the therapeutic effect of x rays on human diseases. Applications for this prize are invited. They may be based on both published and unpublished work and should be accompanied by copies of relevant papers. Applications must be in the hands of the general secretary, Royal Society of Edinburgh, 22, George Street, Edinburgh 2, by Dec. 1, 1946.

DESIGN AND CRAFTSMANSHIP FOR THE TUBERCULOUS

A new attitude is coming over rehabilitation of tuberculous patients. No longer need one think exclusively of chicken farms, garden seats, leather bags, and the routine of factory life. The tuberculous subject has very often high mental endowment, and the field of art and creative design is one in which he can obtain constructive openings. The matter was discussed at a conference called by the National Association for the Prevention of Tuberculosis, and very largely attended by representatives of the medical profession, occupational therapists, and artists. It appears that there are at least 83 industries in this country where draughtsmen, craftsmen, designers, and workers in decorative and applied art are employed.

Commerce and Therapy

The DUCHESS OF PORTLAND, who took the chair, said that congenial employment was for tuberculous patients the breath of life. There was no reason why such patients should not produce first-class work of commercial value, and not merely something which depended for its sale on the charitable appeal of the sad label "Work by the Disabled." Sir WILLIAM CRAWFORD stressed the quality of British goods, but said they were not presented attractively enough and lacked colour, form, and design. Here was a field for the tuberculous patient—a field offering continual new interest which was beneficial to the patient, and one in which the work was both light and remunerative. Mr. PHILIP JAMES, director of the Council of Arts, said that people did not yet fully understand the healing powers of art. From the practical point of view there were two essentials: that instructors should be experts who encouraged creative design, not slavish copying, and that goods produced should be of commercial value and not "just Christmas presents." Mr. H. W. YOXALL emphasized the importance of good design, both for selling goods and for its therapeutic effect. The work taught should be work which would sell on its own merits and not on charitable appeal, and he advised concentration on industrial design for which there was an assured market, rather than on arts and crafts which called for specialized selling.

Dr. W. C. FOWLER, medical superintendent of Pinewood Sanatorium, thought from his own experience that about 10% of patients had clear potentialities, but that every tuberculous patient would benefit from the raising of the general standard of culture. He touched on the question of infection, and said that all articles made were easily and quickly disinfected. Many other points were raised in discussion. Dr. R. R. TRAIL, medical director of Papworth Village Settlement, pressed for two practical measures: the appointment of artists to teach people on an agreed scheme, and the obtaining of definite offers from commercial firms to consider the designs and work produced. These conclusions embodied the opinion of the meeting.

These general ideas have now to be translated into action, and the N.A.P.T. intends to make a practical scheme through which any tuberculous patient who needs help and coaching in exploiting his talent to the full in arts and crafts will not fail to get it.

MEDICAL LIBRARIES OF EUROPE GIFT FOR A CENTRAL BUREAU

The Rockefeller Foundation has made an appropriation to the Royal Society of Medicine of a sum not exceeding £61,725, for capital expenditure and tapering maintenance over four years, to establish a Central Medical Library Bureau. The immediate function of this organization is to help in the rehabilitation of medical libraries on the Continent which have suffered through deprivation or devastation, and its long-term function the exchange of scientific medical information between individuals and institutions.

The method to be employed initially is the use of microfilm. A number of the best "microfilm readers" obtainable will be bought by the Society and lent to participating institutions. The scheme approved by the Rockefeller Foundation contemplates that while the work of rehabilitation is being carried on, interchange of information between medical libraries will be developed into a permanently functioning scheme which can continue to operate when rehabilitation is completed. Thus the more permanent function of the Central Medical Library will

be gradually established and the subscriptions of individuals and of associated libraries should enable the Royal Society of Medicine to continue the service without further help from the Rockefeller Foundation.

Preliminary work on detail of this scheme is in active progress. A conference will be convened by the Society at an early date to which institutions concerned in its original scheme will be invited to send representatives in order that the new plan may be laid before them.

LONDON VOLUNTARY HOSPITALS

INCREASING PUBLIC SUPPORT

King Edward's Hospital Fund for London has performed another service by producing an elaborate analysis of the finance and work of 167 voluntary hospitals in London in 1944.¹ The financial tables show the impressive volume of public support which these hospitals continued to command even in the year when London was subject to flying bombs and other war distractions and when in consequence the hospitals themselves had fewer beds occupied and fewer people coming to the out-patient departments. The subscriptions and donations rose by £80,000 over the amount for the previous year and reached a figure of £1,144,000. Contributory schemes brought in a further £733,000, again a considerable increase, but patients' payments were, of course, down.

The amount derived by the voluntary hospitals from the public authorities worked out at just over 30% of their total maintenance income. This amount differs widely as between different classes of hospitals and as between different hospitals in the same class. For the twelve teaching hospitals the total sum received from public authorities was £725,429, being 32.9% of income, and in the larger general hospitals without medical schools the percentage was higher, and in some of the special hospitals—the chest hospitals, for example—it rose to more than half the income. The total sum received by all the hospitals from public sources was £1,803,000, an increase of £373,000 on the year, the increase being due to grants under the E.M.S. scheme and towards the increase in nurses' salaries. The public is generous to the voluntary hospitals, but, on at any rate a superficial reading of these figures, erratic in its preferences. The teaching hospitals receive only 15% of their income from subscriptions and donations, but the larger non-teaching hospitals receive a considerably larger proportion—possibly a reflection of local pride. Of the teaching hospitals the favoured one in 1944 was the Royal Free, which received 45% of its income in the form of voluntary gifts, whereas St. Bartholomew's received only 11%; but St. Bartholomew's has a far larger income from invested property than any other hospital.

The total bed complement of these 167 hospitals at the end of 1944 was 23,377, but the number of beds open to patients was 17,721, and the average number occupied daily during the year was 10,405. One perplexing feature at first sight is the great difference between the average periods of residence of patients in different hospitals, even hospitals of the same class. In the teaching hospitals the average period varies from 21.4 days at the London to 12.9 days at St. Bartholomew's. It is a little difficult to see why the average period of residence should be twice as long at the Metropolitan Hospital as at St. John's, Lewisham, or twice as long at Hendon as at Purley. Among the children's hospitals the average stay of patients at Queen Elizabeth's is 21 days and at Paddington Green 11 days. No doubt the position is influenced by the number of patients who stay, particularly at certain hospitals, for very short periods. For example, at St. Bartholomew's 1,488 patients were in the wards for three days or less, as compared with 564 at Middlesex and 587 at Westminster, each of the hospitals having about the same total number of in-patients. Other factors may be the ratio of medical to surgical beds in different hospitals and the existence of convalescent-home facilities.

CARE OF CHILDREN UNDER FIVE

Recognizing as an "unattainable ideal for the present" a situation in which mothers of children under 2 years of age will be discouraged from going out to work, the Ministers of Health and of Education have in a recent circular, asked local authorities to make plans for adapting wartime nursing services to present needs and to submit these plans by the end of February. It is pointed out that for some time to come the need for women workers in certain vital industries may be as urgent as it was in wartime, and thus, with housing and shopping difficulties, makes it necessary that provision for the day-time care of children up to the age of 5 should continue, including some for the "under 2's," who are not admitted to nursery schools and classes. The methods to be adopted will rest with the local authorities, but the circular suggests a combination of the following: nursery schools, nursery classes, day nurseries, and schemes of day guardians, using maternity and child welfare centres on two or three afternoons a week as temporary crèches; organizing responsible women or older girls as volunteers to "sit in" at the homes of children while the parents go out together in the evening. Local authorities are asked to consider which wartime nurseries should continue to be run under maternity and child welfare powers; which should be taken over and run as nursery schools or nursery classes; and which should be closed. The cost of running wartime nurseries and wartime nursery classes will continue to be borne by the Exchequer until March 31. From that date such wartime nurseries as become nursery schools or nursery classes will attract the normal education grant from the Ministry of Education. Wartime nurseries continuing as day nurseries will receive a similar grant from the Ministry of Health. This grant will also be payable for registered day guardian schemes, afternoon crèches, and evening "sitters in."

MEDICAL FOUNDATION OF EPSOM COLLEGE

In spite of a long list of pensions, annuities, and scholarship, totalling over £13,000, awarded during 1945 the Royal Medical Foundation of Epsom College has to announce that owing to lack of funds many deserving applicants—medical men and women, and children of school age—remain unassisted. There is a waiting list of 28 applicants for pensions and 24 for annuities. The object of this Foundation is to help the families of less fortunate colleagues, and that this aid is given far and wide is seen from the following list for 1945:

General pensions	£
41 Foundation scholarships for boys educated, clothed, and maintained entirely free of cost	1,593
13 school trips for girls	676
15 exhibitions for boys	570
133 pensions and annuities of varying amounts	615
Grants towards education of 38 boys and girls	2,935
Grants to widows and spinsters	949
	322

When it is realized, however, that to maintain this assistance the Foundation has to rely upon the generosity of subscribers for over £10,000 a year, then the need for more and larger subscriptions is only too apparent. An appeal is therefore made for all who can to help the Foundation in its work in 1946. Subscribers may, if they wish, ask for their contribution to go to some particular beneficiary, and here it may be mentioned that the Sherman Bigg Fund enables the Foundation to make educational grants for those who cannot obtain scholarships. Subscriptions and donations for whatever aspect of the work may be sent to the Secretary, Epsom College Surrey.

A POLICE EXHIBITION IN 1946

A Police Exhibition is to be held at Brighton from June 4 to 22, when the Chief Constables (Cities and Boroughs of England and Wales) Association will hold its fifteenth conference. The Brighton Corporation is lending part of the Municipal Art Galleries and Museum for the exhibition. Its objects will be to create a wider public interest in the preventive and detective aspects of crime, and to draw attention to the advances made in forensic science. Certain scientific and criminal exhibits will be shown privately in the Royal Pavilion. Invitations will be extended to members of the legal, medical, and scientific professions, magistrates, and police to visit this.

The Home Secretary has shown his interest in the exhibition, and the Home Office is helping in the preparatory work. The Commissioner of Police of the Metropolis is lending exhibits from the Museum at New Scotland Yard, and chief constables and directors of Home Office Forensic Science Laboratories are contributing from their collections. Offers to lend documents, records, and exhibits of historical, legal, criminal, or scientific interest will be welcomed, and correspondence should be addressed to the Chief Constable of

Reports of Societies

DIET IN MENTAL ILLNESS

In the Section of Psychiatry of the Royal Society of Medicine on Dec. 11, with Dr. G. W. B. JAMES in the chair, there was a discussion on the importance of diet in mental illness.

Dr. W. REES THOMAS said that the point which had impressed him during his years in mental work had been the necessity for a varied diet. The history of dietetics in mental hospitals made sad reading. Twenty or thirty years ago little was known about diet, and the patients, though reasonably well fed, suffered from various dietetic deficiencies which he hoped did not exist to-day. In 1942 he undertook a special examination of a large number of patients in mental hospitals to discover whether there was evidence of vitamin deficiency; there was very little evidence of deficiency of vitamin C, and vitamin A was not shown to be deficient at all. The death rate in mental hospitals during the war was very much lower than during the war of 1914-18, when the increase of deaths in the mental hospital population became alarming; yet during the war just ended overcrowding had been greater, ventilation (owing to the black-out) had been poor, and shortage of nursing staff acute. From 1939 to 1941 the death rate rose gradually, but it began to fall in 1942, and by 1944 was at about the pre-war figure. In his view the difference in the position in the two wars was due to the recognition of the importance of diet. From a diet analysis carried out in 1942 it appeared that in two-thirds of the mental hospitals of this country the mean calorie value of the ordinary diet was 2,360 calories a day. Some 27% of the patients, owing to the circumstances of their work, received extra food, and 10% had extra food for other reasons. Such a calorie value was fairly good when it was remembered to what a large extent the population consisted of old people. The common complaint was lack of variety.

Mental Hospital Diet and the Rationing System

Dr. H. E. MAGEE said that the Special Diets Committee of the Medical Research Council, which advised whether patients suffering from any particular disease should have special allowances of rationed or other foods, had not recommended any priorities for mental patients, though such patients suffering from other complaints—e.g., diabetes or tuberculosis—were entitled to the prescribed allowances, and mental hospitals, like other institutions, could obtain a priority allowance of 2 lb. fish weekly for every patient requiring a light diet. The individual patient varied in his requirements according to the amount of muscular exercise he performed, from 3,500 calories a day for those who worked in the open air to 2,400 for those who did quiet and confined work indoors. Other things being equal, the needs of mental patients varied with their complaints. The melancholic or paranoic type might require only 2,000 calories a day, whereas the excitable type, with exaggerated reflexes, lack of co-ordination, continual unrest, and insomnia, might require 4,000 or more. Probably the need of the average adult male patient in a mental hospital was about 3,000 calories, and of the female 2,200. Could this be given under present rationing system? If the diet included all the needed and "points" foods, and if bread, potatoes, oatmeal, fresh vegetables were given to satisfaction, there need be no fear of deficiency, whether in regard to energy value, proteins, minerals, or vitamins. In a diet of 3,000 calories, if a sensible choice were made of the "points," rationed foods would supply about 1,040 calories and 35 g. protein, mostly of animal origin. The remaining 2,000 calories would come from bread and flour (1,100), potatoes and oatmeal (220 each) and from such accessories as sausages, fish, and offal. These unrationed foods provided about twice as much protein as the rationed foods; it was true that it was mostly vegetable protein, but the evidence showed that enough proteins for the body's needs could be obtained from purely vegetable foods. It could not be said that the human body required animal protein as an indispensable part of diet after the stage of childhood had passed.

It was sometimes complained that people were not getting enough protein and that their diets were too starchy. But

Dr. Magee argued that as a general rule it could be taken that if a person of ordinary tastes consumed sufficient calories from the food available he could scarcely avoid having enough protein, minerals, and vitamins. In fact the wartime food policy had been so planned as to make this possible. In conclusion Dr. Magee placed before the meeting the results of some observations made in 1942-3 in the male mental hospital of St. Anne in Paris by Randoin. Before the war the average calorie intake was about 2,877 daily, and the death rate 10%; in 1941-2 the average calorie intake was about 1,750 and the death rate 21%. On this level of diet the patients lost up to 5 kg. (11 lb.) in weight in six months, but when in 1943 the diet was increased all round by about 25% most of the losses in weight were restored in six months.

Prof. J. R. MARRACK emphasized the danger of a deficiency of vitamin B, if a return were made to the white loaf. He also asked whether there was any possibility that mental patients were more susceptible to vitamin deficiencies than other people. Dr. S. W. HARDWICK stated that he saw 12 cases of pellagra in a mental hospital in 1942. Dr. JOSIAH OLDFIELD said that dietaries should be built upon instinct and experience, not upon exact figures for calories. In mental hospitals the officers never ate with the patients and were unaware how much food was wasted. Wastage in cooking should also be investigated. To say that patients should be given 3,000 calories was valueless. Dr. R. STROM-OLSEN spoke of administrative difficulties in the distribution of food. In 1941 at his hospital there was an outbreak of what proved to be scurvy. It was cured by the administration of ascorbic acid, but it indicated that the overheating of food in hot containers in institutional feeding might give rise to vitamin deficiency. Dr. BENESH said that vitamin B deficiencies occurred in mental hospitals, but it was possible that the requirement of the mental patient for vitamin B was specially high. On the other hand, the food habits of the mental patient were often faulty.

The PRESIDENT said that the question of diet was a vital but much-neglected subject in hospitals. Food ought to be looked forward to by the patients, and, generally speaking, that was not the case. There was need for more collaboration with expert dietitians.

STRESS INCONTINENCE

At a meeting of the North of England Obstetrical and Gynaecological Society in Manchester on Nov. 16 Mr. P. MALPAS (Liverpool) read a paper on the cystometric and radiological aspects of stress incontinence.

The outstanding feature of the behaviour of the bladder was its complete and ready adaptation to all conditions of distension, artificial as well as natural, so that its resting pressure remained constant whatever its volume, except during a short refractory phase at the beginning of filling and just before the limit of complete distension. The resting pressure was quite low, but varied in different types of patient, and this variation might afford a method of measuring the essential vesical tone. Thus in early pregnancy the tone, as shown by a high resting pressure, was greater than in the non-pregnant woman. This would appear to be the cause of the frequency in early pregnancy rather than any mechanical factor, and also would appear to be a possible factor in the production of the hydro-ureter of pregnancy. In non-parous women the pressure was usually near to zero, never more than 10 cm. of water, and was no higher in patients with stress incontinence than in other women. This had some bearing on the operative treatment of stress incontinence. The strength of the repair required to produce continence need only be such as to withstand this low resting pressure, which was in no way comparable with the rise in pressure accompanying micturition.

It might be argued that in the various straining efforts which caused stress incontinence the bladder pressure rose to a much greater height, but the evidence did not support this view; even with a paroxysm of coughing it was impossible to build up the intravesical pressure to more than 15 cm. of water. A single cough produced a small rise, but if the cough were repeated quickly enough a summation effect of this degree might be produced. This observation confirmed the view that the mechanism to maintain continence need only be strong enough to withstand a low pressure. No relation existed

between the degree of distension of the bladder and the incidence of stress incontinence. The symptom was just as evident, sometimes more so, when the bladder was empty as at full distension, conforming with the clinical observation that the symptom was often quite troublesome soon after the bladder had been emptied voluntarily, in fact, owing to the pressure of the refractory phre at the beginning of distension it might be more so. As a minor way of combating the symptom he advised these patients to refrain from any sudden effort for a short period after micturition. In stress incontinence the control of micturition itself was normal and patients were able to stop the flow immediately they desired—an observation supporting the view that the lesion responsible for the stress incontinence was extrinsic to the bladder neck and the urethra. One group in which the jet escaped under pressure, and a second and smaller group, in which the urine leaked on any sort of effort, not necessarily an effort raising the intra-abdominal pressure, might be distinguished by the fact that in the first group the ordinary methods of repair proved adequate in the second group more specialized methods might be required.

A lateral cystogram gave much more information than an antero-posterior film, because the vesico-urethral junction was higher than the most dependent part of the bladder and could not be seen except in a lateral view. If changes in the contour of the bladder were to be seen, a weaker solution of sodium iodide than that usually employed was preferable, so the variations in the density of the shadow due to variations in the diameter of the bladder could then be picked out. In the descent of the bladder on straining noted in cases of cystocele and stress incontinence, the bladder appeared to descend as a whole. The vesico-urethral junction was situated far more in the mid-pelvis than was commonly supposed, this had a bearing on the operative repair of these cases. It was important to avoid any operative procedure which would approximate the bladder neck to the back of the symphysis. In many cases in which a repair operation had failed to relieve stress incontinence it would be found that this had been done—the urethra and anterior vaginal walls were closely applied to the back of the symphysis and had lost their normal curve. The good results sometimes obtained by a Goebbel-Stoeckel-Aldridge fascial sling operation were probably due to the fact that the operation ensured an upward rather than a forward displacement, but with great care it was possible to achieve this end by means of the more conventional techniques.

Finally, Mr Malpas showed a series of lateral radiographs taken during pregnancy and labour, mainly illustrating two points: the normal appearances and their variations from the non-pregnant condition and the significance of an "abdominal bladder" during the first stage of labour. In most cases of trial labour in which an "abdominal" bladder could be seen during the first stage, the bladder shadow being completely above the pelvic brim a Caesarean section would be necessary. In a normal labour the elevation of the bladder into the abdomen occurred quite late in the second stage, and even then was often incomplete in cases of easy labour. There was much to be said for combining the lateral radiograph with a lateral cystogram in the course of a trial labour.

Secondary Carcinoma of the Vulva

Prof T. N. A. JEFFCOATE reported a case of carcinoma of the vulva secondary to a primary growth in the breast. The patient was a nulliparous widow, aged 65, first seen in Oct., 1944, complaining of a small swelling in the groin, which she had had for the past six months. This had given rise to an occasional pricking sensation on walking. A little haematuria had been noted two months previously for two days. A radical mastectomy had been performed eight years before for carcinoma. The site of the scar showed no sign of recurrence either in the skin or in the axilla.

On examination the patient looked well, she was thin but did not show any obvious signs of loss of weight. Just lateral to the left pubic spine was a shallow ulcer covering an area of about that of a sixpence, with a serpiginous outline. Its base was rather hard but freely mobile on deep structures, the edges slightly raised. It had the appearance of umbilication. There was no enlargement of the glands in the groin. Beneath the skin of the left labium majus the position of Bartholin's glands a nodule

about the size of a pea could be felt. This was also mobile on deep structures, but was fixed to skin. The patient was admitted to hospital for investigations. The Wassermann was negative. A local excision was performed of the ulcer and nodule in view of the possibility of its being an intradermal carcinoma. Cystoscopy revealed an area on the right bladder wall the appearance of which was identical with that of the ulcer, about the same size and uniloculated. X-ray examination of the chest showed the lower lobe to be collapsed. Histological examination revealed that both lesions were probably metastatic growths, the primary being the previous breast carcinoma.

No further treatment was possible and the patient was kept under observation. Death occurred in 1945. The post-mortem examination showed widespread small metastatic growths, all secondary to the old breast carcinoma, the distribution was bizarre in the extreme, and involved parietal and visceral peritoneum, stomach muscle, the pancreas and even the appendix, both adrenals, the sternum, ribs, and vertebrae, both submaxillary glands, both ovaries, and the left Fallopian tube. It would seem that the secondaries appeared first in the mediastinal glands and were then disseminated in the blood stream. The extraordinary feature was that the vulva was chosen as the site of the first metastasis to attract attention, and that the patient's deterioration was so slow in view of the blood-borne spread.

Fatal Air Embolism in Pregnancy

Dr C. H. WALSH read a paper on fatal air embolism following vaginal insufflation during pregnancy.

The patient, a primigravida aged 17, was being treated by picric acid insufflations for leucorrhoea at about the thirtieth week of pregnancy. The first insufflation produced no discomfort, but the second a week later was followed by disaster. Insufflation was performed by a nurse with the patient lying in the left lateral position. Six or seven squeezes of the bulb were made. In a matter of seconds the patient became cyanosed, fought for breath, and became unconscious, dying in four or five minutes. Post-mortem examination revealed the uterus to be 30 to 31 weeks pregnant and to contain a normally developed foetus. The placenta was situated in the posterior upper segment and showed a small detachment at its lower border and stripping of the membranes down to the cervix, with a minute trace of picric acid powder in a maternal sinus. The inferior vena cava was ballooned with air and the right auricle markedly dilated and containing frothy blood. No other abnormality was observed in any other structure in the body. The immediate cause of death was pulmonary artery obstruction and right-sided heart failure due to air embolism.

It was pointed out that the insufflator delivered about 50 c.c.m. of air and powder, and in the average vagina, if the rubber cone made an airtight connexion with the introitus six or seven squeezes would blow in some 350 c.c.m. of air and powder, delivered at a pressure of at least 150 mm. Under these conditions even a small patent venule was capable of gobbling up air with fatal consequences. Some very interesting radiographs of intravasation of lipiodol occurring in the course of tubal patency tests were shown. The conclusions were mainly that the forcing of air under pressure into any cavity in the body might cause sudden death from air embolism. Pregnancy or a bleeding surface favoured air entry. Therefore it was suggested that vaginal insufflation was contraindicated in pregnancy or in the presence of bleeding from the uterus, and that tubal insufflation should be discarded in favour of lipiodol technique.

* Air embolism in pregnancy was the subject of a question and answer in the *Journal* of Dec. 1 (p. 793).

DUTCH PHARMACY UNDER THE NAZIS

Pharmaceutical conditions in Holland under the German occupation were reviewed in a lecture to members of the Pharmaceutical Society of Great Britain on Dec. 13 by Dr C. J. BLOK, chief pharmacist to the University and Municipal Hospitals, Amsterdam.

About 1943, said Dr Blok, many articles became so scarce that the General Office of Public Health found it necessary to limit the prescribing of the doctors. Cod-liver oil was only to be prescribed for tuberculosis, atropine only for Parkinsonism and as eyedrops, pilocarpine only for eyedrops, luminal only for epilepsy, ropan for serious stomach cases, dermatol only for epilepsy. After the Germans had robbed the safe of the Organon factories insulin also

became very scarce. Dr. Blok went into considerable detail regarding the means taken to economize alkaloids for eye treatment, including the use of ointments instead of solutions. On top of all their troubles, he said, in September, 1944, came the loss of gas and electricity, which meant that sterilization in operating rooms by heat had to be reduced to a minimum as the spirit and petrol which might have been employed were very scarce. Fortunately he himself had steam autoclaves by which sterile injections could still be prepared. Operating rooms had to resort to chemical sterilization with 4% lysol, or a mixture of borax carbol-formalin with a little sodium nitrite against rusting. A very stable solution with quite effective sterilizing powers was 2% formalin, 2.5% phenol, 1.5% borax. Another difficulty was lack of gas for melting ampoule glass. They overcame that by rigging an ordinary bottle with a tube and separatory funnel and putting calcium carbide in it. The temperature obtained was enough to melt glass, and they used the apparatus at home as a lamp.

Correspondence

Tropical Medicine in the United Kingdom

SIR,—Dr. C. M. Wenyon, in his presidential address to the Royal Society of Tropical Medicine and Hygiene, reported in the *Journal* of Dec. 1 (p. 774), has called attention to the inadequacy of the facilities for the treatment of tropical diseases and for clinical research into them in London. He made it clear that, by comparison with the standards of other countries, they were inadequate before the war, and I am sure that your correspondents, Dr. A. R. D. Adams and others (Dec. 22, p. 895), will forgive me for saying that by those standards they were inadequate throughout the United Kingdom. By the fortunes of war they have been expanded in Liverpool and have deteriorated in London, but this is no reason why development should be restricted to London alone, though it is most pressing needed there.

It should be made clear that the deterioration in London is solely one of clinical facilities as a result of the closure of the old Tropical Diseases Hospital, originally following the demand for evacuation of hospitals from London and later due to enemy action. The other activities of the London School have suffered no more curtailment than was necessitated by the departure of many of the staff to the Services, where they have practised their various specialties and gained fresh experience. Now they are returning there is in London a group of very active and experienced workers in tropical medicine and its associated subjects with reasonable facilities at their disposal, except for the lack of a permanent hospital. A temporary arrangement for access to cases for teaching purposes has been made by the courtesy of the Ministry of Pensions, but this cannot meet all the needs of London.

Before the war our chief competitor in the field of research in tropical medicine was Germany. This is no longer the case, but already the United States and Canada have greatly increased the number and quality of their research and teaching institutions so that the United Kingdom now suffers by comparison with them. Apart from the need to treat our own nationals suffering from tropical diseases, it is of great importance that we maintain a high standard of research and teaching, partly for the benefit of the Colonial Empire, and partly because it is very much to the material advantage of this country that people over-seas should look to it as a centre of learning. There is already a tendency for postgraduate students from the Dominions to prefer to go to the United States for advanced study of other branches of medicine, and with them they take very much more than their immediate student fees. This has not yet happened in the case of tropical medicine, but it will happen very soon if conditions do not improve in the United Kingdom.

Dr. Wenyon's proposals therefore merit serious and immediate consideration, but not necessarily acceptance in the exact form in which he puts them. They must be integrated with a scheme taking account of the needs of the entire country, as your recent correspondents suggest, and the proposal for the divorce of the London School of Tropical Medicine from the School of Hygiene, with which it is now incorporated as the

London School of Hygiene and Tropical Medicine, must be subjected to constructive criticism. Further, they must be considered in relation to proposals for the establishment of over-sea laboratories in which workers from them could carry out work that cannot be done in this country.

Proposals of this nature were put forward about a year ago by Brig. Hamilton Fairley and received immediate influential support, but have been fruitless because the machinery to implement them was inadequate. Machinery is now required to prepare a general scheme to cover the needs of Britain and the Colonial Empire, as well as to prepare a detailed scheme for the re-establishment of London institutions to fit into it. There is no more representative body than the Royal Society of Tropical Medicine and Hygiene, and it is to be hoped that Dr. Wenyon's address will have this result. Any resulting scheme will need financial support, the justification for which must be recognized.—I am, etc.,

Ross Institute of Tropical Hygiene,
London, W.C.1.

G. MACDONALD

Latent Disease in Far East P.O.W.s

SIR,—I read with considerable interest Dr. F. E. de W. Cayley's letter on this subject (Dec. 8, p. 822). One must assume that his warning is addressed mainly to those practitioners who sit on medical boards for the Ministry of Pensions, as he refers rather to the desirability of seeing that these returned P.O.W.s "have a square deal as regards financial compensation" than to the need for giving them appropriate treatment. The warning is perhaps not untimely, but there are several points in his letter that seem to me to be misleading, at least in implication.

1. The finding of *Entamoeba histolytica* in the stools of 13% of the men examined is not surprising in view of the fact that about 10% of presumably healthy persons in the United States are similarly infected, and that the figure for the United Kingdom is probably not much less, as shortly after the last war one of our leading protozoologists estimated that between 7 and 10% of the population in this country had *E. histolytica* cysts in their stools. In the absence of physical signs or other evidence of bowel ulceration or of hepatitis, the presence of *E. histolytica* does not constitute a pensionable disability, nor is it necessarily an indication for specific treatment. Conversely, the failure to find *E. histolytica* cysts in the stools does not exclude active amoebiasis even in the bowel, and certainly not in the liver, as in less than 50% of cases of amoebic liver abscess are cysts found in the stools.

2. The pathogenicity of trichomonas, provided it remains in the male intestinal tract, is very questionable.

3. Ankylostomiasis is easily cured and calls for treatment rather than a pension.

4. The statement that "chronic malaria seems to have responded in most cases to the six-weeks prophylactic course" is again very misleading. It is true that a six-weeks course of mepacrine will cure malignant tertian (*Plasmodium falciparum*) malaria, but the troublesome relapsing benign tertian (*P. vivax*), to which Dr. Cayley is presumably referring when he writes "chronic malaria," is emphatically not likely to be cured by a six-weeks, or even a six-months, prophylactic course of mepacrine. Such a course will protect the individual from a clinical attack of malaria only so long as he is taking the drug and for a week or so afterwards while the mepacrine blood concentration remains above the suppressive level (about 12 µg per litre), but after this the patient is liable at any time within a year or even longer to suffer a clinical attack of malaria.

Prolonging the course of mepacrine only postpones the evil day when relapses have to be faced. From the point of view of the Army, it is no doubt good policy to give this six-weeks course of mepacrine to the home-coming P.O.W., as it keeps the man free from malaria as long as he is in uniform, but, from the point of view both of the individual and of the pension authorities, it is not nearly so good; for, on the one hand, the man's first post-war job may be repeatedly interrupted by bouts of malaria and, on the other, as his future malaria relapses are unpredictable the pensions authorities are presented with a very difficult problem in assessment. It would be far more satisfactory if after the last possible exposure to infection the

prophylactic mepacrine were to be given for not more than two weeks (which would allow for the eradication of the more dangerous malignant tertian infection if he happened to have it). Any suppressed benign tertian infection that he had would then be unmasked, he could receive treatment for the early relapses while still in the Army, and meanwhile some indication—by the lengthening of the interval between the relapses, for example—may have been given as to what will be the future course of his infection. This will allow the man to arrange his life accordingly and help the Ministry of Pensions to compensate him more suitably.—I am, etc.,

Silchester.

L. EVERARD NAPIER.

Toxicity of D.D.T. to Man

SIR.—In a medical memorandum entitled "A Case of D.D.T. Poisoning in Man" in the *Journal of April 14, 1945* (p. 517), Dr. V. B. Wigglesworth records the case history of a laboratory worker who exposed his hands to D.D.T. in acetone solution. This case was of particular interest here as certain aspects of D.D.T. toxicity to human beings were being investigated at that time. The conditions of exposure were initiated by volunteers, though the duration and frequency of the exposures used here were probably greater than those of Wigglesworth's case.

The exposures were made in two parts: first, repeated minor exposures, and, secondly, more complete exposures by kneading in the minor exposures 5 c.cm. of 20% commercial D.D.T. 59% p.p. isomer) solution in acetone was poured over the back of each hand, allowed to evaporate, and the residual deposit rubbed off with cotton-wool soaked in acetone and the application then repeated. Five applications were made each morning and each afternoon for two days, the last deposit being left on until the hands were washed for taking meals. Thus the total amount of D.D.T. so applied was 40 g. and the hands were covered with D.D.T. deposit for about 10 hours in all. In the more complete exposures, begun 3 days later, 25 g. D.D.T. dissolved in 200 c.cm. acetone was added to 400 g. soap-stone or French chalk and the mixture kneaded with the hands for 15 minutes, adding more acetone as required. During this operation the mixture completely covered the hands almost to the wrists. When the hands were taken from the mixture the solvent rapidly evaporated, leaving a dry deposit on the skin, which was removed as before by swabbing with acetone. Finally another kneading exposure lasting 30 minutes was carried out 1 to 2 weeks later. Three volunteers did the entire experiment, and a further three did the kneading exposures only. None of the volunteers suffered any irritant or toxic effects at all.

In Wigglesworth's case symptoms commenced one to ten days after exposure; the patient developed a feeling of heaviness and aching in all the limbs and weakness of the legs, and spasms of extreme nervous tension. There was some improvement during a holiday taken at this time; but on returning to work the condition deteriorated, and some three weeks later the perpetual ching in the limbs confined the patient to bed. Sleep became almost impossible; the feeling of extreme nervous tension became more frequent, and a state of acute mental anxiety developed. About six days after being confined to bed involuntary muscular tremors occurred over the whole body, and these were experienced on at least two subsequent occasions. After 10 to 14 days the patient got up, although the aching in the limbs was still severe. His recovery was very slow. He was away from work for 10 weeks in all, but even at the end of a year recovery was not quite complete.

In view of the negative results obtained here and of the fact that many symptoms but no signs apart from muscular tremors developed in Wigglesworth's case, it seems possible that the patient was suffering from an anxiety state and that D.D.T. in acetone is not a particularly toxic preparation. It may be added that many other experiments in which moderate quantities of other preparations of D.D.T. have been applied to the skin have failed to produce toxic signs or symptoms, although in some cases irritancy due to the vehicle has occurred.—I am, etc.,

Chemical Defence Research Establishment
Cannanore, S. India.W. G. DANGERFIELD,
Capt., R.A.M.C.

** An investigation into the toxic effects of a distemper containing D.D.T. and a fatal case of D.D.T. poisoning are described in the *Journal of Dec. 15* (pp. 842, 845).—Ed., B.M.J.

Acute Yellow Atrophy after Trilene

SIR.—In his letter (Dec. 1, p. 784) regarding Major K. N. Herdman's case of acute yellow atrophy, Dr. Philip Ayre states that the short-acting barbiturates are almost entirely detoxicated in the liver, quoting Dr. Langton Hower's reference to the work of Reynolds (1938) *et al.* and the general assumption regarding their fate arising from Tatum (1939) and Goodman and Gilman (1940). Hale (1935) and Marshall (1939) have also attributed detoxication to the liver, but Cameron and de Saram (1939), Scheffley and Higgins (1940), and Kohn-Richards and Grimes (1939) were unable to confirm this, though Kohn-Richards and Grimes definitely showed that detoxication does take place in the body. Masson and Beland (1945) suggest that the barbiturates can be divided into four groups according to their site of inactivation or excretion, and these workers attribute detoxication of pentothal to the body tissues generally and not to any great extent to the liver and kidneys. Evipan, however, falls into the group mainly inactivated by the liver.

Whatever value may be placed on experimental work, the actual fate of various barbiturates in the human body remains for the most part unproven, and accordingly the anaesthetist must still proceed with blind caution; but it seems probable that fallacies will arise from attempts to draw conclusions about the barbiturates generally from work upon isolated members of the group. All too often experimental work has little relation to the procedure and dosage of clinical anaesthesia, as is instanced by Beecher's (1938) statement on the similarity of the gross effects of chloroform and ether—effects which we do not promote with the latter agent because we do not employ either in sufficiently high concentrations.

Lundy and Adams (1940) and Masson and Beland (1945) state that from clinical experience they have found little contraindication to the use of pentothal in liver and kidney disease, though Argy *et al.* (1936), Goodman and Gilman (1940), and Kohn-Richards and Appel (1941) have all shown that where the liver or kidney is the organ mainly responsible for inactivation or excretion, sensitivity to the barbiturates is greatly increased. Using routine hospital investigations, I have been unable to prove any impairment of the liver or kidney function on a few patients found to be hypersensitive to pentothal, and though admittedly the dosage of pentothal administered to patients with active liver disease has been very low, none has shown an indication of hypersensitivity.

So far as the cause of acute yellow atrophy, the subject of the original letter, is concerned, I should like to associate myself with Dr. Clifford Wilson's theory (Dec. 1, p. 784)—I am, etc.,

Worcester

E. F. GLEADOW

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Renal Failure and Anoxia

SIR.—In a recent article Macgrath *et al.* (1945) proposed that the title "renal anoxia" be applied to the renal failure occurring in a variety of conditions "generally secondary to acute peripheral circulatory failure." As my name (Tomp. 1942a) has been prominently and inaccurately identified by the authors with the proposed title, I shall be much obliged if I may be permitted to make some observations concerning it.

In 1941 (a) I first put forward the suggestion that the anuria of cholera is due to anoxia in these words:

"The frequent failure of intravenous saline injections to restore and maintain the circulation in cholera, as well as to re-establish the secretion of urine after collapse has existed for two or more hours, is thus seen to be due to irreparable damage to the capillaries."

endothelium, as well as to the epithelial cells of the kidney tubules, from lack of oxygen."

In the same year (1941b) and also in 1942 (a) I gave reasons for believing that the anuria of "crush injury" is, like the anuria of cholera, due to anoxia.

In the first of these two articles I wrote:

"It would therefore appear that, in so-called 'crush injury,' the renal failure and associated histological changes in the tubules are caused solely by oxygen want (as suggested by Sir L. Hill), the epithelial cells of the convoluted tubules being even more sensitive to want of oxygen than the endothelium of the blood capillaries itself."

In 1942 (b and c) I gave a detailed analysis of the causes of anoxia and suggested that the anuria found in blackwater fever, incompatible blood transfusion, and pernicious anaemia, as well as in cholera and "crush injury," is due to anoxia.

In 1943 these various communications were finally summarized by me in an article in which I concluded that "the anuria and renal changes met with in crush injury are manifestations of anoxia due to traumatic shock, and are identical in origin with those found in acute haemolyses—e.g., incompatible blood transfusion and blackwater fever; in pernicious anaemia, severe haemorrhage, and the collapse of cholera, all of which are due to anoxia."

With regard to incompatible blood transfusion, it would appear that the renal syndrome found in this condition is not ordinarily due to the anoxia caused by haemolysis of the recipient cells, but to anoxia caused by collapse (Foy *et al.*, 1943), or by the antecedent conditions necessitating transfusion (haemorrhage, anaemia, etc.).

In the 1943 (4th) editions of the textbooks of pathology by Beatty and Dixon and by Boyd the importance of anoxia is stressed as a cause of fatty degeneration, particularly of the secretory cells of the kidney and liver. Of anoxia Boyd (1943) writes as follows: "There are two great causes of fatty degeneration: (1) the action of toxins and (2) the lack of oxygen. It is possible that the first acts by virtue of interfering with the proper oxygenation of cells. . . . Insufficient oxygenation . . . is seen in severe anaemias both primary and secondary." Beatty and Dixon also write to the same effect.

Anuria may be caused, apart from obstructions to the urinary tract, (1) by a fall in arterial blood pressure (Winton, 1937) and (2) by damage to the secretory epithelial cells of the renal convoluted tubules from (a) anoxia and (b) inorganic or organic poisons, including bacterial and viral toxins (Leftwich, 1920; Moon, 1944). Since circulatory failure is only one of the many causes of anoxia (Tomb, 1942b, 1942c) and anoxia is only one cause of renal tubular degeneration and failure (Boyd, 1943; Beatty and Dixon, 1943) it is not possible accurately to attribute to anoxia, whether or not due to circulatory failure, the renal syndrome common to the varied conditions enumerated by Maegraith and his associates in their article.—I am, etc.,

Sydney, N S W.

J. WALKER TOMB.

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Keratoconjunctivitis

SIR.—The paper by Major R. J. Buxton on keratoconjunctivitis (Dec. 15, p. 847) is of considerable interest. Lesions covered by this general term differ widely in aetiology, and it is therefore important to define the description "keratoconjunctivitis" more precisely. For example, superficial punctate keratitis (Fuchs's) is a well-established entity occurring sporadically; during the past 15 years an epidemic form has been recognized with involvement of the conjunctiva, cornea, pre-auricular gland, and with ptosis; and there is satisfactory evidence that the infection is due to a virus. For these reasons

the term "virus keratoconjunctivitis" or "epidemic virus keratoconjunctivitis" has been evolved and is coming into general use. We are not clear if the author is using the term "keratoconjunctivitis" in this sense for some of his cases. In epidemic virus keratoconjunctivitis the corneal opacities are frequently varied in size and distribution, and it is by no means uncommon to find them mainly in the periphery of the cornea as in the cases described by Buxton. The discrimination is an important one, as the search for focal sepsis has little part in the treatment of epidemic virus keratoconjunctivitis, which in the great majority of cases is a self-limiting disease.—We are, etc.,

W. J. B. RIDDELL.
I. C. MICHAELSON.

The University, Glasgow.

Operation for Varicose Veins

SIR.—Dr. R. R. Foote (Nov. 3, p. 627) raises the question of the use of sclerosing solutions at the time of the ligation of the varicose veins. It would appear that to omit a sclerosant at the operation is to go back to twenty-five years ago and to disregard a generation of experience in injections of varicose veins. Surely the ideal time to use a sclerosant is when the vein is empty and without circulation. In my hands the combined operation yields consistently good results. Admittedly, it does not sclerose all the varicosities, but certainly the main trunks and their large adjacent branches are rendered solid before the patient leaves the table.

I would stipulate two points about a sclerosing agent. The first is that it must be harmless when injected into the systemic circulation. Saturated solutions of common salt or of glucose fulfil this condition. Other agents—such as ethamolin, sodium morrhuate, sodium salicylate, quinine, lithium salicylate—are capable of lethal effects, and for this reason I have abandoned them at the operation of ligation and injection. Secondly, the sclerosing agent, the syringe and needle must be sterile; this is an obvious point, but it is often neglected and deaths have occurred from septicaemia. Syringes are often "sterilized" in spirit and the sclerosing solution handled in such a way as to contaminate it. Varicose veins are large conduits connected with the main systemic circulation, and any infection introduced into them is quickly distributed. Therefore the technique must be beyond reproach. Because the number of vein patients is large we must organize and train teams to handle them, rather than offer mass-production operations of inferior quality. Already Continental surgeons have visited Britain for information on this ubiquitous condition, and we must give them a sound lead.—I am, etc.,

London, W.1.

HAROLD DODD.

SIR.—Since this disease is under discussion again perhaps I might be permitted to give the details of the technique I have found most satisfactory in many hundreds of Service and civilian patients, both male and female, during the past six years.

My patients are always admitted to hospital for a week at least to ensure satisfactory pre-operative preparation and post-operative care. They are always operated on in the main theatre, with most careful aseptic precautions before, during and after operation, since one is operating in a potentially infected area—the groin. I have never had any delay in the healing of wounds as experienced by some surgeons, and I feel sure this delay in healing must be due to lack of proper asepsis and haemostasis or to escape of sclerosing fluid into the wound (Dr. L. F. Muldavin, Dec. 8, p. 816). As for all other planned operations, I always have the first "skin prep." done the day before operation. The points of technique are as follows:

1. The patient lies supine on the operating table, which is then tilted head down so as to empty the dilated veins as much as possible. We desire to produce an aseptic phlebitis in the injected veins, not a bulky thrombophlebitis.

2. Local analgesia is usually employed, unless the patient desires general anaesthesia, premedication being with omnopon and scopolamine in either case.

3. An oblique incision is made in the skin creases across the saphenous opening, and the upper end of the long saphenous vein is displayed. All the tributaries are isolated, both at the saphenous

opening and along the proximal 2 inches (5 cm) of the main trunk, being then ligated and divided.

4. The long saphenous vein is doubly ligated flush with the femoral vein then divided beyond the ligatures.

5. As ligation alone will not lend to efficient and firm obliteration of the dilated vessel and tributaries in the leg, the distal end is injected with sclerosing fluid through a ureteric catheter passed down inside it as far as possible, sometimes to the medial malleolus. Sodium morrhuate (4 c.c. of 4%) has been found quite satisfactory. The lower end is then doubly ligated to prevent leakage back of sclerosing fluid into the wound.

6. The wound is closed after checking haemostasis and swabbing it out with dilavin, a deep catgut (00) continuous suture being used for the fascia and interrupted vertical mattress sutures of nylon or fishing gut for the skin. These latter are placed close together to ensure careful sealing of the wound against infection or contamination from outside later on.

7. As soon as possible after injection of the saphenous vein crêpe bandages are applied firmly from toes to groin, to prevent filling with blood and dilution of the sclerosing fluid. The dilated veins are far less likely to become recanalized if converted into flat ribbons instead of ugly lumpy masses of clot. I feel this early bandaging to be most important, but I have never seen it referred to by other surgeons.

8. A dressing is applied to the wound, fixed with "elastoplast."

9. The patient is encouraged to walk about the same day and get up quite normally each day afterwards.

10. Further injections are made into any veins in the leg not blocked by the original injection. This is begun about a week or so after operation, and into veins emptied of blood so far as possible by elevation of the leg. The bandages are reapplied and worn until no swelling occurs at ankle or on dorsum of foot with normal activity, usually in two to three weeks. I have had no cases of swelling lasting longer than that.

As Major-Gen. W. H. Ogilvie stated (May 5, p. 619): "The only successful treatment for true varicose veins which are causing symptoms is Trendelenburg's operation, properly done." He condemns injection alone because it is not dealing with the cause—i.e., back-pressure from the femoral vein above due to incompetence of the valves in the long saphenous trunk and its tributaries. This is a *sine qua non* and vitiates the necessity for Trendelenburg's test, or the application of a series of tourniquets (Dr. Muldavin, Dec. 8, p. 816). It also emphasizes the need to divide and ligate the tributaries at and below the saphenous opening. Injection of any dilated and still present calf veins should always succeed then, provided the injection be made into a vein emptied of blood by elevation of the leg and supported later by firm bandaging. If the patient is encouraged to walk about as soon as the bandage is applied following injection, any sclerosing fluid entering the deep veins is soon diluted and swept away without causing damage. I have not had any evidence of such damage occurring in any of my patients.

Surgical excision of calf veins would produce unjustifiable and unsightly disfigurement in a woman, and I have never found it to be necessary even in "Commandos." I can hardly imagine any operative procedure more likely to cause damage to the remaining superficial and communicating veins, with risks of subsequent haemorrhage, sepsis, or permanent venous insufficiency, than the old operation of avulsion of lengths of varicose veins. I have just operated on a woman who had thirteen incisions made over both her legs and thighs for such a barbarous procedure some fifteen years ago, followed by injection of recurrent dilated veins five years ago. She had not had a Trendelenburg operation done, so that her original condition could hardly have been worse than the hideous deformity of her recent recurrent state.

I have not found it necessary to ligate the long saphenous vein at the medial malleolus (Mr. Harold Dodd, June 2, p. 780), nor can I understand the rationale of this procedure, since the venous pressure is from above and not below the malleolus, unless, of course, it is to support the weight of the relatively huge volume of sclerosing fluid he uses. I feel it is safer to take "two bites at the cherry," and inject only 3 to 4 c.c. of sodium morrhuate at a time, with less risk of its escaping into the deep veins and no risk of the "bursting effect from below" on the upper ligatures. I have never found ligation of the long saphenous vein or its tributaries in the leg necessary, but the short saphenous vein may need to be divided and ligated in the medial space. The reported fatalities have been mostly,

if not all, from pulmonary embolism, due to failure to ligate the saphenous trunk flush with the femoral vein.

I agree with Mr. Dodd that most meticulous attention must be paid to detail in performing these operative procedures, which should not be left to the inexperienced H.S. alone. Dr. R. R. Foote (Nov. 3, p. 627) refers to some of the mishaps that might occur. But I cannot agree with him that "economical conditions or shortage of beds" should persuade us to treat these people as out-patients. By keeping them in hospital for at least a week one can observe the immediate result and/or reaction following the ligation and injection operation. Surely it is better to do less work to the best of our ability than more in a slipshod manner. Some people have quite severe and unpredictable reactions from sodium morrhuate injection, even with high pyrexia and rigors. I feel it is safer to have such people in hospital under careful observation.

With reference to the treatment of varicose ulcers (Dr. R. K. Brooks, Dec. 8, p. 816), I have invariably found that dealing with the cause—the varicose veins—is the quickest and most certain way of getting these ulcers to heal. Surely improving the circulation in and around the ulcerated area is far more important than what is applied to the ulcerated surface. "Elastoplast" strapping, Unna's paste, or "vircopaste" bandages all seem equally efficient in aiding healing, provided the cause is dealt with first. Some people cannot tolerate "elastoplast." I know of only one patient whose ulcer obstinately refused to heal after dealing with her varicose veins, and it had to be excised—I am, etc.

MOULTON VERNON HOSPITAL,
NORTHWOOD

ALAN SHOTTEP.

Cardiac Massage

SIR,—Being in a position to record three consecutive recoveries from impending death under anaesthesia goes some way towards simplifying a plan of action for use in case of cardiac arrest. I have been able to satisfy myself that the early anxieties and later complications that follow temporary cardiac cessation are directly proportional to the length of time the organ is functionless—an observation in keeping with rudimentary physiological principles and common sense. I can go so far as to say that now that prophylactic chemotherapy is available, should the time the heart is allowed to stand still be less than 15 minutes it is improbable that the patient will suffer harm or even any inconvenience over and above that occasioned by an upper abdominal incision.

The anaesthetist reports that he cannot feel the pulse. When the surgeon has access to a large artery—e.g. the abdominal aorta—the common iliac—he can himself confirm that the heart has ceased to beat. When a large artery is not available the surgeon must wait not more than three-quarters of a minute while the anaesthetist verifies that the patient has an unobstructed airway, after which the anaesthetist gives the final vital verdict. While the fleeting seconds are passing the surgeon is not idle; he and the theatre sister are sterilizing the epigastric area and arranging towels suitably. At the given word, with a sweep of the knife the upper abdomen is entered in the middle line immediately beneath the xiphisternum. The heart is massaged beneath the diaphragm, with counter-pressure exerted by the left hand on the lower thorax. Directly the welcome response is assured, sulphathiazole powder is poured into the wound, which is closed rapidly. As soon as convenient the blood pressure is taken; if it is under 100 mm. Hg, plasma infusion is started and methedrine administered. Prophylactic penicillin therapy is commenced in the early post-operative period. The whole point of this communication is that I want to make it perfectly clear that I have abandoned expending time in performing artificial respiration and injecting adrenaline into the ventricle.

I would also like to emphasize that experience has taught me that cardiac arrest can occur in any patient, with any anaesthetic agent, and with any anaesthetist. To those who question this statement (and the correspondence columns of the *Journal* show that there are many) I suggest that if the coroner for the district be consulted it is probable that "he who thinketh he standeth will take heed lest he fall from unpreparedness."—I am, etc.,

LONDON, W.1.

HAMILTON BAILEY.

Non-specific Mesenteric Lymphadenitis

SIR,—With reference to Mr. Ian Aird's instructive article on acute non-specific mesenteric adenitis (Nov. 17, p. 680), I should like to record two interesting cases treated in this hospital during the past six months.

Case 1.—A boy of 13, sent in as a case of perforated appendix, complained of nausea for four days but no vomiting, diarrhoea one day, and acute lower abdominal pain starting early on the day of admission. No previous attacks. On examination he was obviously ill, temperature 100.6°, pulse 112, tongue moderately furred. Abdomen tender all over and rigid in the lower half; the tenderness was most marked to the left and slightly below the umbilicus, and beneath the rigidity an indefinite mass could be made out at this point. P.R. there was a boggy mass, but no definite pelvic swelling, and no tenderness.

With a provisional diagnosis of peritonitis due to an inflamed Meckel's diverticulum, or perhaps the rare left-sided appendix, he was opened through a paramedian incision. There was a large quantity of frankly purulent fluid in the peritoneal cavity, and the whole of the mesentery of the small intestine was studded with large fleshy glands. They were soft with no evidence of caseation, and varied in size from 1/2 to 2 in. (1.25 to 5 cm.), the majority being about 1 in. (2.5 cm.) in diameter. The largest was at least 2 in. in diameter, and was acutely inflamed, red, and fluctuant, and had become firmly adherent to the upper part of the descending colon, with which it had formed a faecal fistula. No primary cause was found for these enlarged glands. The appendix was normal, as also was the whole of the bowel wall. A temporary transverse colostomy was performed proximal to the faecal fistula, and the pelvis drained through a separate stab incision; 10 g. sulphanilamide powder was sprinkled into the peritoneum, and the wound closed. The appendix was not removed. After a rough passage for the first two or three days he began to improve, and the colostomy was closed a fortnight later, after which he made an uninterrupted recovery.

The pathological report on a typical medium-sized gland removed at operation for biopsy was as follows: "Great endothelial hyperplasia with polymorph infiltration. Acute sinus catarrh."

Case 2.—A man of 62, admitted as a case of subacute intestinal obstruction, complaining of central abdominal pain for 3 days and vomiting for 2 days. Bowels constipated. He had had several previous attacks of less severity. On examination he appeared comfortable, temperature 97.6°, pulse 76. Apart from some very mild lower abdominal tenderness there was nothing abnormal to be found. An enema gave him relief and he slept fairly well through the night. Next day he said the pains were getting worse, and his temperature had risen to 99.4°. The abdominal tenderness was more marked, but was not localized, and there was no rigidity.

With the diagnosis still very much in doubt he was opened through a paramedian incision. There was a localized pelvic peritonitis present, caused by the rupture of a small mesenteric gland. The mesentery of the small intestine contained a considerable number of small fleshy glands, about the size of a pea. One of these, about 1 in. (2.5 cm.) from the bowel and 6 in. (15 cm.) from the ileo-caecal junction, had become completely necrotic and had ruptured, causing the peritonitis, and leaving a hole filled with slough. There was no evidence of diverticulitis, and the wall of the small intestine was normal. The appendix was also normal but was removed. Sulphanilamide powder was sprinkled into the peritoneum and the pelvis drained. Convalescence was protracted by the development of a subphrenic abscess which had to be drained, but he eventually made a complete recovery.

These two cases are recorded as examples of the more serious complications of acute non-specific mesenteric adenitis. Many have probably had similar cases, but they are seldom mentioned in the textbooks.

I should like to thank Dr. W. Briggs and Mr. Pearce for permission to publish these cases.—I am, etc.,

JANET W. BEDFORD,
Resident Surgical Officer.

Blackburn and East Lancs Royal Infirmary.

Epidemic Diarrhoea and Vomiting

SIR,—Your issues of Oct. 20 (p. 524) and of Nov. 10 (p. 666) and others lead me to report on my experiences on the above subject. In the last eight years there have been recurrent outbreaks of this complaint in this district, and I crave permission to offer my explanations.

(1) Like the other observers, I have found that repeated examinations of stools have produced no organisms which stand out as being chief offenders. This, then, makes me think a virus is responsible.

(2) This virus does not act by itself, but by a process of symbiosis—i.e., in combination with other commensals of the bowel, both being necessary to produce the symptoms. In this

way one can attempt to explain why certain members of the household escape and why the complaint "shows up" in isolated places miles apart.

(3) There is a seasonal incidence, for it has been my observation that the malady prevails in very wet weather. This weather produces a richer type of grass, which is fuller of sap. This has an effect on the quality of milk, for I am of the opinion that milk is the vehicle through which the germ is carried; and cows' milk is not the only vehicle, for I have known at least two cases in which breast-fed babies have had the complaint while the mothers were victims.

(4) Finally, I have observed on more than one occasion that 48 hours or so after an attack of vomiting, diarrhoea, and abdominal pain, jaundice appeared, and in epidemic form. I offer the suggestion as well, that there is some connexion between this (fortunately) generally mild complaint and the so-called more serious summer diarrhoea of children.—I am, etc.,

Chipping Sodbury.

ROSS. K. BROOKS.

Domiciliary Midwifery and the Family Doctor

SIR,—It is unfortunate that owing to the time taken by ocean mails in these days the subject of this letter may well be "dead bird" by the time it reaches you. The letters in *Journal* during last September on doctors and domiciliary midwifery have interested me, and I felt that I would like to point out that there is not necessarily any conflict between the two views. It is only when one is bound to things as they are that there appears to be any. I may say that I am no stranger to English ways, having learned my midwifery in the neighbourhood of Camden Town and Somers Town.

I would like to illustrate what I mean by giving you a short description of midwifery as it is carried out in a country town in Australia, which does not differ in any essential from other country towns except that it has achieved a concentration of hospital resources. The town and district comprise about 15,000 people and are served by six general practitioners. There is only one hospital in the town, a 100-bed community hospital. Its maternity section is a unit capable of taking up to 25 patients in single-room, double-room, and ward accommodation. Some 300 to 400 maternity cases are attended in the unit each year by the six doctors, no resident being employed. This is surely ordinary enough for anyone. The points bearing on the argument of private practitioner *versus* hospital for midwifery are these:

1. The doctors have been so convinced of the superiority of proper hospital accommodation for delivery that for years they have refused to attend any confinements except in the hospital.

2. The patients have become equally convinced. Some years ago there were five posts at distances of from twenty to fifty miles (30 to 80 km.) from the town staffed by certificated midwives under the Bush Nursing Association. Four of the five have closed down for lack of support. In the fifth unit, where a nurse does no confinements, the patients coming fifty miles to this town for hospital conditions.

3. Practically all pregnant women consult their own doctor in the early stages of their pregnancy, and attend the doctor regularly for ante-natal care at their own professional room (which in this town are all under the hospital roof).

4. All women in labour and during the puerperium are attended by their own doctors with the assistance of the trained nursing staff of the hospital.

5. In any emergency the full resources of a properly equipped hospital are at the disposal of the patient.

6. All babies, including premature ones, are nursed in the unit nursery in suitable conditions, including a separate room if necessary; and after leaving the hospital they are cared for by the Baby Health Centre sister, who makes contact with the mothers while they are in hospital.

7. The seven double-certificated sisters on the unit staff are able to give a better service to all mothers than would double their number if they were scattered round the district on a domiciliary service.

8. All morbidity is known, checked, watched, and discussed, and check swabbing of throats and bacteriological examination of hands can be carried out at need.

9 Proper records of all work done can be kept on a truly comparable basis, and this has proved of great value in the past

10 A full clinical survey of ten years' work in this unit has been drawn up. It shows that the results in all respects are of good standard in comparison with the main teaching hospitals of the State

The arrangement is simple and effective. It involves no departure from established principles. It is a true fusion of the functions of the family doctor and the maternity hospital. It requires no more than the provision of the necessary accommodation and staff, together with the putting into effect of the principle that doctor and hospital are properly one unit and not to be dissociated from one another—I am, etc.

Colea 51012

ARTHUR E. BROWN

Spinal Analgesia in Operative Obstetrics

SIR,—As regards spinal analgesia and the correspondence of the last few weeks on this subject, I would like to say that I have had the utmost satisfaction in the use of light percaine and nupercaine given by the Etherington Wilson technique. It is agreed I think that the utmost attention to detail is necessary for success with spinal analgesia, not only in the technique of administration but also in the giving of epinephrine, the greatest gentleness in handling the patient, and keeping the head low for 24 to 48 hours—the longer the better—to avoid headache.

I have used the heavy percaine on only a few occasions, and in two comparatively minor operations in men—circumcision and anal abscess—headache followed. I therefore never use it now, and I would suggest that Dr Louis Resnick (Nov 24, p 722) would do better to use the light percaine with the rest of his article. I am in complete agreement. The beautiful relaxation which one gets in all lower abdominal work under spinal analgesia more than counterbalances any disadvantages.

In the same issue (p 719) Mr Alexander Lyall reviews 80 cases of appendicitis, and in discussing the anaesthetic used there is not even mention of spinal. I would say that one should ask oneself, in every case of appendicitis, Are there any reasons why a spinal analgesic should not be used as the best? I consider 13 or 14 ccm is a very safe dose in practically every case, no matter how ill the patient may be (and it is particularly good in children), with proper premedication of omnopon and scopolamine. Especially do I say this because Mr Lyall says more than 80% of the anaesthetics were administered by house surgeons. Therefore, without any disparagement of house surgeons I think it will be agreed that he was often working at great disadvantage. Very good relaxation is a *sine qua non* in all these cases where tissues are friable, and it is important to reduce trauma to a minimum. And surely, with reference to shock, the anaesthetic that completely stops the painful stimuli from the very sensitive parietal peritoneum is the best to use. Scopolamine, by the way, should only be given in small doses to old people.

Further, I have found that with ether anaesthesia there is much more bleeding, which means prolonging the operation and we cannot deny that with ether chest complications are exceedingly frequent. Indeed, I think it pays the surgeon to give his spinal analgesic himself, having developed his own technique, in this way he can practically always assure for himself an excellent analgesic, unless, of course, there is a skilled anaesthetist available with the necessary apparatus and even then I would prefer to trust my own spinal. While the anaesthetist may have plenty or nothing to do, his presence is essential even if only for the valuable psychological help that he can be to the patient. The criticisms that are levelled against the use of spinal analgesia always appear very theoretical and based on exceptions, which would be a method of damning almost any anaesthetic in the whole list.

Finally, I have often thought that no young doctor should go as a ship surgeon without being master of one technique for the administration of spinal analgesia. He is quite unlikely to have a skilled anaesthetist for an emergency operation, but if he has his spinal he has complete command of the anaesthetic situation even though he may not have had a great deal of experience of, say, acute appendicitis, and things will be easier for him and safer for the patient—I am, etc.

Ilford

N. BEATTIE

Stethoscope versus X Rays

SIR,—I usually read the "Reports of Societies" with pleasure and profit, but in the *Journal* of Dec 15 (p 836) the report of the meeting of the Section of Medicine of the Royal Society of Medicine on stethoscope v. x rays fills me with dismay and apprehension. That any learned society should discuss a subject under this heading is a mystery beyond my comprehension. It could only be equalled by the surgeons discussing rectal examination v. abdominal palpation. Most of the speakers obviously felt the limitations of the title and included in their remarks the full range of physical examination. Several appear to be thinking in terms of early tuberculosis, in which no one would dispute the pre-eminent value of radiology. It is distressing to read the statements attributed to physicians of repute, the following represent a random selection: "The stethoscope might be very useful as an adjunct to radiology."

It was difficult to avoid going through the gesture of trying to hear vague mysterious sounds. Clinicians, however, should continue to use the stethoscope, because patients expected to see it. Such may be relatively innocuous in debate, if, however, they are deemed suitable for publication they might well be taken as representing the views of speakers most of whom are associated with the teaching of clinical medicine. Should this be the case I can only visualize their students as taking a history (60% importance) wearing a stethoscope for the same decorative reason as a mayor in chain of office then busily signing the requisition for Life-saving help from radiological and pathological colleagues. Thus the future medical services may in fact be staffed by clerks with a medical background.

This slightly exaggerated picture is nearer the actual facts than one likes to see. The essential trouble amongst the recently qualified is that they have not been taught to use the five senses God gave them. Especially is this so in the examination of respiratory disease—admittedly a difficult branch of medicine. I strongly advise senior students and the recently qualified to read Robert Coope's *Diagnosis of the Chest*. It will be a suitable antidote to any unfortunate impression they may have received from the stethoscope v. x rays discussion. Personally I should I fall ill with pneumonia, I hope the colleague who tend me will be armed with clinical nous and a stethoscope, keeping in reserve an exploring needle in case of need—I am, etc.

Brighton

R. C. HUTCHINSON

Physical Therapy in Mental Disorder

SIR,—I am glad to find that once again Dr D. W. Winnicott (Dec 22, p 901) has raised his voice in protest over the craze for physical treatment of mental diseases. Physical methods, medicinal or otherwise, have their place in these cases. But if the trouble be really mental, and not a physical disease with secondary mental symptoms, these methods are at best nothing but palliatives and at worst a real menace.

It is true that psychotherapists have not yet agreed, and probably never will agree, as to the exact aetiology of mental syndromes. But there is one thing which anybody with psychological insight will accept, which is that mental disease starts in the mind—which is not synonymous with the brain and nervous system—and that the physical troubles and the behaviour patterns that accompany them are only the last link in the chain. Thus to talk of "cure" by leucotomy or electrical convulsions is not true. It would be as true to say that one has cured a car crash or the bad habit of scorching by cutting out some of the cylinders of his car as to claim cure by the former, while the latter is very similar to taking a jar of boiled sweets which have stuck together and shaking the jar: the sweets may come unstuck, and they may change their mutual relationship, but the contents of the jar still remain the same, and, sooner or later the unremoved moisture will result in their settling down once again into a sticky lump. Surely it is a case of "rendering unto the body the things that are the body's and unto the mind the things which are the mind's" and of seeking out the causes of disease rather than attempt flashy results—i.e., in the case of mental troubles to treat the mind first and foremost.

Apart from dubious results, moreover, I agree with Dr Winnicott that the drastic methods named above are a menace. I have seen two or three cases of patients already suffering from

shock treated, by practitioners who would probably shy if one suggested that they were using homoeopathy, by further shock. The result has been that instead of having one more or less serious trauma to deal with, one has had to try and deal with the double dose, the second one deliberately inflicted. As to leucotomy, again one wonders whether society is going to be any the better for having more or less decerebrated robots let loose in it, simply because they have been so mutilated as to be incapable of behaving badly.

Many will doubtless agree that medicine is primarily concerned with human beings: not with just one aspect of them, but with the whole man, bodily, psychic, and spiritual. It seems, therefore, that our standards should go further and reach deeper than to judge results merely by the outermost surface of that man—i.e., his behaviour. I suggest that, going beyond Dr. Winnicott's suggested "habeas cerebrum," what is required is "habeas hominem," so that we are not deceived by short-sighted views.—I am, etc.,

London, W.C.1.

L. J. BENDIT.

SIR,—Whatever force there may be in Dr. D. W. Winnicott's protest (Dec. 22, p. 901) against a too-enthusiastic application of physical methods of treatment, such as electrical shock therapy and prefrontal leucotomy, in mental illness—and his protest appears to be only too well justified—there is strong reason to emphasize the need for an adequate appreciation of the psychological background in these cases, the psychological as well as the physical reactions of the patients to the treatment, and the psychotherapeutic requirements of the situation. This caveat would have been unnecessary a few years ago, but there is a perceptible "retreat from psychology" among a section of psychiatrists, both young and old, which, though only a passing phase not unconnected with the war, is likely to be unfortunate for patients while it lasts.—I am, etc.,

London, W.1.

WILLIAM BROWN.

Descent of the Testis

SIR,—Dr. Mary Wood's suggestion (Dec. 15, p. 860) that the descended testis and scrotum of mammals "might be a means of sexual attraction in animals having few other visible sexual differences" is of the greatest interest, but it is difficult to understand how they could function in this way. The lower mammals generally, in contrast to the amphibians, typical reptiles, and birds, have a highly developed olfactory apparatus, including an expanded nasal cavity, numerous conchae, and complex nervous arrangements; and this apparatus is used for finding and following mates and for retrieving the young. Among reptiles, the snakes and lizards also use their sense of smell for finding mates and food, but in these forms it is Jacobson's organ that has been elaborated as the receptor, and it is only in some extinct mammal-like reptiles, related to the mammalian ancestral line, that a complex olfactory apparatus is known to have existed. Associated with these developments are the anal and other scent glands so widespread in the various orders of contemporary mammals. So in primitive mammals the only phase of the sexual cycle in which the scrotum could be of importance as a visual stimulant would lie between the approach, conditioned by scent, and actual contact, and it is difficult to see how it could function effectively.

In those mammals in which smell has become of relatively less importance in mating the scrotum has not become noticeably more conspicuous. In monkeys arboreal life has led to a secondary simplification of the olfactory apparatus and to the loss of the anal glands (though in lemurs the numerous conchae are retained and pairs follow each other and mothers their young through the branches largely by scent). Brightly coloured sexual skin and occasionally phalli and cheeks are found, but the scrotum is not particularly conspicuous. In ruminants the scrotum may certainly be large, but special sexual behaviour and often bodily features such as horns are more striking characters differentiating the sexes. In no group of mammals is there any parallel to the elaboration of form and colour associated with intimidation, courtship, and unpalatability found in the birds and amphibians, where visual, rather than olfactory, considerations are paramount.

In man, where with the thinning of the hair and the fully upright posture the scrotum has become more conspicuous, it

is not that organ which has been chosen for ornamental elaboration: it is rather the breasts (*Homo* is the only genus in which the non-lactating breast remains large and fatty), the buttocks (particularly in the Bushman-Hottentot), the umbilicus (more conspicuous in *Homo* than in other animals equally well provided with subcutaneous fat), and the dimples over the posterior superior iliac spines. Possibly hairlessness itself was conditioned by sexual rather than by natural selection (suppression of vermin). Opinions may differ as to whether, judging from the results, our ancestors showed good aesthetic appreciation and chose their mates well, but there is no evidence that in us or in other mammals the scrotum has played any, particular part as a centre of attraction. The descent of the testis remains one of the mysteries of evolution, in spite of the partial solution so clearly put forward by your contributor Mr. Badenoch (Nov. 3, p. 601).—I am, etc.,

Anatomical Department,
St. Thomas's Hospital, S.E.1.

R. WHEELER HAINES.

Routine Treatment of Malaria with Intravenous Quinine

SIR,—During the Japanese occupation of Hong Kong, when forced by economic reasons and shortage of drugs, the routine treatment of malaria was with intravenous quinine. It has been shown in a series of 100 patients that the slow injection of quinine dihydrochloride by this route has great advantages, for it is absolutely painless and does not lead to necrosis of the muscular tissue of the buttocks as intramuscular injections do even under sterile conditions. The plasmodia in the blood stream disappear rapidly, the fever drops in one to two hours after the injection, and the temperature usually reaches normal much more quickly than after intramuscular application. I have used intravenous quinine dihydrochloride not on specially selected material, but on the undernourished population of Hong Kong under Japanese rule. The dosage was 0.25 to 0.5 gramme in 1 c.cm. distilled water. I did not use glucose because it was too expensive. The injection took two minutes, and aspirated blood was constantly mixed with the solution of quinine. The temperature in 95 cases fell to normal after one injection only, while in 5 cases (subtertian malaria) a second injection was necessary five hours after the first. Racially the 100 patients were 10 Europeans, 36 Chinese, 54 Indians. The last group were watchmen or prisoners of war in a very bad physical condition. The reactions of the patients are given below:

Reaction	Objective and Subjective Signs	Number of Cases	Kind of Malaria
None		80	73 tertian 4 quartan 3 subtertian
Slight	Feeling of heat in chest and of slight pressure on the heart	15	12 " " " " " "
Moderate	Dizziness, nystagmus, nausea, burning sensation in chest	3	3 tertian 2 mixed 1 subtertian
Severe	Severe dizziness, nausea, tachycardia, extrasystole	2	2 " "

No patient collapsed and no death was reported. I conclude that it is better to use quinine dihydrochloride intravenously than intramuscularly, as this route is safe and quick and all the quinine administered enters the blood stream.—I am, etc.,

Hong Kong.

W. WINTERSTEIN.

National Research into Tuberculosis

SIR,—The suggestion put forward by Dr. George Luntz in his letter (Dec. 1, p. 781) is not only very timely but in a sense rather overdue. I have now been connected for about three years with one of the largest sanatoria and E.M.S. hospitals in the country. The difference between the two types of patients (tuberculous and E.M.S.) is so tragically glaring that it cannot be missed. The age groups of Service tuberculous cases and Service casualties from all other causes are broadly the same. But whereas a patient in the latter group, with the help of sulphonamides, penicillin, and plastic and modern orthopaedic surgery, stands a very fair chance of getting over his disabilities, one in the other group (tuberculous), in spite of all modern medical and surgical treatment, stands with the sword of Damocles perpetually hanging over his head.

Tuberculosis is a disease by itself. Its insidious onset often makes it very difficult to diagnose in time. Its infectivity, which is a very real source of danger to the last day of the patient's life and whose main victim is the youth of the nation, makes it a national problem of very great importance. Further, due to its chronicity, it is not amenable to short-time "isolation policy" as is possible with smallpox and other similar infectious diseases. There is no disease in the country which can compare with tuberculosis in all its implications and tragedies, and its indeed is a disease which does not die with the patient.

In modern times, when scientific research has given us the sulphonamides, penicillin, radar, and the atomic bomb, is it so much to hope that concentrated research as suggested by Dr. Luntz will find an answer to this problem, which is, from both the individual and the national aspect, of priority importance.—I am, etc.,

London, W.2.

H. C. MURPHY

Questionnaires, Past and Future

SIR,—The blast of war blows in our ears. . . . The game of "foot ball." A week or two ago the headlines of a Sunday newspaper told us that all voluntary hospitals are to be taken over by the Government. When questions were raised the statement was not withdrawn but reaffirmed in the next issue. Then follows Mr. Aneurin Bevan's statement in the House of Commons, on Dec. 6, 1945, on: (a) Abolition of the sale and purchase of practices; (b) "proper distribution" of doctors (i.e., direction); (c) "appropriate measure of compensation"; (d) "great satisfaction with which this statement will be received by most doctors." This menacing pronouncement threatens the very foundations of our professional life, is in direct conflict with our oft-repeated principles, and will inevitably lead to a whole-time salaried State medical service. Personally, I believe compensation will take the form of a pension which will have the effect of strengthening Government control over us; in other words, there will be no compensation unless we enter the service.

I am surprised to read in the *Journal* of Dec. 15 (p. 851) that there still persists a naive belief in the B.M.A.'s Questionnaire issued about two years ago, and am disturbed to think that our policy may be based unduly on its results. The Questionnaire was a blunder, inasmuch as (by the ambiguous manner in which it was framed) the results could not possibly be a true reflection of the views of the profession. And even if this is not admitted, I contend that the Questionnaire is now out of date. We now see the issues at stake more clearly, and have more considered views. And we have a Government in power of whose policy we are in little doubt. I earnestly suggest, therefore, that the time is very ripe for the B.M.A. to issue a short Questionnaire based on fundamental issues—direct unequivocal questions that can easily be answered "Yes" or "No." For your consideration and that of the profession in general I suggest the following:

- (1) Are you in favour of a whole-time State salaried service?
- (2) Do you favour abolition of the sale and purchase of practices?
- (3) Do you consider it essential for the welfare and independence of the profession and in the public interest that private practice should continue?
- (4) Are you in favour of the compulsory inclusion of 100% of the population in any service?
- (5) Are you opposed to any form of local government control of the profession?
- (6) Are you opposed to any form of direction of doctors?
- (7) Should the voluntary hospital system be preserved?

Some time ago we here in Perth sent out a similar questionnaire to 123 doctors in this area, with most satisfactory results. Suffice it to say that if the replies are a reflection of the views of individual doctors throughout the country then the questionnaires I suggest would greatly strengthen the hands of our negotiators. 'Tis a consummation devoutly to be wished.—I am, etc.,

ROBERT RITCHIE.

Perth, Scotland.

D. P. Barr and E. Shore (*Ann. intern. Med.*, 1945, 23, 754) treated 100 cases of Graves's disease with thiouracil and obtained remissions in 87. Mild and many recurrent cases were easily brought under control. On the other hand large nodular goitres responded less readily.

Obituary

SIR ARTHUR BALL, Bt., M.D., M.Ch.

We regret to announce that Sir Arthur Ball, Regius Professor of Surgery in the University of Dublin for the past twelve years, died suddenly at Carrickmines, Co. Dublin, on Dec. 21.

Charles Arthur Kinahan Ball, born on March 29, 1877, was the eldest son of Sir Charles Bent Ball, first baronet, honorary surgeon in Ireland to King Edward VII and King George V; nephew of Sir Robert Stawell Ball, F.R.S., the astronomer whose writings and popular lectures reached a very wide audience; and grandson of Robert Ball, LL.D., the well-known Dublin naturalist who came of an old Devon family which settled in Ireland in 1651. Arthur Ball graduated B.A. from Trinity College, Dublin, in 1898, with honours in natural science, took the M.B., B.Ch., and B.A.O. degrees in 1900, and the M.D. in 1902, in which year he won the surgical travelling prize. He was elected F.R.C.S.I. in 1905 and received the M.Ch. degree of Dublin University thirty years later. After a demonstratorship of anatomy at Trinity College and post-graduate study in Berne and Baltimore he became house-surgeon and later assistant surgeon to Sir Patrick Dun's Hospital, of which his father was an ornament. He was also elected surgeon to Monkstown Hospital and a number of other institutions in and around Dublin, and lectured on operative surgery at Trinity College and examined for the Royal College of Surgeons in Ireland. He succeeded to the baronetcy on March 17, 1916, and in 1933 was appointed Regius Professor of Surgery, as his father had been many years earlier.

Sir Arthur Ball joined the British Medical Association in 1902 and held office as secretary of the Section of Surgery at the Birmingham Annual Meeting in 1911. He was a member of the Council of the Royal Zoological Society of Ireland and past-president of the Dublin University Biological Association, thus continuing the active interest taken by his grandfather in each of those scientific bodies. He published a number of papers on urological subjects in this and other journals, and his presidential address to the Section of Surgery of the Royal Academy of Medicine in Ireland on "Progress of Renal Surgery" appeared in the *Dublin Journal of Medical Science* in 1912. He married in 1907, but had no child, and his brother, Nigel Gresley Ball, Sc.D., late professor of botany at University College, Colombo, succeeds to the title.

SIR FARQUHAR BUZZARD

DR. GORDON M. HOLMES writes:

Apart from his work while he presided over the medical faculty at Oxford and his services to the Nuffield Trust, particularly in the reorganization of hospital facilities and teaching in provincial centres, in which his exceptional organizing ability was recognized, Buzzard occupied a prominent place in contemporary medicine.

Even in the early years of the century when he held the post of pathologist at the National Hospital, Queen Square, his clinical ability was rated so highly that his help and advice on difficult problems which arose in the wards of the hospital were regularly sought by his junior colleagues. As the years passed and his experience grew, his opinion and judgment came to be more widely appreciated in other branches of clinical medicine as well as in neurology. He possessed an exceptionally developed clinical instinct, and an ability to take into account and weigh up every side of each problem that confronted him, which was supplemented by an adequate knowledge of the anatomy and pathology of the nervous system. Although his name is not associated with any important discovery or notable addition to knowledge, he made several valuable contributions to neurology, as the clinical differentiation and morbid anatomy of subacute combined degeneration of the spinal cord, in which he was associated with Batten and Collier.

His deliberate manner and his slow and cautious expression of opinion may have diminished his popularity as a teacher, but his classes and demonstrations both at St. Thomas's Hospital and at the National Hospital were highly appreciated by more

advanced and thoughtful students, and particularly by post-graduates.

Buzzard's friends and colleagues will, however, ever remember him for his personal qualities: his sincerity and obvious honesty, his acute sympathy and his willingness to help in difficulties of any nature, his wide interests, and the cheerfulness he brought to any company he entered.

The following well-known medical men have recently died abroad: Dr. GASTON MILIAN, the eminent French dermatologist; Dr. WALTER BIGLEN, a St. Gallen gynaecologist and an authority on Paracelsus; Dr. JEAN TROISIER, professor at the Paris faculty of medicine and Institut Pasteur and an authority on tuberculosis and cancer; Dr. FRITZ RUTISHAUSER, the first Swiss psychiatrist for abnormal children and young persons, aged 70; Dr. W. W. HERRICK, professor of clinical medicine in the College of Physicians and Surgeons at Columbia University and president of the New York Academy of Medicine; Dr. JUAN SANCHEZ COVISA, emeritus professor of dermatology in the Madrid faculty of medicine.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

Applications for the John Lucas Walker Studentship, the holder of which must devote himself to research in pathology, are invited, and should be sent, accompanied by testimonials, references, and copies of papers containing published work, before April 20, 1946, to Prof. H. R. Dean, Department of Pathology, University of Cambridge, to whom also applications for further information regarding the studentship may be addressed. Persons of either sex may be candidates. The Studentship is tenable for such period and is of such annual value not exceeding £500 as the Professor of Pathology, with the approval of the Managers, may determine.

At a Congregation held on Dec. 15 the following medical degrees were conferred, all by proxy except where indicated by an asterisk:

M.D.—A. H. Masina, *W. P. Purvis.
M.B., B.Chir.—W. S. R. Fenton, D. A. Bailey.
B.Chir.—J. F. Paterson.

The examination for the degree of M.Chir. will be held on Feb. 19, 20, 22, and 23.

The following candidates have been approved at the examination indicated:

FINAL M.B.—Part II (*Principles and Practice of Physic, Pathology, and Pharmacology*): R. C. Allison, A. C. Arthur, J. C. Bayliss, J. P. M. Bensted, J. E. Blundell, F. J. Conway, D. G. Davidson, W. H. Davies, E. W. Deane, A. M. Dorey, N. K. Dryden, A. L. T. Easton, J. O. P. Edgcombe, E. Ellis, R. H. Ellis, T. A. Evershed, A. E. Flatt, A. L. Furniss, D. A. G. Galton, E. B. Geihen Smith, J. H. Gough, R. N. Grabowsky-Atherstone, B. A. J. C. Gregory, D. Hamilton, P. H. Hewitt, W. A. A. Hodges, E. M. James, J. Jordan, M. C. Joseph, P. B. Kunkler, P. K. Ledger, A. H. Littlewood, P. N. Magee, J. B. Metcalfe, R. I. Milne, P. D. Mort, G. S. Ostlere, P. P. Philip, J. E. Pitts, B. R. Pollard, C. W. A. Pullan, B. O. Reed, J. T. Rowling, C. C. D. Shute, I. B. Smith, R. H. Thomlinson, P. H. Walker, M. W. P. Ward, P. Watson, R. H. Wilkinson, C. J. Wilson. *Women*: K. A. C. Bowen, M. A. Brown, M. C. Myddelton.

UNIVERSITY OF LONDON

Ralph Ford Tredre, M.D., D.P.H., D.T.M.&H., has been appointed Assistant Director of the Ross Institute of Tropical Hygiene, which is incorporated in the London School of Hygiene and Tropical Medicine. The appointment dates from October last.

Aubrey Lewis, M.D., F.R.C.P., has been appointed to the university chair of psychiatry tenable at the Maudsley Hospital, where he has been clinical director since 1936.

The title of professor of applied physiology in the University has been conferred on Guy Pascoe Crowden, D.Sc., M.R.C.P., in respect of the post now held by him at the London School of Hygiene and Tropical Medicine.

J. H. Birkinshaw, D.Sc., has been appointed to the university readership in biochemistry tenable at the London School of Hygiene and Tropical Medicine.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL

The Medical Research Council and University College Hospital Medical School have jointly appointed Edward Eric Pochin, M.B., B.Chir., M.R.C.P., to be Director of the Department of Clinical Research, in place of the late Sir Thomas Lewis, as from Jan. 1. Dr. Pochin has also been appointed an honorary physician to University College Hospital.

UNIVERSITY OF BRISTOL

Robert Milnes Walker, M.S., F.R.C.S., has been appointed to the newly established Chair of Surgery in the University.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examinations indicated:

M.D.—J. R. Hughes, C. McGibbon, H. Reid.
M.B., Ch.B.—*† R. G. Thomas, *† L. F. Tinckler, *† Esmé M. Wren. *Part III*: Audrey M. Ashcroft, N. L. Bailey, † K. Baker, S. Beacon, D. T. Binas, R. Brearley, P. M. Bretland, Cécile N. Broster, J. H. E. Carmichael, Helen A. Cawson, A. D. Charnley, M. H. Clark, N. Coulshed, S. Croft, Pauline M. Dean, M. M. I. el Haddad, R. Ellam, H. C. Graham, E. A. Harris, F. G. Ince, R. V. Kennon, Barbara M. Killick, T. S. Law, Jean Learoyd, A. C. Levinson, T. R. Littler, J. A. O'Garra, A. E. Pritchard, Rachel M. Rawcliffe, G. P. Reed, H. Roberts, W. G. Roberts, P. W. Robertson, Olive R. Rodgers, L. Rosenbloom, H. H. Slack, Helen M. Taylor, L. Temkin, J. Ward, Joyce Watson, N. P. Watson, W. F. Wille, Aline N. Wynroe. *Passed in Separate Subjects*: Ailsa M. Heath (Medicine and Obstetrics and Gynaecology), Maureen M. Hoey (Surgery and Obstetrics and Gynaecology), D. T. L. Hughes (Medicine and Surgery), H. S. Levy (Medicine and Surgery), F. W. Sheffield (Medicine and Surgery).

* With second-class honours. † Distinction in surgery. ‡ Distinction in obstetrics and gynaecology.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Dr. Hugh Edward Magee will deliver the Milroy Lectures on Tuesday, Feb. 12, and Thursday, Feb. 14, at 5 p.m. at the College, Pall Mall East. His subject is "Application of Nutrition to Public Health—Some Lessons of the War." Tea will be served before the lecture.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Sir William H. Collins and Sir Henry Dale, O.M., G.B.E., F.R.S., have been elected Honorary Fellows of the Royal College of Surgeons. Sir William Collins is one of the greatest benefactors in the history of the College, having endowed professorships of anatomy and pathology in recent years. Sir Henry Dale, when President of the Royal Society, was a Trustee of the Hunterian Collection and has also been associated with the College through his membership of the Council of the Imperial Cancer Research Fund.

At an ordinary meeting of the Council of the College, held on Dec. 13, Sir Alfred Webb-Johnson, Bt., President, in the chair, diplomas of Fellowship were granted to the following successful candidates:

R. H. Gardiner, F. T. Moore, K. F. Hulbert, H. H. Barst, F. D. Hindmarsh, J. E. Malcolm, D. Wynn-Williams, S. Muntarbhorn, R. A. Gill, V. G. Patel, P. W. Brand, D. R. Barnes, G. L. W. Bonney, J. Zimmerman, P. G. Somerville, R. E. Waterston, I. D. Gebbie, W. H. Rothwell, R. S. Hooper, E. E. O'Malley, W. Hawksworth, L. Gillis, M. Kaye, J. W. Spence, G. R. Nicks, W. K. Yeates, G. Harrison, V. G. Griffiths.

A diploma of membership was granted to Janet Gordon (King's College, London).

Diplomas in Anaesthetics were granted, jointly with the Royal College of Physicians of London, to the following successful candidates:

Valerie M. Adamson, C. R. G. Barrington, C. H. D. Bartley, F. H. Blackburn, R. I. Bodman, G. Bourne, A. Brown, W. M. Brown, J. D. Buxton, E. S. Curtiss, S. G. de Clive-Lowe, I. A. Donaldson, C. Frost, P. R. Gavin, H. S. H. Gilmer, E. G. Godwin, J. M. Graham, J. Greenhalgh, The Hon. E. B. Hacking, L. A. I. Hamilton, Beryl L. Harrison, Monica L. Hawkins, A. N. Hobbs, M. Holborow, J. Howell, Margaret M. G. Joat, G. T. Johnson, G. S. A. Knowles, H. T. Knowles, O. V. S. Kok, Gwenda M. Lewis, B. R. Little, A. M. MacKay, J. M. MacKinnon, F. G. Mackintosh, J. A. McNab, Elizabeth H. Milne, D. A. Naismith, Olive I. Nicholson, P. T. Northover, J. R. O'Dowd, M. B. O'Neill, M. W. Li. Owen J. A. Pearl, P. B. Percheson, E. H. D. Phillips, R. I. Probert, Barbara C. Roberts, A. H. Saleh, C. E. Shafto, C. R. Stephen, Elizabeth D. S. Stephen, K. F. Stephens, R. J. M. Steven, A. H. Swinbank, Evelyn H. Terry, K. S. Thom, J. P. Thomas, C. P. K. Toland, F. L. Turner, W. J. U. Tin, Daphne V. Veale, G. L. Were, R. U. Whitney, G. M. Wyant, J. B. Wyman.

Messages of greeting from the College were recently conveyed to the Royal Australasian College of Surgeons by two members of the Council now in Australia—Surg. Rear-Adm. G. Gordon-Taylor and Surg. Capt. Lambert Rogers. Copies of the messages and the reply from the President of the Royal Australasian College of Surgeons, Mr. H. R. G. Poate, were before the Council.

St. James's Hospital, Leeds, was recognized for the resident surgical post required of candidates for the Final Fellowship examination in respect of the posts of resident surgical officer and first house-surgeon.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the Royal College of Surgeons of Edinburgh held on Dec. 19, with Mr. Jas. M. Graham, President, in the chair, the following candidates, having passed the requisite examinations, were admitted Fellows:

D. W. A. Degazon, W. H. Fahrni, J. F. M. Fraw, E. Garland-Collins, N. O. K. Gifford, R. Hodgkinson, W. Irving, M. J. Kelleher, J. H. Kirkham, J. R. F. Mills, R. C. Rider, I. C. Simpson, F. Smith, W. M. Toone.

Dr. A. B. Alexander has been notified that the Fellowship of the American College of Surgeons (F.A.C.S.) was formally conferred upon him, *in absentia*, in Chicago on Nov. 30, 1945.

The Services

Air Vice-Marshal T. J. Kelly, C.B.L. M.C., has been appointed an Honorary Surgeon to the King in succession to Air Vice-Marshal F. C. Cowan, C.B., who has vacated the appointment on retirement from the R.A.F.

Major (Acting) B. H. Price, R.A.M.C., has been appointed M.B.E. (Military Division) in recognition of gallant and distinguished services in the field.

Surg. Cmdr. J. F. Heggie, R.N.V.R., has been awarded the R.N.V.R. Officers' Decoration.

The following appointments and mentions in dispatches have been announced in recognition of gallant and distinguished services while in the ranks of war:

O.B.L. (Military Division)—Lieut.-Col. D. A. McM. Crawford, J. T. Hankey, and T. H. Wilson; Lieut.-Cols. (Temp.) J. C. MacLay, J. C. T. D., and D. H. Thompson; Major V. R. Henderson, R.A.M.C.

M.B.E. (Military Division)—Major J. G. Lawson, Majors (Temp.) S. W. Barber, G. MacN. R. Duffus, R. Harvey, C. W. Forncastle, P. D. C. Kimmont, L. W. Lauste, J. B. Sherran, W. S. Jakes, and A. W. Woolley; Capt. P. T. Cooper, W. O. James, L. W. MacMillan, W. M. Nichols, I. F. Rose, and D. Taverner, R.A.M.C.

Mentioned in Dispatches—Lieut.-Col. (Acting) A. G. D. Whyte, I.B.E. Major B. B. Hosford; Majors (Temp.) W. M. Davidson, L. R. Gordon, M.C., W. R. Hunter, C. W. A. Kimbell, J. Parkes, J. Smith, and A. McL. W. Thomson; Capt. J. H. Annan, M.B.E.; Lieut. Bonham Carter, A. M. Boyd, J. C. Cameron, E. F. M. Caraher, E. S. Carmichael, G. D. Cribb, A. Crook, G. I. Davidson, J. Forrest-Hay, W. K. Frewen, J. H. Gibson, S. S. B. Gilder, R. W. Henderson, D. R. Holden, W. S. Holden, D. G. Howatson, W. I. S. Ludleston, C. W. Hille, J. A. James, G. S. A. Knowles, D. W.acey, F. B. Lake, N. R. Lansdell, R. P. Lawson, M.C., W. Lumsden, R. J. MacDonald, L. MacLean, A. Macnab, A. Milchides, N. E. Fonteuus, A. F. Murray, G. F. R. Parker, R. Pollock, D. H. andall, R. Robertson, R. L. Sanderson, I. Schrire, C. A. Simmons, F. Smith, I. O. B. Spencer, I. McD. G. Stewart, A. C. P. D. homson, M.C., C. E. C. Wells, and R. M. Wiltshire; Lieut. J. outlieb, R.A.M.C.

Medical Notes in Parliament

During the autumn sittings the Parliamentary Medical Group under the chairmanship of Dr. Haden Guest has concerned itself with a number of matters connected with demobilization. These included the release of requisitioned accommodation in medical schools, the release of medical teachers from the forces, and the acceleration of the demobilization of medical actionnaires. After the House of Commons resumes on January 1 the committee will consider the arrangements for the care of aged in sickness and health.

The Royal Assent was given on Dec. 20 to the Finance (No. 2) Act, the Public Health (Scotland) Act, and the Workmen's Compensation (Pneumoconiosis) Act.

Tuberculosis Contracted by Nurses

While the National Insurance (Industrial Injuries) Bill was for a Standing Committee of the House of Commons on Dec. 4, Mrs. BRADDOCK moved to provide that in the case of nurses contracting tuberculosis during nursing employment, or within six months afterwards, the disease should be deemed to arise from the carrying out of such nursing employment. She said that in the Civil Nursing Reserve nurses were entitled to a special pension when they had contracted tuberculosis or any other infectious disease.

The CHAIRMAN of the COMMITTEE suggested that this amendment could be discussed together with a similar one relating to workers in the cotton textile industry who contracted epithelioma or spinners' cancer.

Mr. JAMES GRIFFITHS, replying for the Government, said that spinners' cancer would be covered by the new Bill and he would have jurisdiction to prescribe the time limit. He was considering the desirability of extending this beyond 12 months. He asked Mrs. Braddock to withdraw her amendment because he did not wish the clause to mention the people to whom it applied. It was a general clause enabling him to prescribe any injury or a disease. That was being considered for the nurses' consultation with the Ministry of Health and the Department of Health for Scotland. He hoped to arrive at a decision before long.

Penicillin for the Public

Mr. Wilmot (Minister of Supply) was asked on Dec. 17 whether he would arrange for penicillin to be sold to the public in tablet form "to avoid the hardship, inconvenience, and expense of having to go to hospitals, clinics, or surgeries for injections." Mr. WILMOT replied that treatment with penicillin otherwise than by injection could not at present be recommended for general use. Extensive research was being carried out. As soon as a suitable technique was established, steps would be taken to make the necessary preparations of penicillin available in accordance with the recommendations of the medical authorities of the Ministry of Health.

German Scientists for Britain

Sir STAFFORD CRIPPS stated on Dec. 19 that it was proposed to recruit, on the recommendations of the responsible Department, a strictly limited number of German scientists and technicians of the highest grade for service in this country, in the first instance for a period of six months. In general these experts would work in Government establishments, or for research associations sponsored by the Department of Scientific and Industrial Research.

Beds for Tuberculosis

Mr. BEVAN told Mr. Pritt on Dec. 20 that the number of persons awaiting sanatorium treatment for tuberculosis was about 5,000 and the number of beds normally available, but at present out of use owing to shortage of staff, was about 3,000. All possible measures to remedy the shortage of staff were being taken by his officers and those of the Minister of Labour. The importation of displaced persons for this work was under consideration, but was not without difficulty.

Mr. BUCHANAN stated that in Scotland the total number of beds available in sanatoria for tuberculous patients was approximately 6,700, but it was estimated that 500 of them could not be used through shortage of nursing staff. At Sept. 30 the number of persons on the Scottish local authorities' waiting lists was 1,703, including fully 1,000 from Glasgow.

New National Insurance Bill

Mr. JAMES GRIFFITHS presented on Dec. 20 the National Insurance Bill to establish an extended system of national insurance, providing payments by way of unemployment benefit, sickness benefit, maternity benefit, retirement pensions, widow's benefit, guardians' allowance, and death grant, to repeal or amend existing enactments relating to national health insurance and other schemes, and to provide for the making of payments towards the cost of a national health service. Answering questions about this Bill, Mr. Griffiths said he hoped it would be available before the House resumed in January, but owing to the complexities of the task it might not be possible to have the Bill printed until shortly after the House resumed its sitting on Jan. 22. He believed his would not prejudice the Government's intention to get the Bill on the Statute Book before the summer recess.

Manufacture of D.D.T.

Replying on Dec. 20 to Sir Patrick Hannon, Sir STAFFORD CRIPPS said the factories where D.D.T. was manufactured during the war were still in operation. One firm began commercial distribution of its product last September. It was proposed to give the other producers an early opportunity of making D.D.T. for their own account, subject to provision for current and future requirements of the fighting Services and other Government demands.

Permanent Medical Staff of R.A.F.

Mr. STRACHEY stated on Dec. 20 that 139 medical officers held permanent commissions in the R.A.F. In addition 56 officers had recently been selected for permanent commissions. Thirty-five officers had been offered extensions for four years. Thus far five had accepted. In the second half of 1945, 880 medical officers would have been released and recruitment during the same period would have been nil.

Hospital Survey of West Midlands

The report for the West Midland area on the hospital services in the regional district included in the survey was issued on Oct. 24 for consideration by those concerned, locally and centrally, in the future planning and organization of hospital services. Mr. BEVAN said on Dec. 20 that action on the recommendations made would be premature in advance of the organization and development of the health services as a whole.

Food of Displaced Persons—Mr. J. HYNDS, in a statement on Dec. 20, said that in the British zone in Germany displaced persons

had absolute priority over the German population in regard to food. A minimum ration scale of 2,000 calories a day was prescribed with additions for special categories. This was much in excess of what was being received by the Germans. At one assembly centre near Belsen, where a large number of displaced persons were accommodated, the hospital was administered by U.N.R.R.A. There was an adequate supply of medicine and the hospital was well fitted and well run. Some German doctors and nurses worked there under the direction of U.N.R.R.A. doctors. The food scale in force provided 2,913 calories per day for nursing and expectant mothers.

Superannuation of Asylum Officers.—Asked by Mr. Rhys Davies on Dec. 20 to introduce a short Bill to amend the Asylums Officers Superannuation Act, 1909, so as to remove the anomaly whereby an employee was not allowed the return of his contributions on voluntary resignation when not guilty of misconduct, Mr. BEVAN promised to consider this suggestion with others made from time to time for the amendment of the law relating to the superannuation of local government and other officers. He added that he held out no hope of early legislation on these matters.

Priority Milk.—About 600,000 adult consumers, other than expectant mothers and mothers of infants, receive priority milk. The Ministry of Food is inquiring whether any tightening of the procedure is needed. Sir Ben Smith is advised that there are no nutritional grounds for allowing extra milk to old-age pensioners.

Shortage of Medicine Bottles.—Sir E. GRAHAM-LITTLE asked on Dec. 19 about the shortage of medicine bottles. Sir STAFFORD CRIPPS said glass bottles were in short supply, but priority was given to bottles required for food, drink, and medicines. He was considering with Mr. Isaacs what further steps could be taken to increase the workers in the industry.

Notes in Brief

The Interdepartmental Committee on Dentistry has submitted its final report, which will be published as a Command Paper.

An allocation of sugar is to be made by the Ministry of Food to a firm manufacturing homoeopathic medicines for export.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the chief features of the returns were large increases in acute pneumonia (225 more cases) and dysentery (71 more cases). The only other variations of note were decreases in whooping-cough and scarlet fever (30 and 26 fewer cases). Only small changes occurred in the local incidence of scarlet fever and whooping-cough.

Measles showed an increase in Suffolk (43) and a decrease in Lancashire (46).

Diphtheria cases increased in Yorks West Riding (17) and Suffolk (12), and decreased in Durham (17) and Lancashire (14).

Dysentery was reported from Hertfordshire, Hatfield R.D., where there was a large outbreak involving 90 persons. Other large returns were Lancashire 51, London 44, Yorks West Riding 20, Essex 13, Warwickshire 10.

In *Scotland* a large fall (63) was recorded in the incidence of pneumonia. There were 28 fewer cases of diphtheria, while scarlet fever rose by 27. The fall in diphtheria was mainly due to Glasgow, where the cases fell from 84 to 62.

In *Eire* the only variations in the trends of infectious diseases were a fall in measles (21) and an increase in whooping-cough (17). In Dublin C.B. 33 further cases of diarrhoea and enteritis were notified.

Quarterly Returns for Northern Ireland

The birth rate during the September quarter was 21.8 per 1,000, compared with 22.5 for the average of the five preceding third quarters. Infant mortality was 53 per 1,000 registered births—15 below the average for the five preceding September quarters. Maternal mortality was 3.2 per 1,000 births, which is the same rate as the five-years average. The general death rate was 10.1 per 1,000, which was 1.1 below the five-years average. Deaths from pulmonary tuberculosis were 171, and from other forms of tuberculosis 50, these totals being 42 and 19, respectively, below the average of the five preceding third quarters. Deaths from epidemic diseases included 97 from diarrhoea and enteritis under 2 years of age, 14 from whooping-cough, 10 from influenza, and 7 from diphtheria.

Week Ending December 22

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,718, whooping-cough 1,100, diphtheria 569, measles 623, acute pneumonia 1,166, cerebrospinal fever 43, acute poliomyelitis 23, dysentery 230, paratyphoid 4, typhoid 5.

INFECTIOUS DISEASES AND VITAL STATISTICS

No 50

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Dec. 15

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire. (e) Northern Ireland

Figures of Births and Deaths, and of Deaths recorded under each Infectious disease are for: (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland

A dash — denotes no cases; a blank space denotes disease not notifiable or return available

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	44	2	19	—	1	37	3	18	—	1
Deaths	—	—	—	—	—	—	—	—	—	—
Diphtheria	575	46	153	79	19	463	20	142	108	18
Deaths	10	—	2	1	—	7	—	4	2	—
Dysentery	313	44	49	4	—	201	27	101	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute	1	—	—	—	—	1	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	42	17	—	—	—	46	4	1
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	—	—	—	30	—	—	—	—	24	—
Deaths	42	5	8	19	—	32	4	9	9	—
Measles*	619	42	106	167	4	8,98	114	528	37	25
Deaths	—	—	—	—	—	7	—	1	—	—
Ophthalmia neonatorum	68	6	15	—	—	76	4	22	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	1	—	—	1 (B)	—	5	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza†	969	69	4	4	1	725	27	5	6	—
Deaths (from influenza)	69	6	1	1	1	21	1	7	1	—
Pneumonia, primary	—	—	205	21	—	—	33	345	29	1
Deaths	—	68	19	6	—	—	—	18	—	—
Polio-encephalitis, acute	2	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute	10	2	1	1	—	5	1	—	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	4	10	—	—	—	2	9	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡	113	5	10	—	—	123	3	15	—	—
Deaths	—	1	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	1,753	168	307	22	49	1,990	60	295	40	—
Deaths	2	—	2	—	—	2	—	—	—	—
Smallpox	—	—	—	—	—	1	1	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	6	—	6	4	—	7	—	1	5	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough*	1,195	86	65	42	5	1,343	53	134	54	—
Deaths	31	—	—	1	—	3	—	2	1	—
Deaths (0-1 year)	423	61	49	49	—	350	29	70	42	—
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	5,775	907	684	218	10	5,069	715	69	233	1
Annual death rate (per 1,000 persons living)	—	—	15.5	14.1	§	—	—	16.1	15.1	—
Live births	6,672	875	824	364	247	6,806	692	90	304	2
Annual rate per 1,000 persons living	—	—	16.5	23.5	§	—	—	18.4	19.7	—
Stillbirths	213	21	33	—	—	224	13	31	—	—
Rate per 1,000 total births including stillborn)	—	—	39	—	—	—	—	33	—	—

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to movements of population, birth and death rates for Northern Ireland are still not available.

Medical News

Authors of original articles and medical memoranda published in this *Journal* will from now onwards be entitled to 50 free reprints, and will be charged only for the number ordered in excess of this.

The twenty-ninth course of instruction for a Diploma in Psychological Medicine will open at the Maudsley Hospital Medical School, Denmark Hill, S.E.5, on Jan. 7, and will comprise a large number of lectures and clinical demonstrations. All inquiries about the course should be addressed to Dr W. W. Kay, acting honorary director of the Maudsley Hospital Medical School, Central Pathological Laboratory, at West Park Hospital, Epsom, Surrey (telephone: Epsom 1408). Clinical instruction in psychiatry will be arranged, for students who desire to satisfy the requirements of the various examining bodies in respect of clinical experience of mental disorders for a D.P.M.

Prof. Willem Noordend, Hon. F.R.C.S., who holds the chair of surgery in the University of Amsterdam, will deliver the Mounihan Lecture, on the choice of oblique and transverse incisions in abdominal surgery, at the Royal College of Surgeons of England, Lincoln's Inn Fields, W.C., on Wednesday, Jan. 9, at 5 p.m.

The Pharmaceutical Society of Great Britain has arranged a meeting at 17, Bloomsbury Square, London, W.C., on Thursday, Jan. 10, at 7 p.m., when the Harrison Memorial Medal will be presented to Mr. Reginald Robert Bennett, B.Sc., F.R.I.C. After the ceremony Mr. Bennett will give an address in which he will deal with pharmacopoeia revision and will review historically the part which pharmacists have played in this work since the Medical Act of 1858 vested in the General Medical Council responsibility for producing and publishing the *British Pharmacopoeia*.

A joint meeting of the Microbiological Part of the Food Group of the Society of Chemical Industry with the Society for Applied Bacteriology will be held on Jan. 9, at 2.15 p.m., in the rooms of the Chemical Society, Burlington House, Piccadilly, W., when papers will be read on heat-resistance of micro-organisms, on some problems in the bacteriology of rivers, and on mould growth on leather. Members may introduce friends in person. The office of the Society of Chemical Industry is at 56, Victoria Street, S.W.1.

The European Association of Clinical Pathologists will hold its annual general meeting at Glaxo Laboratories Ltd., Greenford, Middlesex, on Saturday, Jan. 12, at 10 a.m.

A meeting of the Eugenics Society will be held in the rooms of the Royal Society, Burlington House, Piccadilly, W., on Tuesday, Jan. 15, at 5.30 p.m., when Dr. Elhat Slater will discuss "An Intercourse into Assortative Mating," and Mrs. Moya Woodside will speak on "Courtship and Mating in an Urban Community." All interested in the subjects are invited to attend.

The Medical Society of London has arranged the following course of lectures to be given at 11 Chandos Street by Fellows of the society to any demobilized medical officers who may wish to attend. Each lecture will begin at 5.10 p.m.: Tuesday, Jan. 15, "The Acute Abdomen," Mr. V. Zachary Cope; Friday, Jan. 18, "Surgical Diseases of the Bladder," Mr. E. W. Riches; Tuesday, Jan. 22, "Infections of the Hand," Mr. R. M. Handfield-Jones; Friday, Jan. 25, "Gastro-enteritis of Children," Dr. C. F. Harns; Tuesday, Jan. 29, "Oesophagus," Prof. G. Grev Turner; Friday, Feb. 1, "Diagnosis and Treatment of Diabetes," Dr. Wilfred Oakley; Tuesday, Feb. 5, "Thyrotoxicosis," Dr. T. Jenner Hoskin, F.R.C.P.; Friday, Feb. 8, "Toxaemia of Pregnancy," Mr. Aleck Bourne; Tuesday, Feb. 12, "Disorders of Menstruation," Mr. A. C. Palmer; Friday, Feb. 15, "Indications for Chest Surgery," Mr. A. Tudor Edwards; Tuesday, Feb. 19, "Ophthalmic Emergencies," Mr. F. A. Williamson-Noble; Friday, Feb. 22, "Otitis Media," Mr. W. M. Mollison; Tuesday, Feb. 26, "Brachial and Scapular Pain," Dr. Anthony Feilding; Friday, March 1, "The Pneumonias," Dr. Geoffrey Marshall; Tuesday, March 5, "Nephritis and Hypertension," Dr. Horace Evans.

The Ministry of Health announces that the Rushcliffe Committee has decided that the new scales of salaries for ward sisters, staff nurses, and assistant nurses comes into operation from Jan. 1, 1946. The estimated cost of the increases is roughly £500,000 a year to begin with, rising to £1,000,000 a year from April 1, 1947. The Rushcliffe Committee has also agreed that extra allowances should be paid for continuous service in pulmonary tuberculosis hospitals. Qualifying service for these allowances will be reckoned from Jan. 1. In informing local authorities and voluntary hospitals of these recommendations, the Minister of Health "warmly welcomes" them. He states that half the additional cost will be met by them. He states that half the additional cost will be met by them. He states that half the additional cost will be met by them. Exchequer grant (pending settlement of the post-war health services) on condition that employing authorities implement the Rushcliffe Committee's salary recommendations in full.

Dr. E. D. Pridie, C.M.G., D.S.O., O.B.E., has been appointed health expert at His Majesty's Embassy, Cairo.

Letters, Notes, and Answers

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ANY QUESTIONS?

Age of Descent of Testes

Q.—What is the latest age at which testes have been known to descend into the scrotum (1) without special therapy, and (2) with special endocrine therapy?

A.—In the case of patients with retained testes who are otherwise normal and show no endocrine stigmata, if the testis does not descend before puberty (12 to 14 years of age) it is unlikely to do so, either spontaneously or with endocrine therapy, at a later date. Such a testis is probably ectopic. Where, however, an undescended testis is part of an endocrine syndrome—e.g., Fröhlich's syndrome—gonadotrophic hormone may produce descent in adolescence or adult life, but spontaneous descent is less likely. In the case of an ectopic testis surgery will be required.

Van Gierke's Disease

Q.—What treatment would you recommend for van Gierke's disease in a patient aged 12?

A.—The disease in question appears to be an inborn error of glycogen metabolism, this storage product is not mobilized readily, to keep up the blood-sugar demand, and therefore accumulates in the tissues, especially, of course, the liver. Little has been added to the knowledge of the exact mechanism of fault, since the original description. No treatment appears to be of any avail, but in view of the effect of adrenaline in mobilizing liver glycogen in normal subjects it might be worth trying regular small doses of epinephrine.

Tests for Addison's Disease

Q.—Might insulin sensitivity tests be useful in the early diagnosis of Addison's disease, as in Simmonds's disease? Hypoglycaemia is known to be a feature of exacerbations, and the adrenal is known to produce an "anti-insulin" substance.

A.—Insulin tests might be useful, but normal findings in Addison's disease. This is because (1) the response to insulin may be normal in the early phases of Addison's disease, and sometimes even in the later phases; and (2) because the diabetogenic or anti-insulin function of the pituitary gland has been shown to operate even in the absence of the adrenal glands, although part of this action may be indirectly through the adrenal glands. The writer has carried out insulin-sensitivity tests in Addison's disease, and the results, broadly speaking, appear to be half-way between the normal response and that obtained in Simmonds's disease. In his opinion, there are more useful tests in the diagnosis of Addison's disease, of which the most valuable is that of Kepler (F. J. Robinson, M. H. Power, and E. J. Kepler, *Proc. Mayo Clin.*, 1941, 16, 577), which measures water and chloride metabolism and excretion.

Qualifications for Assistant M.O.H.

Q.—What are the legal and technical qualifications necessary for an assistant to a medical officer of health of a population of 40,000 or over, or, in the case of Northern Ireland, an assistant to a medical superintendent officer of health? Is a D.P.H. or equivalent qualification essential?

A.—No qualifications are prescribed for the post of assistant medical officer of health. The employing authority can require any qualifications which it thinks desirable. It may be assumed that an applicant must be a duly qualified medical practitioner, and if he is to be in charge of a specialized subdepartment in England and Wales he must hold the qualifications prescribed by the Local Government (Qualifications of Medical Officers and Health Visitors) Regulations, 1930, the details of which are too numerous to be dealt

with in a short answer. Such specialized appointments are unlikely to be made in an area the population of which is as low as 40,000. As already indicated, the D.P.H. is not a prescribed qualification for these posts, but if a medical officer aspires to become in time a medical officer of health he will require such a qualification, and it may be difficult for him to obtain it after he has entered the service as a whole-time officer. For this reason a very large proportion of all men or women entering the public health service in junior posts have made a practice of obtaining a public health qualification before seeking appointment as an assistant.

Inheritance of Patent Foramen Ovale

Q.—A patient aged 34 has had two infants with a patent foramen ovale and both died. What are the chances of this woman's producing another child with (a) a patent foramen ovale, and (b) any congenital defect?

A.—There is no definite evidence that patent foramen ovale is inherited, but it is almost certain that patent ductus arteriosus is inherited as a recessive, and the fact that other congenital heart lesions have occurred in more than one member of a sibship suggests that they too are inherited. It would be reasonable, therefore, to assume that the chances of another child having a patent foramen ovale are one in four, and this would be almost certain if the parents are consanguineous. It is improbable that any other congenital defect will occur.

Morphine and Adrenaline in Bronchial Asthma

Q.—In bronchial asthma 1 in 1,000 adrenaline, 0.5 c.cm., hardly ever relieves the attack. Injecting in drop doses as recommended recently is hardly practicable in private practice. Should morphine be resorted to, and, if so, is there not the danger that repeated morphine injections will lead to addiction? Apart from this, does morphine really involve the risk of suffocation by abolishing the cough reflex? How should cases that resist adrenaline be treated?

A.—The injection of 3 to 5 minims (0.18 to 0.30 c.cm.) of adrenaline usually relieves a paroxysm of asthma, particularly if given early. Bad attacks may be controlled by repeating this dose every three or four hours, or by the method of continuous injection. These methods can be taught to intelligent patients or their relations. If the attack is not controlled in this way the patient is ill enough to be in hospital or at any rate to have a nurse. Morphine is the drug of choice for cardiac asthma, but it is most dangerous in bronchial asthma, particularly in patients who are to be left. It is liable to cause death from acute respiratory failure. This is a much more real risk than addiction. The physician should ask himself why the attack is resistant to adrenaline. It may be that a bronchial infection is present, and if so one of the sulphonamides or penicillin may give relief. In other cases the reason may be an emotional upset, and solution of the mental problem will help. Failing these possibilities, the drug to use if adrenaline has not succeeded is aminophylline, gr. 7½ (0.5 g.), given very slowly intravenously, once or twice daily. Large doses of iodides or ammonium chloride may be used to loosen the tenacious sputum. Other measures include inhalations of steam, asthma powder, oxygen, oxygen and helium, etc. In very refractory cases bronchoscopy has been used to dislodge the mucus which is plugging the bronchi. If the patient cannot sleep, a barbiturate, or chloral and bromide, should be administered by mouth, or in bad cases avertin by rectum. Any of these appears safer than morphine in bronchial asthma.

INCOME TAX

Car Expenses—Assistant M.O.H.

"Phi" receives a mileage allowance of about £100 a year from his local authority, but he is considerably out of pocket as this makes no provision for depreciation. Should he take up the matter with the income-tax office?

* The fundamental point is the application of the statutory rule that to be allowable under Schedule E expenses must be "incurred wholly, exclusively, and necessarily in the performance of the duties of the office." It follows that if "Phi" uses a more expensive car than can reasonably be said to be "necessary" for his duties he cannot legally claim the full cost of running it (including depreciation, etc.) and the local authority's allowance may be enough to meet the cost of a car of the size and power which is "necessary." A claim that the allowance is insufficient is tantamount to claiming that the authority is not paying such a sum as "Phi" must necessarily incur, and we are not aware of any case in which such a contention has been successful for income-tax purposes. There may, however, be a special circumstance under present conditions—i.e., "Phi" may have had to acquire a car on the present high cost basis, though the scale allowance may be on a pre-war basis. If that is the case we consider that the allowance is demonstrably too low and "Phi" might press for a deduction from his salary on those special grounds.

LETTERS, NOTES, ETC.

Use of Liver Extracts

Dr. JOHN MILLS (Reading) writes: In "Any Questions?" (Oct. 6, p. 482; Nov. 17, p. 714; Dec. 1, p. 794) the use of liver extracts in the treatment of anaemia is discussed. Since 1930 I have had under continuous observation some 250 patients suffering from pernicious anaemia. I have tested various extracts on these patients both in relapse and under maintenance and have recorded the following observations. (1) No advantage is gained by the massive dosage in relapse advised on Oct. 6. The refined extracts I have tested have given satisfactory results on a dosage of 4 c.cm. once a fortnight, and lately I have been using a dosage of 1 c.cm. a fortnight of a certain refined extract. The crude extract used more recently has been given in an initial dose of 4 c.cm. on two successive days, and thereafter 2 c.cm. a week or 4 c.cm. a fortnight. (2) It does not follow from the observation that an extract is very active in curing a relapse that it will be satisfactory when used for maintenance treatment after the haemoglobin level has reached the normal. (3) Two crude extracts have been used over long periods for maintenance—campolon 5 c.cm. each month and plexan 2 c.cm. each month in 90% or 4 c.cm. each month in 10% of patients. Whilst on this dosage of these extracts no patient has relapsed. Several refined extracts have been used in the dosage recommended by the manufacturers and invariably several of the patients so treated have relapsed, and increasing the dose has in many cases not restored the patient to a satisfactory condition.

My conclusions are: Crude extracts are better than refined extracts, and, since massive dosage does not cure the patient more quickly, there is no justification for using it. I have suspected that unnecessarily large or frequent doses may play some part in rendering the patient sensitive to liver extracts. Testing liver extracts for maintenance value is a slow process. Certainly the answer cannot be obtained in less than two years, and I would prefer the test to run three years. Many patients must be used for each test; hence it has not been possible to test a large number of crude extracts. A greater number of refined extracts has been tested for the simple reason that the patients have relapsed and the answer been obtained usually by the end of the first year.

"He Died Peacefully . . ."

Dr. JOHN CAHILL (Middlesbrough) writes: With regard to the query under the above heading (Nov. 17, p. 712), I venture to advance the opinion that most people, at the end, die peacefully, but they hardly ever die in their sleep. At the average deathbed one witnesses a stage of agitation (accompanied, sometimes, by hallucinations, and, occasionally, by what appear to be genuine religious experience) followed by a stage of stupor deepening into coma. In deaths of catastrophic type these two stages may be of extremely brief duration and, at the other end of the scale, as in chronic uraemia, the stupor-coma stage may last for days. Thus there is no abrupt transition from consciousness to dissolution. Indeed, Disraeli showed acute perception when he wrote: "Death is most dreadful at a distance—illness weakens the mind in a wise proportion with the body."

A Missing Medical Officer

Mrs. McLELLAN (The Knowe, Mauchline, Ayrshire) would be grateful to any reader who can give information of her husband, Capt. Archibald McLellan, 159919 R.A.M.C., who has been missing in Burma since March, 1942. Capt. McLellan was wounded in that month and sent to Mandalay, but he did not arrive there and was believed to have been seen at Magwe awaiting air transport to India. The War Office state that he did not arrive in India, nor has he been found in any prison camp.

Initials

Mr. R. K. HOWAT, F.R.C.S., writes from Highgate: In your issue of Dec. 15 there is an article, "A Fatal Case of D.D.T. Poisoning in a Child," in the course of which the poisonous agent is referred to by initial letters twenty-nine times, in words not once. To one who was brought up on a technical nomenclature of words, not initial letters, this article seems an example in *excelsis* of a practice that would be welcome in *extremis*. By the way, what is D.D.T.?

* Dichloro-diphenyl-trichlorethane, for short. The full chemical name—2,2-bis (p-chlorophenyl) 1,1,1-trichlorethane—was given in the title and also in the first sentence of the preceding article on page 842 of the same issue.—ED., B.M.J.

Correction

Dr. C. HAMILTON WILKIE writes: In my letter (Dec. 22, p. 900) on the treatment of early syphilis "ten twice-weekly injections" should have read "ten double weekly injections." In other words, two injections are given at one attendance each week for ten weeks.

THE CONTRIBUTION OF ANATOMY TO THE WAR*

BY

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It is well recognized that in the war that has just ended scientists played a vastly more important part than in any previous war. In modern warfare even scientists whose subjects might seem to have only the remotest relation to military requirements are called in to give their aid. Thus the entomologist, who in peacetime studies the protective coloration of butterflies, finds his advice sought in working out the principles of camouflage. The archaeologist, who before the war excavated in remote and unfrequented parts of the world, is called upon to assist with his local knowledge of people and geography when those regions become the scene of active operations. The geologist finds himself taking part in a commando raid on the Normandy coast in order to obtain vital information about the nature of the subsoil.

In this lecture I propose to give a short survey of some of the contributions of anatomy to war problems. The survey must necessarily be brief and sketchy, since I can cover only a part of this interesting field of work. This will be apparent when I mention that in the Department of Anatomy at Oxford alone, apart from papers the publication of which was not prevented by security regulations, the number of confidential scientific reports and memoranda prepared by our staff of research workers during the war on behalf of Committees of the Medical Research Council, or of various Government Departments, etc., amounted to 104. If I here confine my attention mainly to the anatomical work done at Oxford, this is simply because I have a more intimate knowledge of it than of similar work carried out in other centres.

Anatomical Problems of Traumatic Surgery

The casualties of war necessarily focus attention on problems of traumatic surgery, not so much because these problems are essentially new, but because they may concern such large numbers of individuals in a short space of time. Thus, in every war, research workers tend to turn their attention once more to a consideration of the fundamental processes of the repair of damaged tissues and the restoration of disturbed function. No doubt each war introduces certain unusual elements into these problems, which are absent or relatively insignificant in the traumatic surgery of peacetime, such as gas gangrene, particular types of injury caused by high-velocity missiles, unusual kinds of head injury, and special features in peripheral nerve lesions; and all these continually raise new problems which require investigation. During this last war a great deal of work on fundamental processes of tissue repair has been carried out, and in many cases this has served to place clinical diagnosis and treatment on a much more sure foundation than hitherto. Since this type of work has not been governed by security considerations, most of it has been published and will be well known to the medical public. Brief reference may, however, be made to some of the results which have emerged from it.

Considering the prevalence and incapacitating effect of peripheral nerve injuries during the war, it is not surprising that this aspect of traumatic surgery has attracted a great deal of the

attention of anatomists. The comprehensive programme of experimental research into problems of nerve regeneration carried out by Prof. J. Z. Young and his collaborators at Oxford has been particularly productive. As a result we have come to learn a great deal more about the rate of growth of nerve fibres, the factors which determine or influence their maturation; the comparative values in the surgical repair of nerve injuries of autografts, homografts, predegenerated nerve grafts, frozen grafts, etc., the optimum time for surgical measures in the treatment of nerve injuries, the extent to which nerve trunks can be stretched without causing permanent damage, the factors influencing the recovery of function in the regeneration of motor nerves, and so forth.

On the sensory side the investigations of Dr. G. Weddell and his co-workers in the Department of Anatomy at Oxford have been equally illuminating. His demonstration of the complex pattern of cutaneous innervation, the multiple innervation of sensory spots, the local extension of nerve fibres into denervated areas, etc., has provided explanations of the anatomical basis of many of the sensory phenomena observed during the course of nerve regeneration. His studies of the electrical phenomena which occur in muscle at different stages of denervation and re-innervation have been of even more immediate importance, since they provide an accurate method, by means of electromyography, of assessing the extent of motor neuron damage in peripheral nerve lesions and of following the process of regeneration even before the first visible sign of returning function. The electromyograph has undoubtedly proved of great value in the diagnosis and prognosis of peripheral nerve lesions.

The problem of burns and their treatment is always a pressing one in wartime, and in the war just ended it became particularly insistent by reason of the types of weapon used. It is a remarkable fact, however, that at the beginning of the war very little information was available on the exact anatomical changes which occur in different degrees of burn, and their correlation with the toxic effects of the damage. The studies of Dr. E. H. Leach and his collaborators have served to fill up some part of this gap. They found, among other things, that the critical temperature required to produce irreversible damage to the skin is in the region of 50° C., if this is applied for three minutes. Histological evidence was also obtained that in burns of low intensity at least two visible substances are liberated from the damaged cells—a pyronine-staining substance and nucleoprotein. This liberation can occur within a few minutes of injury, and it is suggested that the pyronine-staining substance may have some relation to the H-substance of Lewis.

The demands upon the plastic surgeon in wartime are unhappily great, and the problems of skin-grafting become correspondingly more urgent. As is well known, the grafting of skin derived from another person is not successful, since the tissues do not survive transplantation between individuals of ordinary genetic diversity. It is clearly of great importance to learn what are the factors which determine this lack of survival of homografts, so that attempts may be made to neutralize them. The study of this "homograft problem" has been carried out in great detail by Dr. P. Medawar of the

* Hunterian Lecture given at the Royal College of Surgeons on Dec 13, 1945.

Department of Zoology in the University of Oxford, and the results of this work will be found in the *Journal of Anatomy*. It was demonstrated, among other things, that the mechanism by which foreign skin is eliminated belongs to the category of actively acquired immunity reactions, and the various histological processes involved in the destruction of the homografts were elucidated. These observations have led to the hypothesis that the antibody generated by skin homografts is such that it specifically prevents the completion of nuclear division in the cells of the homologous grafted skin. Now that information of this sort is becoming available, means may be devised whereby the effect of the antibody can be counteracted, thus making possible the use of homografts in the future.

As in the 1914-18 war, so in the last war, the anaerobic infections of muscles in wounds of the limbs presented a serious and difficult problem to the surgeon, and the question once more arose—How important is the factor of ischaemia in this type of infection? In spite of the fact that the direct anatomical study of injected muscles usually shows abundant anastomoses between the various vessels of supply, so that the opportunities for the rapid establishment of a collateral circulation appear good, a few clinical observers had inferred from their acquaintance with injured muscles that the several arteries supplying a muscle behave functionally as end-arteries. Experimental studies on the functional efficiency of intramuscular anastomoses in animals have now provided confirmation of this point of view, for it was found possible to produce a local and sharply circumscribed area of ischaemic necrosis in certain muscles by interrupting one of the vessels of supply or even one of its main intramuscular branches. These observations led on to a study of the intramuscular vascular pattern in human muscles, for it became clear that the surgeon should have a knowledge of such details if, when incising a muscle, he wishes to avoid unnecessary damage. But a great deal of further work must be completed on this straightforward topographical problem before all the information we require is complete.

In the course of experimental work on the vascularization of muscles the observation was made that, under certain circumstances, the regenerative capacity of striated muscle is quite remarkable. Thus, as the result of devascularization, the lower two-thirds of the tibialis anterior of a rabbit may undergo practically complete necrosis; yet in the space of three months it may be reconstituted so perfectly by the downgrowth of new fibres from the upper end of the muscle that histologically it shows little difference from the normal. This work (the results of which will also be seen in the *Journal of Anatomy*) opens up a most interesting programme of study and suggests important possibilities in the future of muscle surgery.

Some of the anatomical problems of traumatic surgery which have been dealt with during the war have been briefly outlined above. Research workers engaged in such investigations have been fortunate, since there have been no security restrictions on the publication of their results. They have thus been able to obtain full recognition for their achievements. Their anatomical colleagues who have been engaged on work of much more vital importance for the war effort have been less fortunate. Their scientific papers have been circulated within only a comparatively small circle, in the form of confidential and secret documents. Yet it is right that others should be made aware of the extent and nature of their work during the war, much of which has been extremely arduous. Indeed, this consideration provides one of the reasons for giving this lecture.

Anatomical Problems Relative to Offensive and Defensive Operations

In the earliest days of the war, before the real fighting had actually begun, little was known of the effectiveness in action of some of the modern types of weapon. Of the unknown factors which these introduced into the problem of war injuries there were two of particular importance that caused a good deal of speculation—the effect of high-velocity missiles of small size, and of blast. When casualties were first experienced in the Army, and at home in air raids, many different opinions were expressed about these effects, and it soon became a matter of some urgency that they should be carefully studied by experiment and by the statistical analysis of data

collected in the field. A programme of work directed to this end was initiated in the Department of Anatomy at Oxford and carried out under the immediate supervision of my colleague, Prof. Zuckerman, with the assistance of Dr. Delisle Burns and Dr. Krohn, and by the end of the war those engaged in it had expanded into a very busy team of research workers.

In the study of high-velocity missiles many experiments were carried out in which minute fragments of metal, weighing a small fraction of an ounce, were shot through media such as gelatin or the tissues of anaesthetized animals (the velocity being measured by the spark-photography method). These experiments demonstrated the "explosive" character of the wounds which such fragments could produce, and showed that the actual volume of damaged tissue in a wound of this kind might be many hundreds of times that of the projectile itself. The relatively large amount of tissue destruction, it appeared, is not due to the irregular shape of the missile, nor to any rotary movement which it undergoes. It is simply due to the lateral motion imparted to the particles in its track, these particles flying off radially and producing momentarily a central cavity of very low pressure. Further experiments demonstrated the vulnerability of different types of tissue to such missiles, depending on differences in their natural elasticity. Thus, comminuted fractures of the femur of a rabbit can occur even when the track of the high-velocity missile is more than 1 cm. from the bone. On the other hand, highly elastic structures, such as big arteries and to some extent nerves, are apt to escape severe damage unless they are directly hit by the missile.

These investigations were continued in order to determine the threshold incapacitating velocity for different parts of the body (protected or unprotected)—that is to say, the striking velocity of missiles necessary to produce incapacitating wounds. This required a preliminary study of the relative vulnerability of different parts of the body by reference to anatomical data and to shooting experiments with the use of such material as skulls filled with gelatin, portions of dead tissues, etc. Further, in order to get some information on the probable effectiveness of different types of weapon in the field, it became necessary to work out the mean projected area of the body which is exposed to missiles under fighting conditions. Such data were not easily come by, since, of course, in active operations in the field the body may occupy a variety of positions. However, several positions were recorded by photography and the projected areas of different parts of the body worked out. It was concluded that the mean projected area of the whole body would not exceed 4.2 sq. ft. (0.39 sq. metre) under operational conditions, that about 10 to 15% of this area represents the projection of vital organs (i.e., organs whose injury by small missiles would almost certainly cause immediate death), and that the effective vulnerable area to small fragments (that is to say, the area where immediately incapacitating wounds would be caused) amounts to about 2.8 sq. ft. (0.26 sq. metre).

It will now be apparent that by reference to (1) the relative vulnerability of different parts of the body, (2) the striking velocity of missiles necessary to produce incapacitating wounds, (3) the mean projected vulnerable area of the body, and (4) data regarding the fragmentation of explosive projectiles and the velocity of the fragments at varying distances, it is theoretically possible to estimate statistically the casualty-producing effects of the various kinds of explosive weapon. By such methods a standardized casualty rate was calculated indirectly for different types of weapon, this being defined as the average number of casualties produced where the density of the population is 1 per 1,000 sq. ft. (92.9 sq. metres). In the same way it was possible to estimate the vulnerable range of the fragments of any particular type of bomb or shell. Such estimates are not only of value in determining the tactical possibilities of weapons such as the anti-personnel bomb; they can also be applied to a calculation of the casualties likely to be experienced during air raids under different conditions. Further, they provide a basis for a computation of the probable effectiveness of body-armour and other methods of protection.

The study of the anatomical mechanisms involved in blast injuries was carried out, in the first place, on experimental animals. As a result of these observations Prof. Zuckerman,

in collaboration with other members of my department, was able to show that visceral injuries caused by blast are actually due to the direct impact of the positive-pressure wave on the body wall. The exposure of different parts of the body to the blast wave, and the protection of others by various materials such as sponge rubber, made it quite clear that, contrary to ideas which gained currency in the early part of the war, blast waves do not reach the viscera via the respiratory passages or other roundabout ways. It also became apparent that, with human beings, the threshold of lethal blast pressures was unlikely to be experienced except in the immediate vicinity of the explosion, when the danger of fatal injuries due to other causes (e.g. bomb fragments or violent displacement) would be very high indeed. These laboratory experiments were supplemented by systematic observations and the statistical analysis of the casualties caused by air raids. This aspect of the work increased as the air raids became more intensive, and by the end of the war quite an elaborate organization had been built up for collecting the necessary information. Attached to the Department of Anatomy was a team of field workers whose duty it was to go to those centres which were being exposed to bombing and to make casualty surveys on behalf of the Ministry of Home Security. Much praise is due to these young men and women for their work, which was often carried out under extreme difficulty, and, of course, was by no means without its dangers. The circumstances in which injuries were caused in air raids were subdivided into four categories: (1) primary effects due directly to the bomb itself—i.e., blast and splinters; (2) secondary effects due to displacement—i.e., being thrown violently by the force of the explosion and sustaining injuries by impact against adjacent structures; (3) tertiary effects due to secondary missiles such as flying debris or the collapse of a house; and (4) quaternary effects such as asphyxiation following burial, CO-poisoning etc. The survey showed the interesting result that most air-raid casualties were due, not to the primary effects of explosion, but to secondary and especially tertiary effects, and in spite of earlier impressions, it must have been exceedingly rare for death or serious injury to be caused by blast alone. Indeed, the conclusion was reached that human beings are much more resistant to the primary effects of the blast than are most building materials—an expression of the remarkable elasticity of the tissues of the living body.

The results of the air-raid casualty surveys, as the latter developed more and more, soon passed far beyond strictly anatomical problems. They provided data of the most valuable kind for the information of those who were busy devising protective measures. For example, a statistical analysis of the information collected by the field workers showed the sort of circumstances under which injuries were most likely to be sustained, and thus how they might best be avoided; it enabled a quantitative comparison to be made of the relative safety of different types of shelter,* or the relative risks of injury in different parts of a house (i.e., top floor, ground floor, basement, etc.); and it also provided the basis for directions to rescue squads regarding the positions at an "incident" where they would be most likely to find casualties capable of surviving if rescued quickly, and to which, therefore, they should first give their attention.

In connexion with the study of the mechanical factors concerned in producing injury to the tissues, reference may be made to certain problems which arose from time to time during the war and which made it necessary to estimate the energy required to produce fractures of different types. Thus, some casualties were caused in the field by lumps of debris thrown up by bombs which burst below the surface of the ground. The effect of such impacts was investigated, partly by experiments on animals and partly by experiments with human skulls and limb bones, and as a result it was possible to give some idea of the military effectiveness of delay-fused bombs bursting in different kinds of soil. Another problem concerned the fractures of the ankle which were said to be due to the vertical component of a ground-shock wave or the sudden upward displacement of the deck of a ship caused by

a heavy under-water explosion. In this case experiments were carried out with cadavers, with the object of assessing the value of certain protective measures which had been devised.

Fitting the Machine to the Man

The machines of modern war have become more and more complex and their mechanical efficiency and accuracy have correspondingly increased. Indeed, it is true to say that the position has now been reached where the limiting factor in the accuracy of an operation such as aiming at a moving target is not the machine but the man who operates it. If he is working at the slightest mechanical disadvantage himself he cannot make full use of the extreme degree of precision of which his machine is capable. The operator must be accurately in gear with his machine. In other words, individual machines and their operators should be integrated so as to produce a single entity working at maximum efficiency. Once this general principle is recognized it will be apparent that the anatomist is likely to be a very busy man in wartime; for each new design of gun-mounting, tank, director, etc., requires the attention of the anatomist in order to ensure that hand-controls, foot-controls, seating, and optical apparatus are accurately geared to the natural positions and movements of the human body, and that adjustments are available so that each part of the apparatus can be rapidly adapted to personnel of different body measurements. This type of research, which may be termed "fitting the machine to the man," has been carried out at several centres during the war. In the Anatomy Department at Oxford it has mainly been concerned with naval requirements, and a brief reference may be made to the sort of problem with which we were confronted.[†]

First of all it was necessary to make an extensive anthropometric survey of Service personnel in order to get adequate information on the body measurements and their range of variation which we required to know. These measurements were in many cases quite different from those which are customarily made in anthropometrical surveys; and indeed special methods, and in some cases special measuring apparatus, had to be devised. For example, we required to know the range of variation in the height of the eyes in the sitting or standing position, so that the eye-pieces of optical apparatus could be correctly positioned; the variations in different individuals of the position of the feet when the knees and hips are held at certain angles had to be studied in order to determine the optimum position of foot-controls; even such details as the width of the fist in gripping a hand-control must be known in order to determine the "knuckle-barking distance" where space is severely limited. This anthropometrical survey was carried out through the Department of Biological Research of the War Office with the collaboration of Dr. G. M. Morant.

The next problem involved the study of the amplitude of movement in those joints of the body which are specifically used in operating machines of different types, and in some cases also an assessment of the force which can be exerted by the operator at different phases of these movements. Such information is not available in textbooks, since in every case it applies to rather special circumstances. It is an interesting fact, also, that while anatomical textbooks may contain certain information regarding the movement of individual joints, they are not at all helpful in regard to the movements of joints in combination. Yet, just as it is extremely rare for a single muscle to act in isolation, so most natural movements of the human body require the co-ordinated activity of several joints together.

As an example of joint movements, we may refer here to the movements of the neck in following, say, an aeroplane through binoculars as it approaches and flies overhead. Consider the observer in the director of a battleship, whose duty it is to keep such a target fixed on the cross-wires of his sights. He sits looking through his binoculars and elevates or depresses his sight by turning a wheel. He is a most important man, since the aiming of the guns is determined by his move-

* An Anderson shelter was found in certain types of air raid to give 5 to 7 times the protection of a house, while strutted basements and trenches provided less than twice the protection of a house.

† Soon after the commencement of this work (which was carried out for the Medical Research Council, with the co-operation of gunnery officers attached to the Admiralty Gunnery Establishment and to H.M.S. *Excellent*) Dr. G. M. Weddell joined my department in order to take part in it. For the latter part of our programme he, with his assistant Dr. H. Darcus, has been mainly responsible.

ments. He should therefore be able to pin-point and follow his target with the greatest accuracy. But he cannot do this unless the pivoting of the binoculars is so adjusted that the movement of the eye-pieces in elevation and depression coincides with the natural movement of the eyes, and all straining is avoided. With the original position of the pivot we found that hardly more than 20% of personnel could elevate to 60° without strain, and that even with great straining only 75% could reach this level of elevation. It thus became necessary to analyse the neck movements afresh. This was done by cinematography. The natural track of the eye was plotted in a number of individuals of different build, and the average and the amount of variation within a 90° range of personnel determined. As might be expected, the movements of the neck in looking up and down are not simple. The centre of the movement up to about 40° elevation is in the neighbourhood of the atlanto-occipital joint, but at higher elevations it rapidly moves downwards along the spine. We found at first that by moving the pivot of the optical apparatus downwards and backwards a few inches the track of the eye-pieces corresponded much more closely to the natural track of the eyes. However, although with this new position 100% personnel could elevate to 60° without strain, not more than 60% could reach 90° even with straining, and with the development of methods of aerial attack on ships it had become an urgent requirement that operators should be able to follow their target accurately almost up to zenith. Moreover, the alteration in the position of the pivot which we suggested involved certain constructional difficulties. It was then found that the movement of the eye-pieces could be made to follow the average track of the eyes if a movable pivot was designed by fitting the sight with a cam mechanism so that above 40° elevation the binoculars would be raised with an accelerated speed. A model of this design, when tested out, proved very effective, for it enabled 90% of personnel to reach zenith, though not all could do this without a certain amount of straining.

To use a sighting apparatus efficiently, the construction of the seat in which the operator sits is a matter of extreme importance. Consider a tank-driver or a look-out on a ship, who during the course of an action may be subjected to the most violent movements and yet must somehow hold himself steady, so that he can continue to manipulate his controls and follow his target with accuracy. His ability to do so depends largely on the design of his seat. The requirements of such a seat are, briefly, as follows: (1) It must allow the operator to maintain a sitting position for periods of duty up to four hours without undue discomfort and fatigue. (2) It must permit maximum stabilization of the body while keeping the arms free to manipulate hand-controls and without restricting the mobility of the neck and upper part of the spine for sighting movements. (3) The seat level must be adjustable in relation to both the level of the binoculars and the level of the foot-rest, so as to accommodate individuals of different body dimensions. (4) It must combine lightness with mechanical strength. (5) It must stand up to very severe usage and be weatherproof.

It will thus be apparent that the problem of constructing the ideal seat is a complicated one, and we can here refer to only some of its aspects. First consider the shape of the seat. In the earlier days of the war the shaped seat, or ploughman's seat, seemed to be generally favoured for many purposes, and since its contour is meant to be adapted to the natural contour of the human bottom, it might be supposed to have the blessing of the anatomist. On the contrary, there are very serious anatomical arguments against it. In the first place, since the shape and dimensions of human bottoms vary from one individual to another, just as other parts of the body, a shaped seat can fit only one type—individuals possessing other types are bound to suffer when using the seat. Particularly is this the case with the "pommel" of the seat, which may cause serious pressure on the perineum of many individuals. Secondly, a shaped seat makes it impossible for the sitter to shift his position from time to time—a most necessary provision if fatigue and discomfort are to be minimized during long periods of duty. Thirdly, the shaped seat tends to distribute the pressure of the weight of the body over all parts of the

bottom equally, and this is anatomically quite wrong. The ischial tuberosities are designed to take the greater part of the weight in the sitting position, so as to avoid undue pressure on the soft structures, muscles, nerves, and blood vessels in the neighbourhood, and it is interesting to note that a localized area of skin over the tuberosities, like that on the soles of the feet, is particularly well supplied with arterial blood so as to minimize the risk of local ischaemia as the result of prolonged pressure.

Taking everything into consideration, there is no doubt that the ideal seat should be flat, but covered by padding which has a degree of elasticity sufficient to distribute the weight of the body over as wide an area as possible surrounding the ischial tuberosities while at the same time allowing the maximum pressure to remain concentrated over the tuberosities themselves.

Another most important element in the ideal seat is the back-rest. This must provide support for the upper part of the trunk (taking some of the weight of the body in the relaxed position), it must be accurately placed so that counter-pressure from the feet in body stabilization can be most effectively maintained, and it must allow free mobility to the thoracic and cervical spine. The optimum position and shape of the back-rest were determined by reference to anthropometric surveys, by finding out the force which can be exerted by counter-pressure from the feet in different positions, and by actual experience in the use of working models. The curve of the back-rest must not only accommodate the broadest back without cutting into the shoulder-blades, while at the same time providing adequate lateral support to the narrow back—it must also be adapted to the man encased either in heavy Arctic clothing or in the light clothing of the Tropics. The pivoting of the back-rest is not without its importance. The rest must be so pivoted that it easily follows the changing contour of the back in sighting movements, and in leaning forwards or backwards. It can be estimated, from the fact that the force exerted against the back-rest by counter-pressure from the feet is considerably greater than that derived from the weight of the upper part of the trunk, that the pivot should be a certain distance below the level of the centre of the back-rest.

In the sitting position body stabilization is an essential preliminary if the observer is to do his work accurately, and the most satisfactory method of securing it is by counter-pressure between the feet against a foot-rest and the back against a suitable back-rest. Obviously, also, the position of the legs in which the maximum counter-pressure can be developed is the ideal one for stabilization, though compromises may be necessary where adjustments have to be made for the use of optical apparatus and where space is limited. But the more the position varies from the optimum the greater the output of energy necessary to maintain equivalent pressures, since the muscles are working at a decreasing mechanical advantage. By direct experiment Dr. P. Hugh-Jones (working for the Medical Research Council at Lulworth) found that the thrust which can be exerted from the feet rises with increasing knee angles, until a quite well-defined limiting angle is reached at about 165°. Above this limit the maximum thrust falls sharply. The mean thrust possible at 165° was found to be over 500 lb. (227 kg.). Why the critical angle for counter-pressure from the feet in body stabilization should be about 165° is at first sight not clear. But it seems to be due to the fact that, with a man of average dimensions sitting in such a position, the line of the thrust passes through the pivotal axis of the back-rest when the latter is in its optimum position. If the knees are bent at a smaller angle the thrust is directed above the back-rest, so that when exerting pressure with the feet there is a tendency (which has to be restrained) for the upper part of the body to be pushed back. Conversely, if the knees are held at an angle greater than 165° the thrust tends to tilt the body forwards.

This short account of a few of the problems which are involved in the attempt to fit the machine to the man will give some indication of the not unimportant part which the anatomist plays in the design of the modern apparatus of war. Many other problems of a similar type have also been engaging attention, such as the designing and placing of different kinds

of foot- and hand-controls, methods of man-handling heavy ammunition, and the determination of the most satisfactory means whereby human energy can be utilized as a source of power in gun mountings when the main power fails. Some of these problems present no great technical difficulty, but their solution often demands much arduous work, and the results may make a very great difference to the efficiency of the men and their machines.

Application of Wartime Research Organizations to Peacetime Problems

The research organizations developed during the war for the study of anatomical and related problems have proved their worth by the fact that in a comparatively short space of time they have led to quite a number of significant advances in practical and theoretical knowledge. This being so, is it not desirable that organizations of a similar kind should be continued in times of peace? Many of the anatomical problems of war are also problems of peace, or they have their counterparts in the problems of peace. Nerve injuries, for example, are not uncommon in peacetime casualties, and even if the problems of their treatment have not the same immediate urgency for the community as in war, they certainly have the same degree of urgency for the individual. Again, the design of his seat and controls is of vital importance to the anti-aircraft gunner. But it is also of great importance to the long-distance lorry-driver in times of peace. Many other comparisons could be cited to emphasize the desirability for extending wartime organizations for research into peacetime, particularly in so far as these organizations provide for the closest possible liaison between the anatomical laboratory on the one hand, and on the other hand the clinician, the physicist, the designer of machinery, the operator of the machine, and so forth. But the continuance of research in peacetime at the rate and rhythm which it manifested in the last war depends on several factors. It depends on the availability of research personnel of high calibre, imbued with a community spirit comparable with that which characterized the research worker of the war, on financial support of the most generous kind, and on a directorate which not only ensures adequate co-ordination of workers in widely different fields of science but is also capable of supplying the inspiration necessary for successful team-work.

SYNTHETIC SUBSTITUTES FOR QUINIDINE

BY

G. S. DAWES

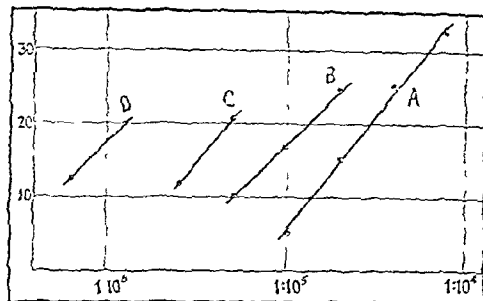
(From the Department of Pharmacology, Oxford)

The present shortage of quinidine has led to a search for other drugs which might be used in the treatment of auricular fibrillation. The principal obstacle to the solution of this problem has been the lack of a suitable method for testing quinidine substitutes. Various methods have been devised (for references see Wiggers and Wégria, 1940) which are laborious, require large numbers of animals, and have a rough accuracy only. A new method has been introduced in which a comparison of different substances can be made on an isolated preparation of rabbit auricles.

Method

The auricles are carefully dissected from the heart of a rabbit and suspended in a bath of oxygenated Ringer-Locke solution at 29° C.; at the upper end the auricles are fixed by an enclosed pair of platinum electrodes, just above the surface of the bath. The contraction of the muscle is recorded by means of a silk thread running round a pulley immersed in the bath, and tied to the lower end of the auricles. The auricle contracts rhythmically by itself (at a rate of 80 to 120 per minute) and can also be driven by break-shocks from an induction coil at any desired speed, using a Lewis rotary contact-breaker. As the rate of electrical stimulation is increased the auricle follows each stimulus up to a point (between 250 and 350 a minute) at which it begins to drop beats (because the interval between shocks is less than the absolute refractory period). This maximal rate at which the auricle will

follow electrical stimulation is reduced by the application, for ten minutes, of a given concentration of quinidine, and the percentage reduction of the maximal rate bears a linear relation to the logarithm of the concentration. The quinidine is only slowly eliminated from the auricle, and an interval of 45 to 60 minutes must be allowed between each observation; from 6 to 12 observations may be made on a single preparation. As the accompanying Chart shows, when the percentage reduction



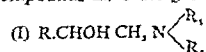
Ordinates = Percentage reduction in maximal rate at which auricle responds to electrical stimuli. Abscissae = Concentration of drug on a logarithmic scale: A, Quinine; B, Quinidine; C, 2- α -naphthyl-2-hydroxyethyl piperidine hydrochloride (II); D, Butethanol.

in the maximal rate is plotted against the logarithm of the concentration the slope of the linear relation obtained for various drugs is similar enough to allow their relative activity to be expressed in a single figure. Quinidine is used as the standard for comparison on each preparation.

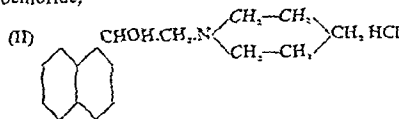
Results

The reduction of the maximal rate at which the auricles will follow an applied stimulus is due in the case of quinidine to a prolongation of the refractory period. The Chart illustrates the fact that quinine is only half as active as quinidine, and this is evidently the pharmacological basis for the superiority of quinidine in the treatment of auricular fibrillation.

When the question of quinidine substitutes was first considered an obvious starting-point was to take substances which had both a structural resemblance to quinidine and antimalarial activity. Dr. Harold King and Dr. T. S. Work, of the National Institute for Medical Research, Hampstead, have made a number of such substances, and have placed at my disposal specimens of 22 of these compounds. It was surprising to find that all of them possessed some degree of quinidine-like activity, whether or not they had any antimalarial action. Indeed, several were more than twice as active as quinidine. The majority of these compounds have the general formula:



where R is benzene, diphenyl, naphthalene, quinoline, or methoxyquinoline, and where N.R₁R₂ is diethylamino, dibutylamino, or piperidine, or more complex variants of the quinidine structure. There are instances in the series in which the characteristic activity is retained when the amino-group is primary or secondary, as well as tertiary. The most promising member of the series was 2- α -naphthyl-2-hydroxyethyl piperidine hydrochloride,



which had 2.8 times the activity of quinidine. Some idea of the biological variation encountered in the method may be obtained from the five individual assays on different auricles from which this mean result was calculated; these were 2.4, 2.5, 2.5, 3.1, and 3.5.

Local Anaesthetics

The observation that so many substances of Type I prolonged the refractory period of the isolated rabbit auricle gave an

entirely new outlook to the problem of finding substitutes for quinidine. MacIntosh and Work (1941) showed that many substances of Type I were powerful local anaesthetics; indeed, 2-*n*-naphthyl-2-hydroxyethyl piperidine hydrochloride (II above) was considerably more active than procaine as a local anaesthetic either on intradermal injection into the guinea-pig or on local application to the guinea-pig's cornea. Not only do compounds of Type I bear a structural resemblance to the local anaesthetics in common use, but many local anaesthetics are known to reduce the irritability of the myocardium in a manner analogous to quinidine (Kochmann and Daels, 1908; Mautz, 1936; Beck and Mautz, 1937; van Dongen, 1938; Shen and Simon, 1938; Shen, 1939; Wiggers and Wégria, 1940; Burstein and Marangoni, 1940; Hirschfelder and Tamcales, 1942).

While some of these experiments have been criticized on the grounds that relatively few animals were used, that the means of producing fibrillation were erratic, and that, as Stutzman, Allen, and Orth (1945) observed, once ventricular fibrillation had begun, injection of procaine did not necessarily stop it, yet there were ample reasons for suspecting that local anaesthetics would have an action like quinidine. So many observers, working with such different techniques, could hardly otherwise have had such uniform success with procaine.

These various considerations led to a trial of procaine on the rabbit's auricle; it was found to be only slightly less active than quinidine itself (a mean figure of 80% of the activity of quinidine on three auricles). Up to date no fewer than 19 substances which possess local anaesthetic properties have been shown to reduce the maximal rate of the rabbit's auricle, like quinidine. These include five of the compounds described by MacIntosh and Work (1941); three tertiary-amino-alkyl esters of benzoic acid made in a search for atropine substitutes (Ing, Dawes, and Wajda, 1945); cocaine (6.2); phenacaine (4.5); and butethanol (11.4), the figures in brackets indicating the mean activity assayed on five auricles each, where quinidine=1.0.

Bovet *et al.* (1939) have shown that F1262 (2-diphenyloxyethyl diethylamine hydrochloride) greatly reduces the ease with which ventricular fibrillation is induced in rabbits and dogs by electrical stimulation and that it prolongs the refractory period of the frog's heart. On the rabbit's auricle F1262 has 4.8 times the activity of quinidine (mean of five experiments); and when tested for local anaesthetic activity by intradermal injection into the guinea-pig and by the frog-plexus anaesthesia method it was found to be as active as procaine. This is not the only instance of a drug which has been tested first for quinidine-like activity on the auricle, and then, because it proved very active, been tested successfully for local anaesthetic activity.

Drugs with a Spasmolytic Action

Further consideration of the structural formulae of these compounds which had both local anaesthetic and quinidine-like activity recalled their structural similarity to trasentin and syntropan. These drugs were introduced primarily as substitutes for atropine in relieving spasm in the gastro-intestinal tract, urethra, and bladder. Trasentin is known to possess local anaesthetic activity (Gilman *et al.*, 1942), and both trasentin and syntropan were found to possess quinidine-like activity upon the auricle. Their activities relative to that of quinidine were: trasentin 60% and syntropan 130% respectively. Similarly one of the tertiary amino-alkyl esters of benzoic acid referred to above as having quinidine-like properties—benzyl oxyethyl-diethyl ammonium chloride—was found by Gilman *et al.* (1942) and Lehmann and Knoefel (1942) to be a local anaesthetic and spasmolytic. These observations suggested that other spasmolytics might act in the same way. Papaverine was found to have 50% of the activity of quinidine. Since papaverine has a benzyl-isoquinoline structure this is not quite such a profound departure as might at first appear. This observation is of all the greater interest because Wégria and Nickerson (1942) have shown that papaverine, like quinidine, increased the "fibrillation threshold" in dogs; Elek and Katz (1942) also showed that it prolonged the refractory period and decreased the irritability of the auricles and ventricles in dogs.

These findings led to a reconsideration of the action of quinidine and procaine upon the intestine. Quinidine and procaine greatly reduce the action of acetylcholine and of potassium chloride upon the isolated rabbit's intestine in a

concentration of from 1 : 100,000 to 1 : 25,000. They also cause a diminution in tone and in the pendular movements. No quantitative comparison has yet been undertaken between quinidine, procaine, trasentin, and atropine, but I think that there can be little doubt that if trasentin is to be regarded as a spasmolytic, quinidine and procaine should be classed in the same group. Similarly, Halpern (1938) and Lehmann and Knoefel (1942) have shown that many esters of amino-alcohols besides trasentin and syntropan are spasmolytics. Incidentally, Bovet *et al.* (1939) have shown that F1262 also reduces the action of acetylcholine upon the isolated intestine; this is of interest because F1262 is an example of an ether linkage between aromatic nucleus and basic group, whereas quinidine and procaine provide examples of carbinol and ester linkages.

Finally, since pethidine possesses both an aromatic nucleus and a basic group, and since it was known to have spasmolytic properties, it was tested both on the auricle and as a local anaesthetic. On the auricle it was found to have 80% of the activity of quinidine. On intradermal injection into the guinea-pig and by the frog-plexus anaesthesia method it was found to have about the same local anaesthetic activity as procaine.

Conclusion

The main purpose of this paper has been to illustrate two fundamental principles. The first is that quinidine-like activity, as measured by the rabbit-auricle method, is not a highly specific function of a particular molecular structure, but is very widely distributed among compounds possessing an aromatic (hydrophobic) group and a basic (hydrophilic) group joined by an ester, ether, or carbinol linkage, the nature of which does not seem to be of the first importance. Secondly, evidence has been brought forward to support the view that these compounds possess not only quinidine-like but also local anaesthetic and spasmolytic properties. This conclusion immediately raises the question why a good local anaesthetic (such as butethanol) should act like quinidine upon the auricle, and indeed be many times more active than quinidine. One simple explanation is that a drug which prolongs the refractory period of auricular muscle will also prolong the refractory period of nerve; if this process is continued far enough the nerve will cease to conduct, and local anaesthesia will ensue. The concentrations used support this suggestion. The concentration of procaine required to reduce the maximal rate at which the auricles will contract, without diminishing the force of contraction, is very low (1 in 100,000) compared with the concentration generally used to obtain local anaesthesia (1 in 400 to 1 in 100). A precisely similar argument might be applied to the mode of action of these drugs as spasmolytics.

This explanation of the action of, for instance, quinidine, procaine, and trasentin involves an important but not unreasonable assumption: that in living tissue, as illustrated by heart muscle, sensory nerve, and the complex arrangements of smooth muscle and nerve which make up the intestinal canal, the mode of conduction of excitation is essentially similar. Harvey (1939) has shown that quinine also prolongs the refractory period of striated muscle. By this essential similarity it is implied only that the biochemical mechanisms responsible for the conduction of excitation in these tissues are alike susceptible to reversible impairment by the action of these drugs.

One practical application of this hypothesis is of importance both clinically and in the study of new drugs of this type. If one of these compounds (structurally similar to quinidine, procaine, and trasentin) is intrinsically more active on peripheral nerves, then one would expect it to be more active on the auricle and as a spasmolytic. No doubt differences in the rate of absorption into and elimination from the various tissues cause divergencies in practice; but, broadly speaking, it is true that the more active local anaesthetics are more active on the auricle, and therefore, so far as drugs of this type are concerned, there is obviously a limit to the therapeutic index which can be reached. The better the local anaesthetic or spasmolytic, the more likely it is to have a toxic action on the heart.

Pethidine has hitherto been regarded essentially as a morphine substitute, with the very useful property of relaxing smooth muscle. The observation that pethidine possesses local anaesthetic and quinidine-like properties as well alters the position radically. Many of the local anaesthetics have a depressant

action upon the central nervous system: is pethidine a particularly favourable instance? Are its anaesthetic properties due to a prolongation of the refractory period in the central nervous system?

[A fuller account of this work, with details of relative activities and toxicities, from the point of view of choosing a quinidine substitute for clinical trial, will be published shortly.]

Summary

A method is described for measuring the potency of drugs as substitutes for quinidine, using the isolated auricles of the rabbit.

A large number of quinidine substitutes have been studied. These comprise many of the local anaesthetics and spasmolytics in common use. Some of these are very much more active than quinidine on the auricle—e.g., butethanol is more than ten times as active.

Pethidine possesses both local anaesthetic properties and a quinidine-like action on the auricle.

These findings suggest that the transmission of excitation is essentially similar in auricle and sensory nerve (and perhaps in the wall of the intestinal tract), in that it is susceptible to a reversible depression by the same drugs.

This work was carried out during the tenure of a grant from the Medical Research Council.

I am much indebted to Dr. H. King, F.R.S., and Dr. T. S. Work for the 22 quinidine analogues with which the investigation was begun; to Dr. Daniel Bovet for the F1262; and to Dr. H. R. Ing for three tertiary-amino esters of benzoic acid. I am also most grateful to Prof. J. H. Burn for the advice and encouragement which he has given throughout.

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POISONING BY AMANITA PHALLOIDES

BY

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Poisoning by fungi mistaken for edible mushrooms is comparatively rare in Great Britain. Reviewing the French literature, however, Ford (1923) collected 990 cases, 381 of which were fatal. The position was so serious in France that in 1925 a law was enacted providing that there should be inspectors at all market towns, to pass mushrooms as fit for human consumption. The efficacy of this law can be judged by the fact that in 1930 the mushroom inspector at Fougères died of fungus-poisoning.

Few cases have been reported in the medical press in this country, but in the London daily press the following cases have appeared in the past 15 years:

Date	Place	Fatal Cases	Associated Non-fatal Cases
Aug., 1930	Mildenhall	Boy of 6	One
" "	Cambridge	Man of 38	
" "	Methwold	3 girl guides	
July, 1933	Warrington	Girl of 7	Three
Aug., 1934	Monmouth	Woman of 45	
July, 1937	Leatherhead	Man of 36	
Aug., 1939	Stow Bedon	Father, son, and housekeeper	Three
Aug., 1941	Potton	Girl of 9	
Aug., 1942	Ponders End	Child of 5	
Oct., 1942	Chorley Wood	Man of 56	

A total of 21 cases, with 14 deaths

Mycology

There are three species included in the genus *Amanita*—*Amanita phalloides*, *Amanita verna*, and *Amanita virosa*. *Amanita phalloides* (Fig. 1) is more commonly known as the

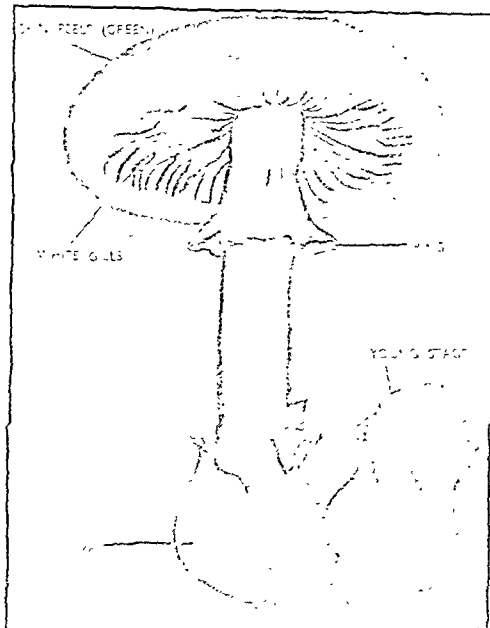


FIG. 1—Death-cap (*Amanita phalloides*).

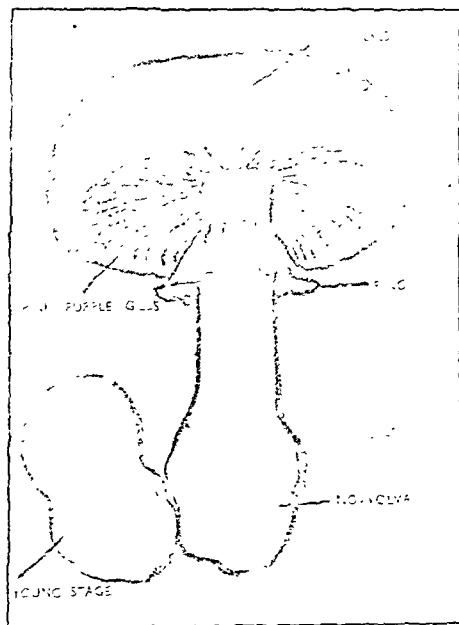


FIG. 2—Mushroom (*Psalliota campestris*).

"death-cap." It can be found in any soil, but prefers chalk. It is often seen in association with oak trees. Typically, it is a large fungus with a smooth greeny-orange-coloured cap, and fine brown or black markings radiating from the centre. The gills on the under surface are white with a slight greenish or

yellowish sheen. The stalk is smooth, with a bulblike expansion at the base. In its upper part is a large thin white frill at the ring. The base is surrounded by the volva. When fresh this fungus is odourless and tasteless. It must be remembered that there are aberrant forms of the fungus; the colour may range from pure white to yellow.

The commonest edible fungus to be confused with *Amanita phalloides* is the field mushroom (*Psalliota campestris*) (Fig. 2). The chief characteristics of *Psalliota* are as follows: The cap is convex at first, and as it matures becomes flattened. It is white or brownish in colour, and is covered with silky fibrils. Later the surface of the cap becomes scaly. The stem is white, with a membranous ring. In the early stages the gills are white, becoming pink or purplish and finally almost black. The *Psalliota campestris* usually grows in meadows.

According to Hoechstetter (1943) and Nobécourt and Martin-Lipmann (1940) *Amanita phalloides* contains two toxins—one which is thermostable and resembles the action of phosphorus, and the other a haemolysin which is thermolabile. According to Ford, the haemolysin is rapidly destroyed by the action of heat, weak acids and alkalis, and digestive juices. He concluded that the haemolysin plays only a subsidiary part in the poisoning by *Amanita phalloides*, the main factor being the heat-resistant toxin. The injection of this toxin in an animal reproduces the signs and histological lesions of *Amanita phalloides* poisoning. Lynen and Wieland (1937) describe two other poisonous derivatives of *Amanita phalloides*, whose action does not appear to have played any part in the cases under review.

The four patients whose cases are here reported all died from liver damage, similar to that described by Vander Veer and Farley (1935) and Ahronheim (1938), and indistinguishable from acute yellow atrophy. In these cases the fungi had been cooked and the changes found at necropsy were undoubtedly due to the heat-resistant *Amanita* toxin.

Case I

Miss A., aged 26, a lorry-driver, was admitted to the Borough General Hospital, Ipswich, on Oct. 10, 1944, at 11.45 a.m. The evening before admission she had picked about 35 "mushrooms" in a wood near Ipswich; some of these were examined later and were found to be *Amanita phalloides*. The fungi were eaten for tea at 6 p.m. on Oct. 9. At about midnight she was taken ill with vomiting; diarrhoea started two hours later. The stools were frequent—at first formed, but later containing mucus only.

On examination she was peculiarly grey and cyanosed. Vomiting had stopped. The pulse was 72, the temperature 97°, respirations 20, and blood pressure 90/70. The tongue was thickly furred and the abdomen slightly distended; there was no tenderness. Nothing abnormal was detected in the chest. The patient was in fairly good condition, sensible, and not distressed. Gastric lavage was performed and 50 c.cm. of 50% glucose was given intravenously. Atropine 1/50 gr. (1.3 mg.) was given four-hourly. Ten units of insulin covered by 40 g. of glucose was administered thrice daily.

Next morning the patient started vomiting. She vomited 130 fl. oz. (3.6 litres) in 24 hours, and the pulse rose from 80 to 104. She was put on a glucose-saline drip. The urine was found to contain albumin and acetone. The dose of atropine was now reduced to 1/100 gr. (0.65 mg.) four-hourly. On Oct. 12 the signs of peripheral circulatory failure were more pronounced. The blood urea was 150 mg. per 100 c.cm. and the blood sodium 276 mg. The urine contained 20 mg. of albumin per 100 c.cm. and a fair number of hyaline and granular casts, with epithelial debris. No blood cells were seen. The glucose-saline drip was continued and nikethamide and percutone were given. An electrocardiogram showed no gross myocardial disturbance. The pulse rate was 80, the rhythm regular, and the tracings of low voltage. This investigation was carried out in view of Hyman's (1928) report of temporary right-sided bundle-branch block in *Amanita*-poisoning.

On Oct. 13 the patient appeared to be drowsy. Blood pressure, 100/60. Blood urea, 160 mg. per 100 c.cm. Blood count: R.B.C., 6,400,000/c.mm.; W.B.C., 6,000/c.mm.; haemoglobin, 120% (17.4 g. %); colour index, 0.9. In the afternoon her condition suddenly deteriorated; she became irrational and was difficult to keep in bed. The pulse was not perceptible. The blood pressure was 70/?, and during the night the patient was in coma. She died at 9.30 a.m. on Oct. 14—111 hours after eating the fungus.

Post-mortem Examination.—This was performed three hours after death. There was a peculiar cyanotic change in the face. On opening the body a very marked red staining was found—possible laking of the blood by *Amanita phalloides* toxin. Spectroscopic examination of the blood showed no abnormal bands. The pericardium

showed large petechial haemorrhages. The right side of the heart was slightly dilated. The heart muscles appeared paler than normal, but were not friable. No valvular disease was found. The lungs were extremely congested and oedematous. Both apices showed consolidation and marked petechial haemorrhages. In the stomach was a very severe degree of haemorrhagic gastritis. The ileum and colon had undergone inflammatory changes, with petechial haemorrhages and some free blood. The liver was much reduced in size (weight 1,000 g.); it was pale yellow and very friable, showing obvious acute yellow atrophy. The kidneys were enlarged and whitish in colour, with petechial haemorrhages on the surface. The spleen appeared normal.

Histological Findings.—Major histological changes were found in the liver and kidney. In the former, except for occasional small sharply defined islands around some portal systems, the whole of the tissue was abnormal. The liver cells were pale and empty-looking, suggesting fatty changes. Their nuclei were hydropic and often distorted in shape. All degrees of karyolysis were seen. Many scattered liver cells had undergone necrosis, and dead cells containing yellow pigment were seen. Throughout the section there was a slight excess of polymorphonuclear leucocytes. The bile ducts and blood vessels appeared normal. Section of the kidney showed much parenchymatous degeneration and congestion, especially in the medulla. Yellow pigment was abundant, particularly at the base of the cells of the tubular epithelium. In the cortex the tubules were more widely separated than usual, probably by oedema of the interstitial tissue, and there were many dilated vessels and lymphatics.

Case II

Mrs. B., aged 38, was admitted to the Borough General Hospital, Ipswich, on Oct. 10, 1944, at 11.45 a.m., with exactly the same history as Case I. On examination she was rather cyanosed and had continuous diarrhoea and vomiting. She was treated with atropine 1/50 gr. (1.3 mg.) and atropine 1/100 gr. (0.65 mg.) four-hourly. The stomach was washed out and magnesium sulphate given. Ten units of insulin covered with 40 g. of glucose was administered thrice daily, also 300 g. of glucose by mouth. On Oct. 11 the vomiting appeared to be controlled by atropine. There were frequent offensive mucoid stools and the patient was still very cyanosed.

On Oct. 12 the blood urea was 140 mg. per 100 c.cm. and the blood sodium 260 mg. Urine: No red or white cells; a large number of hyaline casts were present; albumin, 20 mg. per 100 c.cm.; culture remained sterile. Vomiting did not recur, but the patient was very weak and complained of pain in the back of the chest. During the day peripheral circulatory failure set in, the pulse became imperceptible, and the blood pressure could not be recorded. The patient was orthopnoeic and shocked, and coarse crepitations could be heard at both bases. Nikethamide and percutone were given, but the patient's condition continued to deteriorate, and she died at 10 p.m.—76 hours after eating the fungus.

The necropsy findings were exactly the same as in Case I. Here again the peculiar red laking effect of the blood was seen. There was no blood-clotting. Spectroscopic examination of the blood before and after death showed no evidence of any abnormal pigment. The histological findings of the liver and kidney were the same as in Case I.

Case III

A Polish Jewess aged 57 was admitted to St. Charles's Hospital at 10 a.m. on Sept. 26, 1944, with a history of having eaten "mushrooms" collected at Henley-on-Thames. The day before admission the daughter of the house cooked some of these "mushrooms," but put away four or five, which she distrusted. The family partook of a meal of the "mushrooms" with no ill effects. The same evening the deceased prepared the doubtful "mushrooms" by frying them in butter, and ate the lot herself. About eight hours after the meal she was taken ill with severe abdominal pains, diarrhoea, and vomiting. She was admitted to the hospital at 10 a.m. the next morning and was given a dose of castor oil.

About 1½ hours after admission her condition rapidly deteriorated, with exacerbation of diarrhoea and vomiting and pain in the epigastrium and the right iliac fossa. The pulse was rapid and feeble, and the systolic blood pressure was 70 mm. Hg. The diastolic pressure did not register. The patient was almost pulseless. Throughout Sept. 27 she was still almost pulseless, vomiting mucus, and had frequent diarrhoea. Intravenous plasma was given. On Sept. 28 diarrhoea ceased and some fluid was retained by mouth; the pulse continued to be feeble. On Sept. 29 her condition was much the same, but she became restless during the night. On Sept. 30 the patient was alternately restless and drowsy until she lapsed into coma and died at 11.35 p.m.—126 hours after the fatal meal.

Necropsy was performed two days later. The body was that of an adequately nourished adult woman. She was cyanosed and of ashen-grey complexion. The meninges were very congested. Several

small petechial haemorrhages were seen on the posterior surface of the heart, which was slightly dilated in all its chambers, the muscle was somewhat friable. The valves and vessels were normal. The stomach contained some grey mucous material. A few small petechial haemorrhages were seen in the gastric mucosa. The terminal ileum and colon showed no inflammation with numerous small haemorrhages in the mucosa. The liver was much reduced in size, weighing only 840 g. It was brown in colour, with a slightly nodular surface, and had a few small areas of haemorrhage. The kidneys were mottled and hyperemic, the spleen and suprarenals were normal. Microscopically there was gross destruction of liver parenchyma. Indeed, it was difficult to identify a healthy liver cell. Fatty degeneration was very marked, and small haemorrhages were collected round the portal vein. The kidneys showed vast cloudy swelling of the tubules, with encroachment of glomeruli and some escape of red cells into the tubules. The contents of the colon revealed large numbers of spores which were morphologically indistinguishable from those of *Amanita phalloides*.

Case IV

On Aug. 18, 1945, a girl aged 6 had tea with an uncle and aunt at Walling Cross. Her uncle had brought home some mushrooms (about 1/2 lb (225 g)) which he had picked at Arborfield, near Reading. The aunt cooked the 'mushrooms' in a little fat and water for tea which was eaten by all three. At about 9.30 o'clock the same evening the girl was taken ill with diarrhoea and vomiting, and shortly afterwards the two adults developed the same symptoms. The child and one adult remained very ill throughout the 19th and on the 20th the child's mother was sent for and took her home. A doctor was called and he prescribed some medicine. The child's condition was so bad at four o'clock on the morning of the 21st that the doctor was again called, and he arranged for her admission to hospital. She reached hospital at 6.30 a.m. in a collapsed and cyanotic condition, and was given 1/100 gr (0.65 mg) of atropine and gastric lavage was performed, but she died half an hour later—rather more than 60 hours after taking the alleged mushrooms.

Necropsy showed the girl to have been icteric and nystreous. There was a very marked dusky cyanosis in the hypostatic parts of the body and also in the face and front of the arms. The meninges and brain were intensely congested and purple in colour. There were several small petechial haemorrhages on the back of the heart, the right side of which was acutely dilated and contained a large quantity of extremely dark blood clot. Scattered petechial haemorrhages were found over the surface of the lungs, and also numerous large areas of collapse, which were particularly marked over the back of the right lung and the lower lobe of the left. The lungs throughout were intensely congested. Several small haemorrhages were present in the anterior mediastinum. Numerous petechial haemorrhages were seen throughout the mesentery and omentum, they were mainly concentrated at the junction of the small intestine with the mesenter. The liver weighed 656 g and showed very advanced fatty change in which numerous small haemorrhages could be seen, it was in fact, a typical picture of really acute liver destruction. There was a mild degree of inflammation throughout the intestinal tract—most severe in the transverse colon. The kidneys were intensely congested otherwise normal macroscopically. Sections of the liver showed an extraordinary degree of fatty degeneration with numerous small haemorrhages throughout the liver tissue. There was marked cloudy swelling of the renal tubules. Spores morphologically identical with those of *Amanita phalloides* were seen in the intestinal contents.

Discussion

In all four cases the main lesion appeared to be a severe toxic action on the liver and kidneys, leading to the rapid appearance of renal and hepatic failure. One striking feature was the constancy of the time factor between the ingestion of the poison the onset of symptoms, and death. The latent period before the appearance of symptoms of phallin poisoning was characteristically of 6 to 12 hours' duration. The initial symptom complex of vomiting, diarrhoea, and collapse was very constant. Gradually the clinical picture became dominated by signs and symptoms of liver and kidney damage. Other authors have described cases with marked jaundice and diarrhoea. Again, cases in which the picture was one of damage to the central nervous system with convulsions and generalized clonic spasms have been described—'forme pseudo-tétanique'.

Symptomatic Treatment.—Symptomatic treatment plays a very great part. It is directed towards removing as much of the toxin as possible by stomach washouts in the early stages. Only purgation, which is said to hinder absorption of the toxin, seems to be a rational measure. Intravenous therapy is necessary to combat the circulatory failure, prevent dehydration and induce diuresis. No effort should be spared to promote excretion by

the kidneys. Alcohol is contraindicated, as it favours the absorption of toxins.

Organic Therapy.—The use of a mixture of fresh mixed stomach and brain of rabbit in the treatment of phallin poisoning would seem to approach witch-doctoring, but this mixture is still popular in parts of France. The apparent immunity of rabbits to the ingestion of *Amanita phalloides* in the field appears to be the basis of this treatment, yet it seems rather anomalous that the rabbit has been used more than any other animal in experimental work on phallin poisoning. A mixture of three stomachs and seven brains appears to be the most popular combination. Brain alone does not seem to have the desired effect, or the power of lipid to absorb the poison might be the explanation.

Serotherapy.—The chief difficulty associated with serotherapy, in the treatment of phallin poisoning lies in the fact that supplies of serum cannot be continually available in the remote districts where cases are liable to occur, in common with most other diseases, the interval between onset and injection is very significant. However, numerous attempts have been made to produce an antiserum, and as long ago as 1897 Calmette increased the resistance of rabbits to the ingestion of *Amanita phalloides* by previously injecting them with an extract of macerated fungus. Dujaime de la Riviere (1933) produced his antiphallidien serum by inoculating a horse. This serum appears to have had excellent results when given within a reasonable time of onset of symptoms.

Summary

Four cases of *Amanita phalloides* poisoning are reported, with pathological findings.

Amanita phalloides is contrasted with the field mushroom, and its poisons are described.

The main methods of treatment are reviewed.

We wish to thank Mr. Cunard T. Dawson, coroner for the Borough of Ipswich, Mr. H. G. Broadbridge, coroner for the West of Dorset, Mr. J. P. Hulme, deputy coroner for the West of Division of London, for permission to publish the cases.

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THE SOLUBILITY OF SULPHONAMIDES IN RELATION TO HYDROGEN-ION CONCENTRATION

BY

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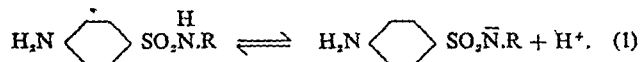
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Recent publications on the solubility of sulphonamides in urine (Gillman and Plummer, 1943; Jensen and Fox, 1943; Medical Research Council War Memorandum No. 10, 1945; Schmidt *et al.* 1944; Burn, 1945) show that the problem of the effect of pH on solubility has not yet been tackled from a general theoretical point of view. It has been empirically found that the solubility of sulphonamides rises as a rule, with increasing alkalinity. Fox and Rose (1942) and Jensen and Fox (1943) point out that this effect can be explained by the fact that most sulphonamides are weak acids which form readily soluble salts within the physiological pH range of urine. As the salt formation usually increases within the physiological limits of pH, the solubility also increases with pH. Previous authors, however, offer no quantitative theory for the effect of pH on solubility.

It is the object of this paper to show that the problem of the relation between pH and the solubility of sulphonamides lends itself to a general treatment in accordance with simple physico-chemical principles. The solubility at a given pH can be predicted from two constants: (1) the solubility of the undissociated sulphonamide; (2) the (classical) acid dissociation constant of the sulphonamide. These two constants can be obtained from two (or more) solubility measurements at different H-ion concentrations.

Sulphonamides as Electrolytes

The majority of the sulphonamide drugs are ampholytes (i.e., both acids and bases), though some are bases only—e.g., sulphaguanidine—and other acids only—e.g., sulphasuxidine. The basic properties of simple sulphonamides are associated with the *p*-amino group, the acidic properties with an H atom in the sulphonamide group. Substituents may abolish these functions and add further basic or acidic groups. For physiological considerations most sulphonamides can be treated as monobasic acids dissociating according to



The basic functions of the molecule, or such second acidic functions as may be present, are as a rule not operative within the physiological range of pH.

While the un-ionized forms of sulphonamides are usually sparingly soluble, the ionized sulphonamide salts, formed on addition of alkali, are usually readily soluble. A few examples are given in Table I.

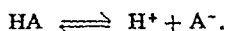
TABLE I.—Solubility of the Undissociated and Ionized Forms of Sulphonamides

Sulphonamide	Solubility (37° C.) (mg. in 100 ml.)	
	Acid	Salt
Sulphapyridine	52	About 25,000
Sulphathiazole	96	" 25,000
Sulphadiazine	15	" 30,000
Sulphamezathine	190	" 20,000

The data are taken from the Medical Research Council War Memorandum, "The Medical Use of Sulphonamides"; they are approximate values.

Quantitative Theory of Solubility

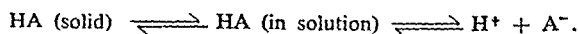
We assume that sulphonamides are monobasic acids, and we let HA represent the un-ionized and A⁻ the ionized form. The relationship between the concentrations of HA and A⁻ in any solution is governed by the equilibrium



Applying the law of mass action we obtain

$$K_A = \frac{[\text{H}^+][\text{A}^-]}{[\text{HA}]}, \quad (2)$$

where [] represent concentrations and K_A is the (classical) acid dissociation constant. In a saturated solution the dissolved substance is, in principle, in equilibrium with the solid:



Therefore the total solubility (S) is given by

$$S = [\text{HA}] + [\text{A}^-], \quad (3)$$

where [HA] is a constant for a given solvent and a given temperature, and may be represented by

$$S^0 = [\text{HA}]. \quad (4)$$

Combining (2), (3), and (4),

$$S = S^0 + \frac{K_A S^0}{[\text{H}^+]}. \quad (5)$$

As it is customary to use, instead of K_A and [H⁺], the corresponding negative logarithm, pK and pH, it is convenient to replace [H⁺] by 10^{-pH} and K_A by 10^{-pK_A}, where

$$S = S^0 (1 + 10^{pH-pK_A}). \quad (6)$$

With the help of (5) or (6) the total solubility of a sulphonamide at different H-ion concentrations can be calculated if S⁰ the solubility of the un-ionized form and K_A are known.

Determination of S⁰ and K_A

When the compound shows only acidic properties S⁰ can be determined by measuring the solubility at a pH at least 3 units below pK_A. When the compound is an ampholyte this may not be possible because the solubility rises again below the iso-electric point. The solubility should then be measured at a pH near the iso-electric point on the alkaline side, and a correction should be applied in accordance with (8). As a rule S⁰ is not very different from S in water, since in the absence of other buffers the sulphonamide itself causes the water to assume a pH near the iso-electric point.

In theory K_A can be determined by the usual methods for the measurement of dissociation constants (Bell and Roblin, 1942). In practice the application of these methods to sulphonamides is somewhat inconvenient because of the low solubility of these compounds. A more convenient method giving both K_A and S⁰ consists, in principle, of making two measurements of the total solubility, S' and S'' at [H⁺]' and [H⁺]''. Using a rearranged version of (5), we may write

$$S^0 = \frac{S'}{1 + \frac{K_A}{[\text{H}^+]'}} = \frac{S''}{1 + \frac{K_A}{[\text{H}^+]''}}.$$

Therefore

$$K_A = \frac{S'' - S'}{\frac{S'}{[\text{H}^+]''} - \frac{S'}{[\text{H}^+]'}}. \quad (7)$$

When K_A has been calculated, S⁰ can be obtained with the help of the following version of (6):

$$S^0 = \frac{S}{1 + 10^{pH-pK_A}}. \quad (8)$$

Equations (7) and (8) enable us to calculate S⁰ and K_A from two solubility measurements at two different H-ion concentrations. For the sake of accuracy more than two sets of data are desirable, and with a series of data it is more convenient to find S⁰ and K_A graphically instead of using (7) and (8).

According to (5), a plot of S against $\frac{1}{[\text{H}^+]}$ gives a straight line intersecting the S axis at S⁰ with a slope a (S⁰K_A), whence K_A can also be found. Alternatively, rearranging (5), we obtain

$$\log \left(\frac{S}{S^0} - 1 \right) = pH - pK_A$$

so that a plot of $\log \left(\frac{S}{S^0} - 1 \right)$ against pH gives a straight line of unit slope intersecting the pH axis at pK_A.

Test of the Theory

Data published by Gilligan and Plummer (1943) for the solubility of sulphadiazine in buffer solutions of different pH can be used to test the theory. In accordance with the theory straight lines were obtained when the graphical methods were applied. S⁰ was found to be 12 mg. per 100 ml. and pK_A to be 6.33. Table II shows that the observed and calculated solubilities are in satisfactory agreement. The theory is also confirmed by our own series of measurements, which have been published elsewhere, together with a more rigorous treatment of the theory (Krebs and Speakman, 1945).

TABLE II.—Solubility of Sulphadiazine in Buffer Solutions at 37° C.*

pH	S Observed	S ⁰ Calculated
5.25	13	13
5.50	14	14
5.70	15	15
6.12	19	19
6.38	26	26
6.90	53	57
7.20	102	101
7.30	136	124
7.85	383	393

* Measurements of solubility taken from a graph in the paper of Gilligan and Plummer (1943). Calculations based on assumption that S⁰ = 12 mg/100 ml; pK_A 37° = 6.33. S is expressed in mg. sulphadiazine in 100 ml.

K_A and S⁰ of Sulphonamides and their N⁴-acetyl Derivatives. Knowledge of K_A and S⁰ of the sulphonamides and their acetyl derivatives will thus enable us to predict approximately

the solubility of the drugs in body fluids whose pH is known. We have therefore measured the necessary constants for the more common sulphonamides and their N'-acetyl derivatives. The measurements were made in buffer solutions of a total ionic strength of 0.1 M. When the theory is applied to urine it has to be borne in mind that pK_a will be slightly affected by other solutes which contribute to the ionic strength, pK_a will therefore show slight variations from urine to urine, which may, however, be neglected for practical purposes. The solubility will also be affected by substances in the urine which combine with sulphonamides. Among these urea is probably the most important one. The solubility of sulphamerazine in serum was found to be almost the same as in buffer solutions, which indicates that serum proteins have no appreciable effect on the solubility. This is somewhat unexpected in view of the alleged "binding" of sulphamerazine by serum protein.

The results of the measurements of K_a and S° are shown in Table III. The data for pK_a are not very different from those reported by Bell and Roblin (1942) for 25°, while the data for S° roughly agree with the solubilities in water reported in the literature. It will be noted that the pK_a of the N'-acetyl compounds is in every case smaller than the pK_a of the "free" sulphonamides; in other words, the acetyl derivatives are stronger acids than the parent substances.

TABLE III—Acid Dissociation Constants (pK_a) of Sulphonamides, and their N'-acetyl Derivatives and Solubilities of Undissociated Compounds (S° at 38°) (pK_a refers to the Carboxyl Dissociation Constant, Ionic Strength=0.1 M)

Drug	pK_a	S° (mg. in 100 ml.)
Sulphadiazine	6.28	9.9
N'-acetyl sulphadiazine	5.16	15.6
Sulphathiazole	7.10	92
N'-acetyl sulphathiazole	6.81	71
Sulphamerazine	7.38	64
N'-acetyl sulphamerazine	7.14	84
Sulphamerazine	6.95	41
N'-acetyl sulphamerazine	6.55	80
Sulphapyridine	8.32	30
N'-acetyl sulphapyridine	8.02	31
Sulphasuxidine	4.48*	49

* Refers to the dissociation of the carboxyl group of the succinyl radical.

From the data given in Table III it is possible, with the help of (5) and (6), to calculate the solubilities within the physiologically relevant range of pH. Table IV gives the calculated solubilities at pH 7.4—the approximate pH of blood plasma—and of the contents of the small intestine—and at pH 6.4—a degree of acidity often found in urine.

TABLE IV—Solubilities of Sulphonamides (calculated)

Drug	pH 7.4	pH 6.4
Sulphadiazine	140	23
N'-acetyl sulphadiazine	664	83
Sulphathiazole	276	1.88
N'-acetyl sulphathiazole	35	9.9
Sulphamerazine	131	74
N'-acetyl sulphamerazine	237	99
Sulphamerazine	157	53
N'-acetyl sulphamerazine	646	137
Sulphapyridine	56	51
N'-acetyl sulphapyridine	39	22

Nomogram

In order to facilitate the calculation of S (though with some loss of accuracy), a universal chart has been constructed covering the more important range of the common sulphonamides. Any straight line drawn across the diagram intersects the three scales at values of ($pH - pK_a$), S° , and S which satisfy equation (6). Hence when ($pH - pK_a$) and S° are known the nomogram here reproduced may be used for calculating S with an accuracy sufficient for most purposes. For example, find the solubility of sulphadiazine at pH 7.0 (38°). In this case $pH - pK_a = 7.00$

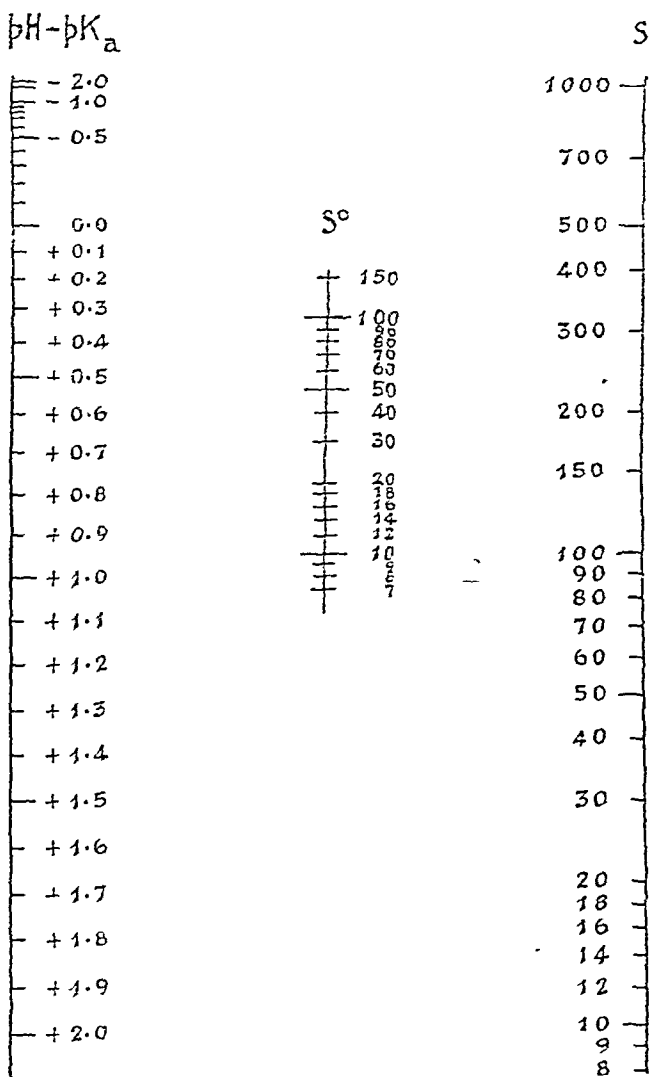
$-6.28 = -0.72$, and $S^\circ = 9.9$. A straight line from the point -0.72 on the $pH - pK_a$ scale to the point 9.9 on the S° scale, when produced, intersects the S scale at 62. This is the solubility at pH 7.0. It is convenient to use a stretched thread for the geometrical operation.

General Validity of the Theory

The theory of solubility of sulphonamides proposed in this paper is applicable to other substances. Of pharmacological interest is the application to drugs which (1) are weak acids or bases with a pK_a or pK_b between 6 and 8, (2) are sparingly soluble in their undissociated form but readily soluble in the dissociated form. Among the acids a number of narcotics—among the bases quinine and other alkaloids—belong to this category.

Dissociation Constant and Physiological Properties

Bell and Roblin (1942) and Schmelkes *et al.* (1942) have pointed out that the dissociation constant of N'-substituted sulphonamides is one of the factors controlling the bacteriostatic properties. Bell and Roblin produce evidence in support



Nomogram for the rapid evaluation of the solubilities of sulphonamides

of the hypothesis that the more negative the SO_2 group of a sulphonamide, the greater the bacteriostatic activity. As the SO_2 group of a given sulphonamide is more negative in the ionized form than in the un-ionized form, the dissociation constant must influence the bacteriostatic activity.

The dissociation constants are liable to affect a variety of other pharmacological properties of the drugs, especially their distribution in the body (Shannon, 1943). Some observations on the absorption from the intestine can be explained if it is assumed that absorption is facilitated by the ionization of the sulphonamide group. Sulphapyridine has been reported to be absorbed more slowly, less regularly, and less completely than sulphathiazole and sulphadiazine (see Hawking, 1945). At the pH prevailing in the small intestine sulphapyridine is largely un-ionized, while sulphathiazole and sulphadiazine are mainly present as anions. Particularly striking is the non-absorption of the drugs of the sulphaguanidine and sulphasuxidine groups. Marshall *et al.* (1940) found empirically that sulphaguanidine (as well as N^1 -(2-hydroxyethyl)-sulphapyridine and N^1 -diglycol-sulphapyridine) are poorly absorbed. In these compounds both H atoms of the $-\text{SO}_2\text{NH}_2$ group are substituted and the acidic properties of this group are therefore abolished. In sulphasuxidine, sulphathalidine, and sulphanilyl sulphanilate the acid properties of the SO_2 group are so weakened by the introduction of another acidic radical into the molecule that they do not come into play under physiological conditions. It is thus very suggestive to think that the non-absorption of sulphaguanidine, sulphasuxidine, and allied compounds is related to the non-ionization of the $-\text{SO}_2\text{N}<$ group.

The penetration of sulphonamides into the cerebrospinal fluid and their distribution between blood plasma and blood cells are further aspects deserving of examination from the same point of view. More experimental data are required, however, before the problem can be usefully discussed.

Summary

It is shown that the approximate solubility of sulphonamides in aqueous solutions of different pH can be predicted from two constants—the solubility of the undissociated sulphonamide and the acid dissociation constant. Agreement between observed and predicted values is satisfactory.

A method for the determination of the two constants is described and the values of the constants are given for the more commonly used sulphonamides and their N^1 -acetyl derivatives.

It is pointed out that the acid dissociation constants of sulphonamides affect certain pharmacological properties. The non-absorption of the drugs of the sulphaguanidine and sulphasuxidine groups appears to be related to the non-ionization of the $-\text{SO}_2\text{N}<$ group.

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The Public Health Committee of the Edinburgh Town Council, as reported in the *Scotsman*, has had before it details of two new medical schemes. One is for the provision of orthopaedic services. A joint committee of local authorities and voluntary organizations recommended the appointment of a director of orthopaedics for the area who shall also be a reader in orthopaedics in the University of Edinburgh. The Public Health Committee approved the proposals and empowered the joint committee to appoint a suitable applicant in collaboration with the University Court. The other scheme, proposed by the University in conjunction with Edinburgh Corporation, is that one of the chairs of medicine in the University should be devoted to teaching, care of patients, and clinical research solely in connexion with the municipal general hospitals. To put this proposal into effect building developments would be essential at the Western General Hospital. The Public Health Committee, agreeing in principle to the proposals outlined, resolved that the arrangements should be examined in greater detail with a view to making the necessary adjustments between the Corporation and the University.

PENICILLIN CREAM OF LOW CONCENTRATION

BY

G. H. du BOULAY, M.B.

This analysis of 39 cases of staphylococcal and streptococcal infection of the skin, treated with a penicillin cream containing 200 units of penicillin per ml., was carried out at Charing Cross Hospital. The application used was made up as follows:

Lanette wax	..	..	..	..	3.5 g.
Liquid paraffin	..	..	..	..	15 ml.
Penicillin solution	..	..	..	..	5 ml.
Phenoxetol	..	..	..	..	2 ml.
Aqua redest.	..	..	..	..	ad 100 ml.

and was spread over the infected skin twice a day after the area had been thoroughly washed with warm water and soap.

In order that the clinical observations should not be influenced by the bacteriological findings, the diagnosis was made and the treatment prescribed on clinical grounds alone; and although the culture was taken at the time of the patient's first visit, the report was not seen until he had been under treatment for a fortnight. Later it was discovered that this routine was no disadvantage to the occasional patient harbouring penicillin-resistant organisms, but the reverse, because some improvement was gained in every case during the first week.

The cases recorded are: impetigo, 20; sycosis barbae, 5; infection superimposed on previous disease or trauma, 10; otitis externa, 2; retro-aural intertrigo, 2.

Impetigo

1. *Penicillin-resistant Strains of Staph. aureus*.—Out of the 20 cases of impetigo two were found on culture to yield resistant strains of *Staph. aureus*. Both of these cases, reacting in the same way to treatment with the penicillin cream, showed a marked improvement after one week, but relapsed at the end of two weeks, and remained stationary until they were subsequently cured by other methods.

2. *Sensitive Strains*.—Although the *Staph. aureus* and the haemolytic streptococci isolated from 11 of the cases were proved to be penicillin-sensitive, it was found in many of the cases that the penicillin-resistant *Staph. albus* could also be grown from the swab without any apparent effect on the course of the cure. All these 11 were clear in from three days to two weeks, the only remaining evidence of past disease being a slight erythema. It was noticed that none of these cases had a history of more than five weeks.

Two more cases which had been suffering from severe impetigo for 7 and for 40 weeks respectively cleared almost completely, but relapsed in six weeks and eleven weeks. The first subsequently recovered on penicillin, but the second had a residual blepharitis. One case had a secondary infection with *Ps. pyocyanea*, and cleared in two and a half weeks (phenoxetol being highly active against this organism). One case did not return for observation.

In view of the possibility that the length of the history alters the speed and the ease of cure by penicillin, two cases with histories of less than five weeks' duration were given penicillin cream in the usual way for 10 days and 14 days respectively, and then, on the point of complete cure, when they might very well have been discharged, the treatment was stopped. Both immediately relapsed. (They were cleared subsequently, the penicillin being again applied after a lapse of three days. Their cure from the first inception of the treatment took four and six weeks.)

To pursue the investigation further it was planned to make a graph of "depth of organismal invasion of the skin" against "length of cure," and, further, to attempt to correlate these findings with the length of history and the penetrating power of the cream used. Before the experiments could be properly begun one of our helpers was unfortunately taken ill; but our results seemed to indicate that this treatment did not furnish an effective concentration of penicillin in the dermis. Two to three hours elapse before all of this cream has soaked into the skin if the layer applied is 1/16 in. (0.16 cm.) thick, by which time it is thought that the penicillin has lost much of its effectiveness. Sensitive staphylococci in the dermis were certainly unharmed.

Sycosis Barbae

Five patients with sycosis barbae were treated by this method. They had suffered from the disease for periods of five years, two years, a few weeks and ten days respectively. All yielded cultures of penicillin-sensitive staphylococci and streptococci, and all improved very greatly after two weeks' treatment. Over a number of months the improvement was found to fluctuate and reach a stage in which a few pustular follicles persisted in appearance. In spite of this the patients found the treatment more satisfactory than any they had had before by the daily use of the cream after shaving they were able to keep the sycosis very well in check.

Superimposed Infection

This term is used to cover all cases of pyogenic infection following other disease or trauma. Ten such cases have been investigated. They occurred after (1) urea pedis, (2) chronic eczema (2 cases) (1 A.H.F. syndrome), (3) varicose eczema (2 cases), (4) self-inflicted excoriations (2 cases), (5) a diathermy burn; (6) ifumatid lesions on the fingers, and (7) unknown superficial trauma.

(1) This case frequently relapsed developed a lymphadenitis followed by bacteraemia which responded to intramuscular penicillin, and eventually receded from the dermatitis after six weeks, the ulcer remaining as before.

(2) Both patients were clear of the infection in two weeks and neither complained of any increased irritation from the use of the preparation.

(3) Both cases were healed in three weeks.

(4) One of these excoriations had been present for six years except for a brief period, the other was a more generalized and recent crop of spots. With adequate washing and restraint they were healed in four and in two weeks.

(5) This was a burn which had been treated with sulphathiazole ointment and subsequently flavine. The sensitization rash was followed by a large patch of skin infection around the burn. After two weeks the skin was clear and the burn had healed. The rash subsided without further incident.

(6, 7) These patients were clear of infection in a week.

From all these cases penicillin sensitive *Staph. aureus* as isolated, apart from this fact they are not comparable, but serve to illustrate the effectiveness of a low concentration penicillin cream in the treatment of fairly superficial infection.

Otitis Externa and Retro-aural Intertrigo

From all four of these very chronic cases we had excellent results. The shortest history was 10 years, the longest 25, but notwithstanding the consequent fibrosis and the presence of *B. coli* in one ear as a secondary invader, infection disappeared in each case within six weeks, and the cracks were then healed slowly, with the help of silver nitrate. No untoward reactions were observed in this, admittedly small, series of cases. The application of the cream was usually followed by a stinging sensation, but it soon passed off and no visible effects were left.

Conclusions

It is wise to treat all cases without waiting for bacteriological findings (perhaps the phenoxetol and certainly the washing, help).

When impetigo is caused by a penicillin-sensitive organism, and has not been present for more than five weeks, it will heal in from three days to two weeks—usually nearer a week.

To avoid recurrences treatment should be continued in all cases, regardless of the length of the history, until no mark remains on the skin.

In chronic cases, in sycosis barbae and in those few caused by resistant strains, this cream may fail to clear up the disease.

No evidence of a sensitive strain becoming resistant during treatment was found.

Finally, in view of what I believe to be a general lack of faith on the part of civilian doctors in penicillin cream of low concentration, I would emphasize the effectiveness of this very low concentration cream.

I wish to thank Dr J. E. M. Wigley, head of the Skin Department, Charing Cross Hospital, for the original and many other valuable suggestions, as well as for permission to carry out this work, and to express my appreciation of the service of the pathological laboratory and also of the nursing staff in the Skin Department.

Medical Memoranda

Intestinal Hernia between Folds of Broad Ligament

The following case may be of sufficient rarity to be put on record.

CASE HISTORY

Miss A., an A.T.S. private, was admitted to Old Windsor Emergency Hospital from a camp reception station on July 11, 1943, with the following history. Twenty-four hours previously she had developed acute abdominal pain of a colicky type and had had three bouts of vomiting. She also complained of frequency of micturition and headache. The temperature was 100° 8, pulse 92, respirations 20. The tongue was furled. The abdomen was tender and rigid, especially to the right of the umbilicus. The urine was free from acid and albumin. A soap emema had been given but had yielded a very scanty result.

On admission to hospital the temperature was 100°, pulse 92, respirations 25. There were low abdominal tenderness and rigidity and a right-sided paramedian scar resulting from removal of the appendix, with drainage eighteen months previously. On vaginal examination she was tender over the right and posterior fornix especially on palpation of an elastic mass which appeared to lie in the pouch of Douglas. This mass was also felt on rectal examination. Micturition was normally at monthly intervals but the last period had occurred only a week after the previous one had finished. Risk of pregnancy was admitted. During the 48 hours after admission the bowels were opened twice—once spontaneously and once by motions being made in amount.

In view of the history and findings, a tentative diagnosis of ectopic pregnancy was made and laparotomy was performed through the original incision. A little free fluid was present in the peritoneal cavity and the inferior part of the right broad ligament was distended by what proved on investigation to be rather more than a foot of ileum which had passed through a narrow hole in the posterior fold. The hernia was reduced without much difficulty, and the bowel, though very congested, was viable. The rent in the broad ligament was repaired with catgut, and the abdomen closed without drainage. Recovery was uneventful.

It appears that the perforation in the broad ligament may have resulted from the use of a drain after the appendix operation but the exact time when the hernia occurred is problematical.

My thanks are due to Col. Onen P. N. Hard, superintendent of Old Windsor Emergency Hospital for permission to publish this case.

F. H. FINLASON, F.R.C.S., M.R.C.O.G.
Surg. Genl. E.M.S.

A Case of Penicillin Dermatitis

It is not yet known whether the minor toxic reactions (urticaria, unpleasant taste, headaches, etc.) occasionally occurring after the clinical administration of penicillin are due to the penicillin or to its impurities. Dermatitis following the application of penicillin creams has been thought to be due to the vehicle (lanette wax, etc.). A case of extensive and severe dermatitis after penicillin administration was recently reported in a British officer (Miche and Bailie, 1945). The case described below demonstrates that penicillin itself and not its impurities can be incited as a cause.

CASE HISTORY

A Royal Air Force medical officer, aged 31, was experimentally treated with penicillin capsules (400 units per lozenge) and a throat spray (250 units per c.c.) for a febrile nasopharyngitis and tracheitis. Both spray and lozenges were administered hourly, during the waking hours, for two days, after which all signs and symptoms had subsided.

One week later, T.A.B.C. vaccine, which contains 25% of albumin, was accidentally splashed into both eyes, the acute resulting symptoms being rapidly relieved by copious normal saline irrigation. Fourteen days later there were still signs and symptoms of a mild conjunctivitis, and treatment consisting of zinc sulphate 0.25% drops, junctives, and treatment consisting of an ophthalmologist. No improvement occurring after four days, the treatment was changed to penicillin eye-drops (250 units per c.c.) hourly. Considerable improvement took place within 24 hours, when the patient began to complain of intense itching of the skin over the inferior orbital margins. The next day, penicillin drops having not been used for 48 hours, the conjunctivitis had largely subsided, but the intense irritation continued and a vesico-papular rash appeared. The rash was present over the inferior orbital margins, in a "butterfly" distribution, where the surplus eye-drops had been wiped away by the tribulation, where the surplus eye-drops had been wiped away by the tribulation. All treatment was immediately discontinued. The penicillin solution was found to be still active (more than 200 units per c.c.), and was left at room temperature for subsequent experiment.

The rash subsided without treatment in eight days. It progressed to vesiculation, the vesicles being pin point in size on a papulo-erythematous base. A fine desquamation occurred, the skin finally returning to normal in 14 days. There was no previous history of dermatitis, other rashes, or exposure to the sun. A dermatologist

agreed that the rash may have been a contact dermatitis due to the penicillin solution.

To determine the aetiology of the rash the patient was patch-tested with the original penicillin solution (now found to be completely inactive), a freshly prepared solution of penicillin, and the 0.25% zinc sulphate solution, on the flexor surface of the forearm. This test proved negative. After the rash had completely subsided the patch tests were repeated on the site of the lesions—i.e., immediately below both eyes. In 24 hours the active penicillin solution produced a patch of itching vesico-papular lesions on an erythematous base exactly similar to the original rash; the inactive solution and the zinc sulphate patches were negative.

COMMENT

The inactive penicillin solution can have contained only manufacturing impurities and the breakdown products of penicillin. The fresh solution which produced the positive patch differed only in that penicillin was present. It can legitimately be concluded, therefore, that the aetiological agent in the production of the dermatitis was penicillin and not its impurities. It is probable that sensitivity had been induced in the patient by the course of penicillin 25 days previously. A curious feature is that the conjunctivitis was not aggravated by the dermatitis-producing agent. Winthrop's penicillin, supplied in 100,000-unit ampoules, was used throughout.

The haphazard use of penicillin-containing face powders and toilet applications envisaged in the popular press would appear to be not devoid of risk.

P. D. BEDFORD, M.B., Ch.B.,
Flight. Lieut., R.A.F.V.R.

REFERENCE

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Dermatitis due to Sulphaguanidine

The patient is a private in the R.A.M.C., a member of the hospital staff, aged 41. Before dealing with his present condition it is relevant to consider past events.

He was admitted to hospital on April 11, 1945, suffering from dermatitis of uncertain origin but probably solar, affecting the lower part of the left leg, which ulcerated, this being to some extent due to varicose veins, from which he suffers. Sulphanilamide powder was applied to the ulcer for three successive days, but in view of the lack of response this was stopped and the ulcer eventually healed with simple lotions. There was no generalized eruption at that time. On May 23 the ulcer broke down again, and he was admitted to hospital. He was treated by local saline dressings and parenteral sulphathiazole, of which he received in all 12 g. in three days. On the second day he complained of itching, and on the third day a typical papular eruption was observed on the legs and trunk. The ulcer subsequently healed, and has remained healed.

On July 31, 1945, he was again admitted to hospital, this time suffering from bacillary dysentery. In view of the past history I was chary of giving sulphaguanidine, but as a test I gave him 0.5 g. of the drug in the afternoon of July 31. There was no sign of eruption on the next day and I therefore started him on the normal course of sulphaguanidine—7 g. immediately and 3.5 g. four-hourly. He received 17.5 g. on Aug. 1, and 21 g. on the following day. Towards the end of the second day he noticed a slight erythema of the left leg, and the next morning he presented an almost identical picture to that of the previous sulphathiazole dermatitis. There was a papular eruption covering the anterior and posterior aspects of the trunk, especially the chest, and a similar eruption on the legs, more severe on the left. A serous discharge later exuded from the rash on this leg. The eruption on the back showed a straight line of demarcation from normal skin corresponding to the boundary line of the sunburned area, the untanned area below the belt being free from rash. Similarly the thighs showed few papules, while the legs were severely affected on flexor and extensor surfaces. The face and arms were unaffected, and the arms showed only a small eruption at the flexures of the elbows. The axillae were free. Apart from the serous discharge from the lesion on the left leg, the remainder of the eruption followed a normal course to recovery, using simple lotions. No other drugs were being taken by the patient at the time, nor was there any history of dermatitis following administration of any other drug.

The connexion between the origin and distribution of the dermatitis and the action of sunlight is interesting. Patch tests with sulphanilamide and sulphaguanidine on non-sunburned areas were negative.

BASIL HAIGH, M.B.,
Capt., R.A.M.C.; M.O. i/c British Wing.

Military Hospital, Nira

Five organizations concerned with chiropody and all recognized by the Board of Registration of Medical Auxiliaries—British Association of Chiropodists, Chelsea Chiropodists' Association, Chiropody Practitioners (N.I.Ch.) Ltd., Incorporated Society of Chiropodists, and Northern Chiropodists' Association—have amalgamated to form the Society of Chiropodists Limited. The new organization will also take over the functions of the Chiropody Group Council in relation to the Board of Registration of Medical Auxiliaries, on which body it is directly represented.

Reviews

ALLERGY

Essentials of Allergy. By Leo H. Criepp, M.D. With foreword by Robert A. Cooke, M.D. (Pp. 381 43 illustrations. \$5.00 or 30s.) Philadelphia and London: J. B. Lippincott Company.

This book is one of a series designed to provide concise and effective working manuals for the busy practising physician. It is prefaced by the chairman of the Committee on Education of the American Academy of Allergy, and the author is, among other things, consultant in allergy to the medical service of the U.S. Veterans Administration. The hopes raised by these auspices are not disappointed, for Dr. Criepp has written a compact, well-balanced, and useful account of allergy as it concerns the clinician. In driving a way through the thicket of data and terms which has grown up around anaphylaxis and allergy Criepp has used a bulldozer technique, and it is certain that other pathologists and allergists will not agree with all his definitions and interpretations. Nevertheless, the student will find an extremely clear presentation of the meaning of such words and ideas as atopy, idiosyncrasy, intolerance, and anergy. If he is an intelligent student he will also realize that there are many gaps in our understanding of the allergic diseases. As R. A. Cooke writes in the preface, relatively little is known of the fundamentals of the allergic reactions or the nature of the protective response to present-day methods of immunological treatment, which rests largely on empiricism. It is, perhaps, the only defect of Criepp's book that it gives no explanation of the mechanism of the pollen treatment of hay-fever or the desensitization to liver extract of a patient under treatment for pernicious anaemia. After discussing the fundamental aspects and morbid physiology of allergy Dr. Criepp gives a general account of diagnosis and treatment, and then proceeds to describe the individual manifestations of allergy—hay-fever, bronchial asthma, nasal allergy, skin allergy, serum allergy, bacterial allergy, fungus-allergy, physical allergy, and a miscellaneous group. Each chapter has a helpful summary, and there are short case-histories followed by lists of teaching points. The book is indeed a most successful teaching manual. Looking at it from a broader scientific aspect, however, the general physician or pathologist may wonder whether the specialist in allergy is perhaps not too preoccupied with the handling of the familial allergies or atopy, as he calls them. These are characterized by two features. The first is an abnormal tendency to produce *reagins*—that is, to become sensitive—to common substances in the environment. The second is the possession of a shock organ, usually the respiratory tract or the skin. The detection of the substances which may provoke asthma or rhinorrhoea in susceptible people has perhaps precluded us from thinking hard enough about the acquired or intrinsic asthmas and about the reason for the localization of symptoms. The identification and listing of allergens must obviously continue, and we are only just realizing the allergic potentialities of sulphonamides, thiouracil, penicillin, and a host of other non-protein compounds used in medicine and industry. However, just because the number and variety of allergens are almost unlimited it will be profitable now to think a little harder about what makes a shock organ such, and why the reaction is sometimes so exquisitely particularized, as in the response of the platelets in the drug purpuras. There are, indeed, few fields of clinical science in which a greater harvest of useful knowledge waits to be gathered than in the allergic diseases.

BLUE-PRINT FOR THE NATION

Post-War Britain. Edited by Sir James Marchant, K.B.E., LL.D. (Pp. 255. 12s. 6d. net.) London: Eyre and Spottiswoode.

Sir James Marchant has assembled eleven leading authorities, each of whom discusses the phase of post-war reconstruction in which he is an expert. Lord Horder writes about the future health of the nation. It is difficult to avoid platitudes in writing about health, but Lord Horder's style is always refreshing and he salts his essay with epigrams. Thus he suggests that one way of attaining health is to be "really convinced that it is better being well than ill"—a precept which needs to be placed in front of a good many people. He also touches on the contribution to health which is to be made by the State. Evidently

his essay was written not only before the recent change of Government but before the Willink negotiations. He says that the White Paper is to be welcomed as a compromise between the present unsatisfactory state of our health services and a whole-time State service for all doctors though the White Paper requires certain adjustments to make it more acceptable. Of these adjustments he notes three: freedom of private practice, continuation of contributory scheme and a fuller and more direct representation of the profession on controlling bodies. Sir John Orr writes on the future of the future, and describes the Hot Springs Conference of May, 1943 as the starting-point of a new era in which science will be applied directly with all its powers to supply the things man needs. Once get that direct application of science started and the road to the age of plenty, while it may be a long one will be undeviating. Sir Ernest Simon writes with equal authority on his own subject of housing and goes into much useful detail as to costs and subsidies rents and rates. Other experts write on agriculture, plastics, coal, iron and steel and electrification. It is rather a relief to find no mention of atomic energy in a volume on the lay out of the country. But this volume, as its cover proclaims, is "a blueprint for our national life" it leaves out as many elements as it includes. There is no section on town and country planning or civil engineering or local government and services, nothing about education or recreation, or the culture of mind and spirit. It presents so far as it goes, a very competent and orderly landscape, but rather a truncated one, and not much sky.

SURGICAL TREATMENT OF PEPTIC ULCER

Duodenal and Jejunal Peptic Ulcer. Text and Pictures. By Dr. R. Nissen. M.D. (Pp. 143, illustrated 215) London W. J. B. Lippincott 1945

The results of partial gastrectomy in the treatment of peptic ulceration are usually acknowledged to be more satisfactory than those of other surgical methods of treatment except perhaps in a very restricted number of cases. The main objection to this operation is the mortality associated with its performance, which, although now considerably reduced still remains well above that of simpler procedures. Analysis shows that this mortality is mainly due to two complications, collapse and infection of the lungs being the chief hazard, with leakage from the duodenal stump coming second.

Reliable closure of the duodenum must therefore be considered one of the most important technical details of the operation. A new book, *Duodenal and Jejunal Peptic Ulcer*, by R. Nissen of Brooklyn, despite its rather deceptive title, is devoted largely to the practical means by which this may be achieved. We must confess that we wondered whether such a small, if important, detail warranted the production of a whole book on the subject, for a properly trained surgeon should be competent to devise means of dealing adequately with difficult circumstances as they arise on the operating table, but the author, anticipating this criticism, justifies his contribution by the statement "In about 50% of all cases in which surgical intervention for ulcer is indicated, the procedures herein described are applicable. There is a good discussion of the pros and cons of the prepyloric division of the stomach, which reveals the author strongly in favour of section of the duodenum beyond the ulcer, although the floor of the ulcer may remain if it has penetrated through into the surroundings and especially the pancreas. This is the general conclusion reached by gastroenterologists in this country. In brief, the author's method of dealing with a difficult duodenal stump is to leave sufficient anterior wall (the ulcer being usually posterior) to turn over and unite with the freed posterior wall immediately beyond the floor of the ulcer, afterwards burying this within the capsule of the pancreas. It is a method often used *secundum artem* by surgeons well versed in the technique of gastric resection. For exceptional cases where the anterior wall is deficient other procedures, such as a duodeno jejunal anastomosis are advocated.

The second half of the book deals with anastomotic ulcers and gastro-jejuno colic fistula. In the latter condition the author correctly as we believe, describes Lahey's two stage resection of colon, stomach, jejunum, and duodenum, with ileo-colostomy, as being unnecessarily severe and physiologically undesirable.

The book is admirably illustrated and well produced, it has a foreword by Owen Wangenstein.

Notes on Books

Ophthalmia Neonatorum. The Problem after Thirty Years of Sanitary Notification and Sixty Years of Crede Prophylaxis. By ARNOLD SORSBY, M.D., F.R.C.S., as published by Harmsa Hamill on Medical Books at 75 6d. This is the first monograph from the Institute of Ophthalmology. It consists of a very useful collection of material which has mostly been published already, together with conclusions drawn therefrom. It will form a useful reference book for those who are seeking statistical data, since 31 of the 64 pages are occupied by tables or graphs. There are a foreword by Sir Alan D. Davy and an exhaustive bibliography. It is surprising that no reference is made to the late M. S. Mayou (except in the bibliography) to whom is due the original organization of White Oak Hospital, St. Paul, and St. Margaret's Hospital, Kenilworth, and whose work in that connexion was recognized by all ophthalmologists.

Internal Medicine edited by JOHN H. MESSER (HARRIS LIPPINCOTT 50s.) is obviously popular in the United States, as is shown by the appearance of a fourth edition. In size and scope it lies about half way between "Conveyance and Inner" though like many text books of medicine, it is showing a tendency to grow in size. The third edition was 140 pages longer than the second and the fourth is 200 pages longer than the third. As the student's time is not increased, and as it is undesirable to lengthen the clinical course, it looks as if the time has come when a new approach should be made to the problem of writing textbooks for students. Probably on the lines of general pathology and special pathology. Wartime advances in medicine have been included, though it is too early for them to have been properly assimilated. Thus quinine is preferred to atabrine in the prophylaxis of malaria and penicillin is recommended in the treatment of acral leucoderma.

The Information Division of the European Regional Office of UNRRA issues a periodical *Review of the Month* from 11, Portland Place, London, W.1. The latest number (for October-November, 1945) records the second anniversary of the foundation of UNRRA and gives news of the work of the missions in various European countries.

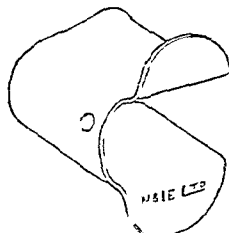
Preparations and Appliances

A SIMPLE "PROPRAY" FOR USE IN GENERAL ANAESTHESIA

Dr. BARNET SOLCOW'S (London, N.V. 8) writes

Every anaesthetist has faced the problem of the closed mouth in light anaesthesia. All degrees from gentle closure to extreme masseteric spasm, have presented themselves from time to time.

This simple divided propway has been found useful in general anaesthesia of all types. It is inserted before induction, is quite comfortable, and never causes gagging or unpleasantness to the patient. It gives ample access and allows easy control of the tongue by the forefinger, spatula, or closed tongue. It can be used as a hooked spatula. The blade of a laryngoscope can be inserted in light anaesthesia without the necessity for force opening the mouth. If an oral endotracheal tube is passed this can be slipped through the slot and if necessary tied to the propway, thus protecting the tube from the patient's bite. A flat type pharyngeal metal or rubber airway can be inserted and supported similarly. Finally the propway can be used with the open side towards either angle of the mouth.



I am indebted to Private T. Smith R.A.M.C., for his help in the design of this device. It is obtainable from Medical and Industrial Equipment Ltd., 12, New Cavendish Street, W.1.

HORMONE PRODUCTS

The Organon Laboratories Ltd. offer for sale "cortrophin," a preparation of the anterior pituitary hormone which promotes growth of the cortical cells of the suprarenal gland. It is recommended for use in Simmonds's disease (pituitary cachexia), anorexia nervosa, and for the asthenia and hypotension of convalescence. They also offer "neo hembreol (M)," which is methyl testosterone, this is recommended for various purposes: (a) to protect the weight curve of premature infants, (b) to deflate the colon in cases of Hirschsprung's disease, (c) in nocturnal enuresis, etc. A third preparation is "menformin" in the form of a standardized oestrogenic cream for local application to the skin of the breasts and the vulva.

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CHILD HEALTH IN BIRMINGHAM

The gift by the Nuffield Foundation of £10,000 a year to the University of London in 1944 to found a professorship and institute of child health has inspired Birmingham to try again—it had tried unsuccessfully twice before, once in 1929 and again in the early part of the war—to set up an organization on similar lines. A scheme for an Institute of Child Health has now received the approval of the Birmingham City Council, and, although Birmingham cannot be said to be the pioneer in this respect, it is hoped that its scheme will present a model of completeness, with all the various services which have child health as their object properly integrated in a way which would not be possible in a smaller city owing to lack of provision, nor in London owing to its vast extent and the variety of its resources. All the preventive and curative agencies, including research and education, will be directed to dealing with disease in children and to raising the standard of child health in the West Midlands area.

To ensure the success of any such scheme a partnership of three is necessary—the children's hospital, the local authority, and the university department. Birmingham is fortunate in commanding for this project the sympathy of all three. Its Children's Hospital—the King Edward VII Memorial—is one of the best general hospitals in the Provinces, with a high reputation as a research centre. It is quite near to the centre of the city, with modern buildings, a good site, a large out-patient department, a fully organized pathological laboratory, a new infants' block carefully planned and not yet in proper use, and a medical staff with a full range of physicians and surgeons in charge of general and special departments who are also engaged in private consulting practice. It has two annexes at Malvern for the treatment of certain clinical types of long-stay patients, and one at Northfield for use as a continuation hospital for infants and nursing mothers.

The second partner, the City Council, had already raised its child health services to a high excellence; its provision for the care of premature infants need only be mentioned. The Education Committee has expressed its desire to be in the scheme at its inception, and it was actually the Maternity and Child Welfare Subcommittee, in warmly supporting new proposals which were broached by the chairman and late house governor of the Children's Hospital, which led to the matter being taken up afresh. On the municipal side the scheme will include the present maternity and child welfare service of the Corporation, the school medical service, and that part of the tuberculosis service which is concerned with children. Presumably the 300 beds for children at the Dudley Road and Selly Oak

municipal hospitals will be linked with the scheme. It is expected that other local authorities will participate in due time; as it is, 30% of the patients in the Children's Hospital come from outside Birmingham.

A co-ordinating role will be taken by the third partner, the University, where the Professor of Children's Diseases is Dr. Leonard G. Parsons, well known not only as a paediatrician but as a teacher and administrator, who has obviously taken a leading part in the shaping of this enterprise. When the scheme is more advanced no doubt his title or that of his successor will be changed to that of Professor of Child Health, to emphasize the more positive side which this whole movement signifies. The preventive and sociological aspects will be kept in full view. Each of the three partners will be able to make its own contribution to the study of the social conditions under which children in Birmingham and in the Black Country live—the Children's Hospital through its almoners, the local authority through its health visitors, and the University through its Department of Social Medicine.

It is hoped eventually to build an Institute of Child Health adjacent to the Children's Hospital. For the present, however, much of the work will be housed at the Carnegie Institute, which was originally designed as a model child welfare centre. It is anticipated that the management of the scheme will be in the hands of a council representative of all three partners, the Children's Hospital being represented by members of its medical committee and lay board; the local authority by its medical officer of health and other medical officers and members of the committees concerned; the University by its Vice-Chancellor, other members of its Council, and its Professors of Child Health, Obstetrics and Gynaecology, and Social Medicine. Certain suggestions, which cannot yet be complete, have been made for staffing. The present holder of the Chair of Children's Diseases is a part-time officer; his successor would devote the whole of his time to this post; he would also be consultant to the child health services of the city, physician to the Children's Hospital, and visitor to the municipal Babies' Hospital at Cranwell Hall. With him would be two University Readers, one of whom would be responsible for the organization of undergraduate and postgraduate training in the preventive aspects of child health, and a lecturer in child welfare. All the members of the honorary staff of the hospital would be clinical lecturers in the medical school, and would be available for consultations at the child welfare centre at the Carnegie Institute. With each of the four or five physicians of the hospital, who would also be engaged in private practice, there would be associated a clinical assistant selected, like the lecturer on child welfare, from among the whole-time medical officers of the local authority. Each of these clinical assistants would act as medical officer at certain stipulated times in the wards and out-patient department. It is suggested that there should be three medical units in the hospital, each consisting of physician, assistant physician, clinical assistant, and house-physician. A fourth registrar would be attached to the infants' block, the pathologist, or the research department. The service, when it is fully established, is expected to cost from £15,000

to £18,000 a year, and this will be borne about equally between the three partners.

The Children's Hospital at present has 248 beds in use, with about 8,000 in-patients and 19,000 out-patients a year. The survivors who were appointed by the Ministry of Health to survey the hospital facilities of the West Midlands area—Mr J. B. Hunter, Dr R. Veitch Clark, and Sir Ernest Hart—reported that the beds available for children in Birmingham are not sufficient for the city and for the specialized orthopaedic service which will have to be provided in Birmingham for the West Midlands area. They point out the importance of beds because children's diseases do not lend themselves to out-patientists. One of their recommendations is that the Children's Hospital should be brought up to the highest and maximum desirable on the site, thereby affording better facilities for the grouping of cases. Another suggestion of theirs is that the general hospitals, municipal and voluntary, should each have an adequate paediatric department directed by a paediatrician who should preferably be on the staff of the Children's Hospital. They even go further in anticipating the new scheme by urging increased integration of the activities of the Children's Hospital and the Hospital Centre with the maternity and child welfare and school medical service of the Corporation. Apart from what the scheme promises for the health of the children of the West Midlands and the example which it will set to other centres, it provides an admirable instance of co-operation between municipal and voluntary enterprise in a most obvious and practical field.

SOLUBILITY OF SULPHONAMIDES

It has long been recognized that the physical properties of drugs have a profound influence on their clinical use and effectiveness, such properties as solubility in water or fat solvents, and acidic or basic character, influence not only the ways in which drugs can be administered but also the ease of their absorption, their distribution throughout the tissues, and their potency in any given situation. In recent years attempts have been increasingly made to put these effects upon a quantitative basis, and the article by Prof. H. A. Krebs and Dr J. C. Speakman in this issue is an important contribution to studies of this kind. They are concerned with the relation between the solubility and the acidic character of sulphonamides.

The sulphonamides are sparingly soluble substances with both acidic and basic properties but within the physiological range of pH the acidic properties appear to be predominant. Like most insoluble organic acids, sulphonamides form soluble salts and are therefore soluble in alkaline solutions. When the salt of an organic acid is dissolved in water an equilibrium is set up between the anions of the salt and the un-ionized acid molecules, and the proportion of un-ionized molecules will depend upon the strength of the acid and upon the pH of the solution, the weaker the acid the greater the proportion of un-ionized molecules at a given pH. The number of un-ionized molecules is, however, limited by their solubility, so that at any given pH the total solubility (un-ionized molecules

plus anions) will depend upon the strength of the acid. The strength of an acid is usually measured by its acid dissociation constant K_a or by its negative logarithm pK_a . A knowledge of K_a enables us to calculate the proportions of ionized and un-ionized molecules, and, consequently, if we know the solubility of the un-ionized molecules we can calculate the total solubility at any given pH. Krebs and Speakman describe a method of measuring both K_a and the solubility of the un-ionized molecules, which they designate S^0 , by two measurements of total solubility at two different pH values. Their results demonstrate that the sulphonamides are much more soluble in buffered solutions at pH 7.4—the approximate pH of plasma—than in simple aqueous solution, and provide a rational explanation of this greater solubility. The attainment of an effective bacteriostatic concentration in the tissues is thus seen to be at least partly dependent on the strength of the sulphonamides as acids. The question which naturally leaps to the mind is whether the anion or the un-ionized molecule is the effective bacteriostatic agent. No certain answer can as yet be given to this question, but its importance can be illustrated by example of other drugs.

Because a drug administered as a neutral salt it does not necessarily follow that the pharmacologically active agent is the ion of the salt. Thus it is not the mandelate anion which is bacteriostatic in urine but un-ionized mandelic acid and hence the need for maintaining an acid urine when the drug is being used. Similarly, it is not the cation of a local anaesthetic salt which possesses anaesthetizing properties for sensory nerves, but the un-ionized base. A good local anaesthetic must then be a sufficiently weak base to produce an adequate proportion of un-ionized molecules of base at the pH of the tissues, at the same time it must not be so weak a base that the concentration of un-ionized molecules at the pH of the tissues exceeds the solubility of the base; otherwise the local anaesthetic will be precipitated. The good local anaesthetic requires an appropriate balance of these two properties—basic strength and solubility—and it may well be that the bacteriostatic properties of sulphonamides also depend on a balance of the two properties—acidic strength and solubility in water. The solution of this problem would provide a valuable guide not only to the synthesis of new drugs of the sulphonamide type but also to the use of sulphonamides in particular physiological situations.

PENICILLIN IN ACUTE OSTEOMYELITIS

Sir Howard and Lady Florey,¹ reporting their first therapeutic trial of penicillin in osteomyelitis, prophesied in 1943 that a time might come when that disease, treated early and intensively with penicillin, would not require surgical intervention. Recent papers by Altmeier and Helmsworth² and by McAdam,³ suggest that the Floreys' early prophecy is close to fulfilment.

The more important conclusions reached in the two papers are in close agreement, and may be summarized

¹ *Lancet* 1943, 1, 387.

² *Surg. Gynec. Obstet.*, 1945, 81, 138.

³ *Brit. J. Surg.*, 1945, 33, 167.

briefly. (1) A suitable daily dose is 100,000 Oxford units administered by continuous intramuscular drip or by three-hourly injections. (2) Treatment should be continued for at least two weeks, or until three specimens of pus obtained by an intrametaphysial needle are sterile (McAdam). (3) Ancillary surgical measures should be limited to the immobilization of the affected limb, the incision of abscesses, the late removal of large sequestra, and the insertion on occasion of a sternal-puncture needle into the metaphysial focus. Marrow drainage, performed in five of McAdam's patients, and these not the most severely affected, was followed in at least two cases by wide sequestration and persistent sinuses. (4) Penicillin therapy should be established for twenty-four hours before any surgical procedure, even the opening of an abscess, is undertaken. (5) With adequate penicillin administration an initially positive blood culture becomes negative after three days or so. (6) The patient's general condition improves, but only after a few days' treatment. (7) The initial temperature, continuing high for a few days, falls gradually to normal after a week or more. (8) Metastatic foci present when the patient is first seen respond well to suitable surgical procedures during penicillin administration; new metastatic foci are not likely to develop once treatment is begun.

The radiological record of the behaviour of an infected bone under the influence of penicillin is interesting. The characteristic feature is a mottled demineralization, which proceeds to a maximum translucency weeks, or months, after all infection has subsided, and which is ascribed to a post-infective absorption of lamellae killed during the infective period. Quite large sequestra sometimes fade gradually, and in both papers an analogy is drawn between this phenomenon and the absorption of sterile bone-chips transplanted to fill a defect. In both circumstances demolition must be complete before reconstruction can proceed.

McAdam has inserted a sternal-puncture needle directly into the infected metaphysis, as suggested by Aird.⁴ Pus can be withdrawn immediately to decrease tension in the metaphysial abscess, and to permit precise diagnosis and an estimation of the penicillin-sensitivity of the responsible organism. If the needle is left in place, and if specimens of pus are withdrawn at intervals, the time of sterilization, when penicillin administration can safely be discontinued, is precisely known. Further, the needle offers for continuous penicillin administration an alternative (intrametaphysial) route, by which can be attained not only a high blood level of penicillin but also a high local concentration, which may be particularly valuable if an adjacent joint—the hip, for example—has been directly infected. Only one of McAdam's 40 patients died, from an infection by a partially penicillin-resistant *Staph. aureus*. Altemeier and Helmsworth, in 34 cases, had also one fatality—a case of severe haematogenous osteomyelitis of the tibia neglected for fourteen days; death took place seventeen hours after admission to hospital. The fatality rate of osteomyelitis is a notoriously fallacious criterion of the efficacy of a form of treatment, so much does the disease vary in severity from year to year and from lustrum to lustrum in an irregular epidemiological curve. Yet a fatality rate of 2.8% in the combined series of 74 cases, of which more than half had positive blood cultures, supports McAdam's conclusion that "recovery can be anticipated in every patient with acute haematogenous osteomyelitis treated with penicillin, provided that the infecting organism is penicillin-sensitive, and the patient is not *in extremis* when first seen."

THE LEAGUE OF NATIONS IN THE WAR

The report on the work of the League during the war¹ by the acting Secretary-General (Mr. Seán Lester) is to be submitted to the League of Nations Assembly which will be convoked in 1946, presumably for the last time. It is a printed document of 167 pages. The first chapters describe the non-political activities which were carried on in Geneva, in America, and in London during the war. Such activities covered various fields: economic, financial, communications and transit, health (14 pages), control of the drug traffic (32 pages), social questions, legal questions, etc. Other chapters deal with internal matters, such as budget and staff. The report is likely to be the last comprehensive statement on activities submitted by the acting Secretary-General before the winding-up of the League. The introduction gives the reasons why activities have been maintained, noting especially their usefulness with regard to post-war reconstruction. The problems connected with a possible transfer to the United Nations are also mentioned. They will be fully reported upon after the reception of proposals from the United Nations and the contemplated preliminary discussions with the Supervisory Commission of the League. The introduction also tries to assess the value of the first experiment in world organization. While non-political activities have survived the war, and may to a great extent be taken over by the new organization, the political provisions of the Covenant were left in abeyance and have now been suspended. One of the main lessons of the past is that the success of the fresh experiment will depend less on machinery than on a new spirit in peoples and their leaders. "The powers of destruction which would be let loose in a new conflict do not permit the envisaging of a possible failure."

STATISTICS AND THE M.O.H.

Medical officers of health, to judge from their annual reports, differ widely in the use they make of statistics. Some of them dismiss the vital and morbidity statistics of their area with a mention; others give long tables of mortality rates and notifications of cases and compare the year under review in all these respects with many previous years. Carlyle put into the mouth of an anonymous statesman the remark—which has been quoted most unscrupulously in every sort of argument ever since—that figures can be made to mean anything. An outsider attending, let us say, the meetings of the Royal Statistical Society, more particularly its recently revived Research Section, would not subscribe to that easy judgment, but he would agree that statistics rarely carry the significance which a superficial reading of them suggests.

It is perhaps because there are several ways of looking at statistics that we have two successive presidents of the Society of Medical Officers of Health—the president for the current year, Dr. J. Johnstone Jarvis, and his immediate predecessor, Prof. R. M. F. Picken—in their respective presidential addresses speaking of the statistical method in contradictory terms. Prof. Picken reminded us that earlier medical officers of health made full, if not always very skilled, use of statistical inquiry, and thereby did much to awaken the minds of the lay public and of other members of the profession to public health problems. It might be, he said, that nowadays expert statisticians had raised so many statistical bogies that the medical officer of health was being frightened off this field. He also referred to the possibility of a new system of collecting morbidity statistics, showing, for example, in an area, what diseases and dis-

⁴ *Proc. roy. Soc. Med.*, 1945, 38, 569.

¹ George Allen and Unwin, Ltd., 40, Museum Street, W.C.1. Price 7s.

abilities affected different age, sex, occupational, and social groups, and he suggested "there was scope for specializing, as did our fathers in public health with much less material, in the interpretation of statistical information. On the other hand, Dr. Johnston Jones confessed himself disturbed by the suggestion that in the new order one of the main preoccupations of the medical officer of health will be demography. He had always contended that to obtain the maximum advantage from a statistical evaluation of medical material the services of an expert statistician were required, and that very few medical officers could claim to be experts in this field. He agreed that the medical officer should compile cards in statistics for his area, but statistics "can be time-consuming and unless he is prepared to let other work go by default and to sacrifice some of his leisure the average medical officer of health simply has not the time to devote to them."

Between these divergent views it is difficult for those who are neither in public health nor in statistics to express an opinion. No one would suggest that the medical officer of health should become a mechanical tabulator but surely his main preoccupation is the study of man in the mass and not man as an individual, and to prosecute this study efficiently he must do it with the instrument of statistics. Knowledge so gained should enable a medical officer to make a fully delineated "map" of his area which would, for example, indicate the need for special precautions at certain points and for particular concentrations of effort and enable the machinery of public health to be used more effectively, more economically, and with less likelihood of error. To quote a wiser remark from Carlile: "The odious man looks at statistics, not to get knowledge but to save himself from having ignorance foisted upon him." It is not merely technical knowledge and mathematical skill which are required in handling statistics: it is a quality which Prof. Major Greenwood, in a recent speech at the Royal Statistical Society, described as something akin to what in the medical profession is called clinical instinct: perhaps it is a flair, or, less mysteriously, just the absence of a fear of figures, combined, in the case of medical statistics, with medical knowledge.

THE TAVISTOCK CLINIC

The Tavistock Clinic (the Institute of Medical Psychology) was founded by Dr. Crichton-Miller and a small group of colleagues in 1920, largely as a result of experiences of the 1914-18 war. By 1939 the Clinic was treating psychologically both adults and children from all parts of the British Isles. It was also undertaking postgraduate medical education in the diagnosis and treatment of neurosis, as well as research projects aided by grants from the Rockefeller Foundation, the Halley Stewart Trust, and other bodies. On Dec. 11, after a wartime migration to Westfield College, Hampstead, and the bomb destruction of its old premises in Bloomsbury, the Clinic reopened at No. 2, Beaumont Street, Marblebone, a large house which was formerly a nursing home. Lord Alness the chairman, told those assembled for the house-warming, which coincided with the twenty-fifth birthday of the Clinic, that before the war it had provided lecture courses for upwards of 2,000 medical men and women and a thorough two years' training in this field for about 100. In 1939 a medical staff of 90, largely unpaid, provided 26,000 hours of treatment. Later about 40 of the staff were called up, but the work had continued. The problems to which they had to address themselves now included post-war breakdown, child delinquency, training for doctors in these subjects, and assistance to industry in the field of psychological medicine.

The Tavistock Clinic confines itself to the treatment of cases of neurosis. It tries not to overlap the work of other institutions dealing with more serious breakdown. It is especially concerned with cases of irrational anxiety, hysterical conditions, obsessions and conduct disorders. Every patient obtains on the average 26 hours of a doctor's time. A careful follow-up of pre-war patients has shown that 50% of adults and 70% of children have maintained their cure. The number of people needing treatment now is not fewer than it was 25 years ago, and there is greater awareness of the need and readiness to seek it.

Dr. J. R. Rees, medical director and one of the original eight, who has worked there during the whole of the 25 years, pointed out that over 30% of all the medical discharges from the Army, to which he was consulting psychiatrist, had been on psychiatric grounds, and that figure was paralleled by the discharge rates in the other two Services, and rather exceeded by the figures for some of our Allies. The great majority of these were not catastrophic breakdowns but cases of neurotic disturbance or difficulty. With so many potential patients the Clinic would have to try new methods. Some experiments in group rather than individual treatment had already been started. Another important task was the prevention of breakdown.

General Sir Ronald Adam, Adjutant General since 1941, spoke on selection methods in the Army. Selection procedure—the finding of the man for the job—had done much for morale. The men who, after training, might be unsuitable for front-line work had a psychological interview, and on the results of that interview were placed in other jobs. Men who had qualities of leadership were earmarked at the outset. In problems of morale, particularly in the Far East, psychiatrists were constantly used by commanders at all levels. Another task in which psychiatrists and psychologists had done great work was in civil resettlement units, which had proved very successful. He thought that post-war industry could learn something from the methods pursued in the Army. The Civil Service both at home and in India, were using adaptation of Army methods for personnel selection, and there were other aspects of Army experience, such as the discussion group idea, which should have their counterpart in industry.

As to the future of the Tavistock Clinic, Lord Alness indicated that this must be measured in terms of finance. To function properly the Clinic requires an income of at least £10,000 a year. Only £3,000 of this can be expected to come from patients.

THE HALF-YEARLY INDEXES

The half-yearly indexes to Vol. I of the *Journal* and the *Supplement* for 1945 have been printed. They will, however, not be issued with all copies of the *Journal* but only to those readers who ask for them. Any member or subscriber who wishes to have one or both of the indexes can obtain what he wants, post free, by sending a postcard notifying his desire to the Accountant, B.M.A. House, Tavistock Square, London, W.C.1. Those wishing to receive the indexes regularly as published should intimate this.

Kodak Ltd. have presented to the Royal Society of Medicine the Kodak Medical Film Library. The library service for these films is now operated by the Society, and all correspondence should be addressed to the Film Librarian, Royal Society of Medicine, 1, Wimpole Street, London W.1. This library, which was first made available to the medical profession by Kodak Ltd. in the year 1930, has served a useful purpose in establishing the value of the motion picture in medicine.

EFFECT ON TROOPS OF THE "V" WEAPON BOMBARDMENT OF ANTWERP

BY

A. G. FREEMAN, M.R.C.S., L.R.C.P.
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As a medical officer in charge of a medical inspection room in Antwerp since Sept., 1944, I have had an opportunity of studying the effects of flying bombs and rockets on military personnel stationed in my area. My report must necessarily be incomplete, as an efficient follow-up has been wellnigh impossible, owing to the large turnover of troops and to the speedy evacuation of those requiring hospital treatment. I am therefore confining myself to the presenting symptoms of "exhaustion" and to a few general observations.

Details of the Report

A statement issued by the H.Q. in this area announced that between Oct. 7, 1944, and March 30, 1945 (175 days) the total fall of shot reported was 5,960 (4,248 "V 1" and 1,712 "V 2"). Of these, 3,709 (2,248 "V 1" and 1,261 "V 2") fell on Greater Antwerp and arrondissement—an area of 391 sq. miles (1,012.69 sq. km.)—and 1,214 on Greater Antwerp itself—an area of 65 sq. miles (168.35 sq. km.). All troops attending this M.I. room were stationed in the Greater Antwerp area, where an average of 18.67 bombs fell into the square mile (2.59 sq. km.).

My report covers a period of four months from Nov. 19, 1944, to March 10, 1945, when the attack on Antwerp was at its height. During this time 1,780 new patients reported to the M.I. room. This represents an average daily sick rate of 6.4 per 1,000 men, and of these, 63 (i.e., 3.5% of total sick—a daily rate of only 0.22 per 1,000 men) were diagnosed as cases of "exhaustion." During this period this M.I. room was responsible for some 5,000 line-of-communication troops, and on the average these units remained here for only two or three months before being replaced by fresh troops. Ten units, however totalling just over 1,000 men, were in my area for the whole period of four months, and they produced 60.3% (38 out of 63) of the cases of "exhaustion," while the remaining 25 cases came from a total strength of over 4,000.

Classification of Cases

These cases could be classified into two main types, depending on their presenting symptoms.

Type 1 consisted of those who showed all the classical signs and symptoms of fear, ranging from mild cases to extremes of panic. The patient, on first reporting sick, would admit at once to being afraid. He may have taken several days or even weeks to make up his mind to report sick—until the matter was settled, once and for all, by some particular incident or experience. Once decided, however, he made no attempt to conceal or minimize his feelings; on the contrary, the trouble was often obvious from his speech and general behaviour before he had completed his "history." He expressed his fears in a variety of ways, but he never had any doubt as to their cause.

11 degrees of severity were encountered. The patient complained merely of not feeling quite himself or of feeling run down and continually tired, or even tendered a direct request for sleep on the ground floor. He sometimes complained of sweating, cold shivers, trembling, twitches, loss of appetite, and palpitations, and said that he had lost all interest in his work and ability to perform it efficiently. He no longer enjoyed his previous pursuits of leisure hours, such as reading, writing home, or visiting the local cinemas and cafés, and instead became moody and irritable, and preferred his own company. He found the nights worse than the days, and remained awake, restless and on edge, waiting for the least sound of distant gunfire or the approaching bomb. If sleep, once achieved, was disturbed in the early hours, he lay awake for the rest of the night. On hearing a bomb approaching he either found himself

unable to move, cowering under the bedclothes, or rushed wildly about the room, panting for breath or shouting till he "took cover" in a corner or lay exhausted on the floor. He often remained in such a state long after the danger had passed. It was noted that if an "incident" occurred while being examined he became pale, trembled, sweated, and exhibited tachycardia.

Type 2 consisted of those who complained of some specific symptom or symptom-complex such as headache, dyspepsia, insomnia, or loss of weight, without any obvious manifestation of fear. Some information as to the underlying cause of the complaint could normally be elucidated from their "history," or, more easily, from a friend, but it was usually not possible to pronounce a definite diagnosis till physical and, in some cases, special examination had excluded the possibility of any organic basis. In contrast to *Type 1*, fear was never the predominant manifestation, and, moreover, the patient would not readily admit that he was afraid.

Case Reports

Case 1.—Driver A. Stated age, 45; true age, 49. Reported sick in Feb., 1945, complaining of severe frontal and occipital headaches, tiredness, pain in the back, and loss of appetite. He said that in the last four days he had taken 100 aspirin tablets to relieve his headache (new bottle of aspirins found on him), and that he was not worried unduly by the flying bombs. On examination it was found that he had scabies; nothing else abnormal. Was seen under escort as charged with absence without leave. Information gathered from an N.C.O. in his company was that he was extremely nervous and rushed about when he heard a flying-bomb approaching. Known throughout his unit as "Bombhappy."

Case 2.—Lieut. B., aged 29. Served with the A.E.F. in 1940. Evacuated from France in transport ship which was dive-bombed and sunk with heavy loss of life. Rescued from the sea after swimming about for some time. Later served in England during the air raids. After three months' stay in Antwerp he was visited in his quarters, where he complained of bouts of diarrhoea, weakness, loss of appetite, tiredness, and generally feeling "out of sorts." Admitted that he slept very little at night owing to a state of tension. On examination his temperature was subnormal and pulse rapid; nothing else abnormal. Had never mentioned his symptoms to his fellow officers, though they had noticed him becoming very quiet and increasingly nervous. Admitted to hospital, where he was treated with prolonged narcosis. Now back on duty in B.L.A.

Headache, the commonest of all the symptoms, was the primary one in 14 cases. The usual site was occipital, followed by temporal, frontal boring through to the occiput, and purely frontal (bilateral or unilateral), in that order. The headaches were constant throughout the day, and were unaccompanied by visual disturbances, nausea, or vomiting. They were only partly relieved—if at all—by aspirin or codeine tablets, and were aggravated by noise and worry. Some of these cases were sent as hospital out-patients, with the tentative diagnosis of sinusitis or eye-strain, producing negative results. In the main, however, the site and nature of the headaches and the variety of accompanying symptoms made the diagnosis generally clear.

The morning sick parades were seldom completed without one or two cases of dyspepsia, and its differential diagnosis at any time presents difficulties. Only those cases (8 in number) associated with obvious psychological abnormalities are thus included in this report. Epigastric discomfort, rather than actual pain, was the usual symptom; it had no definite relation to the quality or quantity of food taken, and occurred at varying times after meals. The patient was free from it only for brief periods throughout the day. Some complained of nausea but none of vomiting. Loss of appetite, loss of weight, insomnia, backache, palpitations, sweating, localized pain over the heart, and shortness of breath formed the majority of the remaining symptoms. There were also 2 cases of enuresis, 1 of masturbation, and 1 showing marked symptoms of depression and persecutory delusions.

Previous experience of heavy air raids or front-line service certainly seemed to give rise to earlier and severer symptoms (see *Case 2*). This was especially noticeable in the case of three men who, after being admitted to hospital from Normandy and Holland as psychiatric casualties, had been discharged and posted to units stationed in Antwerp. After a stay here of only a few days all three reported sick with a recurrence of their original symptoms, and required evacuation.

* The term "exhaustion" is used in this report to cover all cases showing anxiety or other psychiatric symptoms, whether they needed admission to hospital or not (vide "Memoranda of Medicine" 3, H.Q., 21 Army Group, May 8, 1944). It does not include casualties from bomb incidents.

Disposal and Treatment

The disposal and treatment of these cases were as follows: 19 out of 63 (30.1%) required evacuation to hospital, some others were admitted as out-patients, while treatment for all the milder cases was carried out in unit lines, and consisted of reassurance and if necessary rest and sedation. For this purpose barbitone soluble (10 gr. (0.65 g.) nightly or 5 to 10 gr. (0.32 to 0.65 g.) three times a day) was given. In most cases this was sufficient, but if no improvement was noticed after a few days' treatment a psychiatrist's opinion was sought. Some of the more chronic cases of Type 2 were recommended phenobarbitone 1, 2 gr. (32 mg.) t.d.s. for periods of two to four weeks.

Reassurance was considered of prime importance in the immediate treatment; this consisted either, in persuading the man who admitted that he was afraid that his was by no means a unique case—indeed, common to a greater or lesser degree was feeling like him—or in persuading the man who complained of severe headaches or pain over the heart that he was not suffering from a brain tumour or an incurable heart disease. Where possible, arrangements were made with the unit for the patient to be transferred to its detachments outside the Antwerp area.

Observations

A few general remarks might here be made about the effects of the bombardment on the mass of the troops stationed in my area. Many units for months on end were working at high pressure in most vulnerable surroundings, as in petrol or port installations. Few units were fortunate enough to escape having some casualties, and most of us had our full quota of near misses. It was natural enough, therefore, that we all became heartily sick of these things, and many admitted to me, after it was all over, that they felt they could not have stood up to it much longer. The night-time was a much greater strain than the day, and I occupied on duty, and men were generally liable to smoke and drink more than usual.

I have yet to meet the man who was totally unaffected by these bombs—I doubt if he even exists. Many felt tired owing to repeated sleepless nights. To begin with we were able to sleep during the attack—unless one fell too close; but after a time we found ourselves constantly listening for the drone of the engines, following their flight down to earth—and the waiting for the next one.

The lack of this anticipation is one of the things to be said for the rockets, which arrived without preliminary warning, for even a door banging or the sound of a factory siren was liable, after a time, to worry us.

Summary

A series of 63 cases of "exhaustion" seen over a four-months period of the bombardment of Antwerp are reviewed. They are classified into two main types according to their presenting symptoms. No more specialized classification has been attempted.

Treatment consisted of reassurance, rest, and sedatives, in unit lines where possible. Of the cases 30.1% were severe enough to warrant admission to hospital.

The report ends with a few general remarks about the reaction of the mass of the troops to the attack.

REPORT ON MENTAL NURSING

Recommendations designed to give mental nursing a status equal to that of any branch of nursing are contained in a report issued by the Minister of Health and the Minister of Education. The report is that of the Subcommittee on Mental Nursing and the Nursing of the Mentally Defective appointed by the Athlone Interdepartmental Committee on Nursing Services. Mr. Bevan recently described the report in Parliament as a most valuable survey, and said he proposed to obtain without delay the views of the various interested bodies regarding the recommendations, many of which would require legislation.

General Recommendations

The subcommittee considers that the mental nursing service should be held to be comparable in status to any branch of the nursing

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profession. "That it is not so is to a large extent due to the public attitude towards mental illness, which involves ignorance of the high qualities of mind and body demanded from the mental nursing service. There are some 29,000 nurses employed in this service—16,400 women and 12,600 men—and we think that, if recruitment is to be stimulated and the quality of the recruits improved, all possible steps must be taken to give the mental nurse a status comparable to that occupied by the nurse engaged in general sick nursing." Among the main recommendations are:

State Registration—Qualified mental nurses should be registered by a statutory body; registration on a supplementary part of the State Register is not satisfactory. All nurses on the Register should be entitled to the designation "State-Registered Nurse." There should be one recognized qualification for the mental nurse in lieu of alternative examinations of the Royal Medical and Dental Association or through the General Nursing Council. The right to practice should rest with the General Nursing Council, subject to certain conditions, which include protection for those not holding N.M.P.A. certificates. If these conditions cannot be agreed, the subcommittee recommends legislation to establish a separate statutory body similar to the Central Midwives Board.

Recruitment and Training—Engagement of female nurses should be the responsibility of the matron, and recruits should have a medical and x-ray examination before entering a hospital. A preliminary training of at least one month is recommended before entrance to hospital. Higher posts in mental hospitals should be held only by nurses with the double qualification of mental and general nursing.

Conditions of Service, etc.—Scale of salary for the mental nurse should be higher than that for the general nursing nurse. On hours of work the introduction of a 95-hour fortnight generally is an essential step. Legislation is needed to ensure that our best qualified institutions for the mentally defective should be superintended on the same basis as nurses in mental hospitals. Under the Superannuation Act female staff should be permitted to retire at 50. There should be interchangeability of pension rights from general hospital nursing to mental hospital nursing, and vice versa. Student nurses, particularly girls, should normally live in the hospital. Periods of leave out of the hospital authorities are satisfied if the nurse is in the area of the hospital. All trained mental nurses should be permitted to live out. Ward maids should be employed where possible. The ratio of nurses on day duty to patients (1 nurse to 10 patients) should be substantially reduced.

Status of Mental Nursing

The subcommittee has no doubt that there still exists an inferior view of the nursing of the mentally ill, which is, sometimes, considered an occupation inferior to the nursing of the bodily sick. This impression contributes as much as any other factor to the difficulty when mental hospitals experience in obtaining enough female staff. It is a matter of national importance that the modern outlook on mental illness should be understood and that the value and interest of mental nursing should be recognized. While no other form of nursing makes greater demands upon the nurse, there is another side: asylums for detention and protection of the inmates have given place to mental hospitals, fully equipped with a view to the recovery of the patients.

Great advances have been made in recent years, and modern methods of physical treatment require specialized training. The medical staff now need highly skilled mental nurses to assist in carrying out the detailed technique of such methods of treatment as insulin therapy, convulsive therapy, insulin treatment, and prolonged narcosis. In all these the preparation of the patient and the equipment, the care of the patient during treatment, and the subsequent nursing demand much skill and knowledge.

On thorough investigation most cases of mental illness are found to be the result of a combination of physical and psychological factors. It follows, therefore, that the mental nurse has also to receive an adequate training in the nursing treatment of bodily ailments and diseases, both surgical and mental. There is every justification for the recognition of mental nursing as a highly skilled branch of the profession and entitled to a worthy status. The traditional stigma attached to mental illness has not yet been eradicated from the public mind, but there are signs that a more enlightened view is developing, and much could be done by judicious publicity on behalf of the mental nursing service to dispel the public feeling that contact with the mentally ill is something to be avoided.

Discipline, Food, and Recreation

The discipline of the hospital should not extend to the nurse when off duty. She should then, so far as is possible, have the personal liberty of a private individual. A small standing committee or nurses' council should be set up in each institution to scrutinize the rules, consider grievances, and suggest reforms. The cafeteria system of feeding should be introduced where possible. There should be provision for obtaining light meals and for the entertainment of

guests of both sexes in every nurses' home. Facilities for outdoor games should be available for nursing staff, and social activities and the formation of social clubs should be fostered. "Any attempt to segregate the staff is in these days an anomaly, and, if persisted in, can only lead to discontent and friction." Hospitals in rural areas might be able to organize transport to the nearest town for the use of nurses during off-duty time.

THE TEACHING OF TUBERCULOSIS

The following Memorandum on the Teaching of Tuberculosis to Medical Students has been issued by the Tuberculosis Educational Institute, Tavistock House North, Tavistock Square, London, W.C., over the signatures of Dr. Frederick Heaf (chairman) and Dr. Harley Williams (secretary):

No one will deny that the teaching of tuberculosis to medical students is far from satisfactory. It is still only too common an experience to find that a newly qualified practitioner's only acquaintance with tuberculosis is based on physical signs of cases in advanced stages of the disease and a very theoretical knowledge of sanatorium routine. The vast field of the preventive and socio-medical side of the subject and even the importance of early diagnosis are largely unknown to him, so that he enters practice quite unable to appreciate the significance of one of the commonest and most serious diseases.

In the Goodenough Report on Medical Schools it is stated that the present facilities for teaching tuberculosis vary considerably in teaching centres, and it gives two examples which indicate the differences which exist in the nature of the instruction, showing how it depends mainly on the presence or absence of a tuberculosis department or dispensary attached to the hospital of the medical school. The situation as it was in 1939 is summarized at the end of the report. At that date, of the 25 medical schools in England, Scotland, and Wales, 12 provided teaching in tuberculosis, but not in the main hospitals. Of these 12, nine made use of the treatment beds of the local authority. Four teaching hospitals made use of the facilities at special chest hospitals. Only two hospital medical schools had beds of their own reserved specially for tuberculosis cases. It would appear that in over 50% of the medical schools it was only by good fortune and not by any arrangement on the part of the authorities that the student was able to acquire knowledge on tuberculosis. In such schemes where it was possible for the student to take a course in tuberculosis it was usually quite optional and dependent on the personal inclination of the student himself. It not infrequently happened, therefore, that the student passed through his medical training seeing only a few cases of pulmonary tuberculosis, and if he did it would be those with advanced disease, so that the mental picture he formed of the disease would be one of crepitations, rales, and pulmonary cavities, and a hazy idea that all such patients require sanatorium routine with the addition of artificial pneumothorax treatment if it could be given. It is not surprising, therefore, that he does not recognize the disease until it has reached this advanced stage.

A more recent survey made by the Tuberculosis Educational Institute has revealed some improvement in the situation, particularly in the Northern medical schools. In nine teaching schools compulsory courses in tuberculosis are arranged and short periods of residence at the local authority's sanatorium are included in the curriculum. A number of visits are paid to the local dispensary so that the student begins to appreciate the socio-medical side of the problem and the value of early diagnosis. These arrangements all show how necessary it is for educational purposes to link up the tuberculosis

ices of the local authority with the medical schools. In this er local authorities might use the old advertisement slogan, : u want the goods—we have them."

ie committee of the Tuberculosis Educational Institute has given siderable attention to the undergraduate and postgraduate facilities for studying tuberculosis in all parts of the country, and it feels hat the time has come to emphasize the need for putting tuberculosis tuition in a more prominent position in the medical training of the student and to arrange, uniformly in all schools, easy access to the local authorities' tuberculosis services so that the vast amount of material being dealt with at the many dispensaries and sanatoria in the country may be used for the teaching of tuberculosis in all its aspects.

The committee strongly supports the recommendation in the Goodenough report that there should be a tuberculosis dispensary at or adjoining every parent teaching hospital and that in-patient facilities for cases of both pulmonary and non-pulmonary tuberculosis should exist in one or more of the hospitals constituting the teaching centre, provided there is a chest physician or orthopaedic surgeon in charge of the beds, or a chest hospital within easy reach. It does not, however, consider that such facilities should exclude from the curriculum a series of visits to sanatoria, for it is almost impossible to convey the meaning of sanatorium treatment to a class of students around the bedside in the wards of a general hospital.

The committee wishes to amplify the scheme of the Goodenough report by suggesting that:

1. The physician in charge of the dispensary and/or the medical superintendent of the sanatorium might with advantage be appointed a lecturer on the staff of the medical school which may be situated within the region or area which the dispensary or sanatorium serves.

2. All medical students must be attached to approved tuberculosis dispensaries as clinical clerks for short periods, during which time they should also become acquainted with the technique and organization of mass radiography.

3. Facilities should be made available for short periods of residence at approved sanatoria for medical students who wish to make a further study of the subject.

It will probably be argued that the medical curriculum is already heavy loaded and it would be difficult to find time for these suggestions. The committee is well aware of this difficulty, but would suggest that those diseases which have the highest incidence should receive priority in a teaching syllabus, even if it meant sacrificing time on the rare conditions which always have a fascination and often assume an exaggerated importance in medical education for a qualifying degree.

MEDICAL NEW YEAR HONOURS

The names of the following members of the medical profession were included in a New Year Honours List published in the *London Gazette* on Jan. 1:

G.B.E. (Military Division)

Lieut.-Gen. Sir ALEXANDER HOOD, K.C.B., C.B.E., M.D., F.R.C.P., late R.A.M.C. Honorary Physician to the King. Director-General, Army Medical Services.

K.C.I.E.

Major-Gen. HEERAJEE JEHANGIR MANOCKJEE CURSETJEE, C.S.I., D.S.O., B.Ch., I.M.S. (I.A.M.C.). Honorary Surgeon to the King. Lately Deputy Director of Medical Services, North-Western Army.
Major-Gen. (local Lieut.-Gen.) JAMES BENNETT HANCE, C.I.E., O.B.E., M.D., Director-General, Indian Medical Service.

K.C.V.O.

Brig. Sir STEWART DUKE-ELDER, M.D., D.Sc., F.R.C.S., Surgeon-Oculist to the King. Consultant Ophthalmologist to the Army.

K.B.E. (Military Division)

Major-Gen. (Temp.) FRED THOMPSON BOWERBANK, O.B.E., M.C., M.D., F.R.C.P.Ed., F.R.A.C.P., N.Z.M.C. Honorary Physician to the King. Director-General, Medical Services of N.Z. Army and Air Forces.

Acting Air Vice-Marshal STANFORD CADE, C.B., F.R.C.S., R.A.F.V.R. Consultant in Surgery, R.A.F.

Temp. Surg. Rear-Admiral GORDON GORDON-TAYLOR, C.B., O.B.E., M.S., F.R.C.S., Consultant Surgeon, R.N.

Major-Gen. (Temp.) WILLIAM HEANAGE OGILVIE, M.D., M.Ch., F.R.C.S., late R.A.M.C. Consultant Surgeon, Expeditionary Force.

Major-Gen. C. MAX PAGE, C.B., D.S.O., M.S., F.R.C.S., late R.A.M.C. Consultant Surgeon, R.A.M.C.

Temp. Surg. Rear-Admiral RICHARD ALUN ROWLANDS, C.B.E., M.D., F.R.C.P., Consultant Physician, R.N.

Major-Gen. (Temp.) ARNOLD WALMSLEY STOTT, F.R.C.P., late R.A.M.C. Physician to H.M. Household.

Acting Air Vice-Marshal CHARLES PUTNAM SYMONDS, C.B., M.D., F.R.C.P., R.A.F.V.R. Consultant in Neurology, R.A.F.

Knighthood

Major-Gen. RALPH BIGNELL AINSWORTH, C.B., D.S.O., O.B.E., M.R.C.S., Honorary Physician to the King. Director of Medical Services, Joint War Organization of the British Red Cross Society and Order of St. John.

HAROLD ARTHUR THOMAS FAIRBANK, D.S.O., O.B.E., M.S., F.R.C.S. Consultant Adviser in Orthopaedic Surgery, Ministry of Health Emergency Medical Service.

PAUL GORDON FILDES, O.B.E., M.B., F.R.S. Director of Department of Chemical Bacteriology, Medical Research Council.

ARCHIBALD MONTAGUE HENRY GRAY, C.B.E., M.D., F.R.C.P., F.R.C.S. Dermatologist, University College Hospital. Consultant Dermatologist, R.A.F. For special war services.

LIV HAN HOE, C.B.E., M.B., Ch.B.Ed. For public services in the Straits Settlements.

Lieut.-Col. NILKANTH SHRIRAM JATAR, C.I.E., D.S.O., M.R.C.S., I.M.S.(ret.). Inspector-General of Prisons, Central Provinces and Berar.

Lieut-Col SAHIB SINGH SOKHEY, M.D., I.M.S. Director, Haffkine Institute, Bombay
HENRY WADE, C.M.G., D.S.O., M.D., F.R.C.S. Ed Senior Visiting Surgeon, Bangour Emergency Hospital, West Lothian

C B (Military Division)

Surg Rear-Admiral ALBERT EDWARD MALONE, M.B., B.Ch., D.P.H., R.N.
Major-Gen DAVID CARMICHAEL MONRO C.B.E. M.B., F.R.C.S. Ed, late R.A.M.C. Honorary Surgeon to the King Professor of Military Surgery at Royal Army Medical College
Air Vice-Marshal ALAN FILMER ROOK, O.B.E., F.R.C.P. Honorary Physician to the King Consultant in Medicine, R.A.F.
Major Gen TREFRY OWEN THOMPSON, C.B.E., M.D., late R.A.M.C. Honorary Physician to the King

C B (Civil Division)

Col LAWRENCE WHITAKER HARRISON, D.S.O., F.R.C.P. Ed Adviser in Venereal Diseases, Ministry of Health
SOLLY ZUCKERMAN, D.Sc., F.R.S., M.R.C.S. Scientific Director, Royal Air Force Bombing Analysis Unit In recognition of distinguished service

C M G

ROBERT BARR MACGREGOR, M.B., M.R.C.P. Ed, Colonial Medical Service Director of Medical and Sanitary Services, Malaya

C I E

Col SOHAN LAL BHATIA, M.C. M.D., F.R.C.P., I.M.S. Inspector-General of Civil Hospitals, Assam, and lately Deputy Director-General, Indian Medical Service

C V O

IVAN WHITESIDE MAGILL, D.Sc., M.B., D.A. Senior Anaesthetist, Westminster Hospital

C B E (Military Division)

Brig (Local) JAMES DAVIDSON STUART CAMERON, M.D., F.R.C.P. Ed, R.A.M.C.
Air Vice-Marshal FRANK CUNINGHAM COWTIN, C.B., M.R.C.S., R.A.F. Honorary Surgeon to the King
Brig (Acting) JOHN MANDEVILLE MACFIE, O.B.E., M.C. M.B., Ch.B., R.A.M.C.
Surg Rear-Admiral CHARLES FOX OCTAVIUS SANKEY, O.B.E., M.B., B.S., R.N.
Surg Rear-Admiral FRANCIS JOHN DESPARD TWIGG, M.B., B.Ch., D.O.M.S., R.N.
Temp Surg Rear-Admiral ROBERT JOSEPH WILLAN, M.V.O., O.B.E., M.S., F.R.C.S., R.N. Consultant Surgeon to R.N. in Scotland Emeritus Professor of Surgery in the University of Durham

C B E (Civil Division)

GEORGE VANCE ALLEN, M.D., Colonial Medical Service Principal, College of Medicine, Singapore For services during internment
Lieut-Col RUSTAMJI BAMANJI BILLIMORIA, M.D. Honorary Medical Specialist, Indian Military Hospital, Bombay
JOHN CRUICKSHANK, M.D., Professor of Bacteriology in the University of Aberdeen For services to civil defence
DESMOND WILLIAM GEORGE FARIS, M.B. B.S., Colonial Medical Service Health Officer, Malaya For services during internment
JOHN BOWMAN HUNTER, M.C. M.Ch., F.R.C.S. Section Hospital Officer, London Emergency Medical Service
DAVID HYND, O.B.E., M.B., Ch.B., Raleigh Fitkin Mission Hospital, Bremersdorp Territorial Director of the Swaziland Branch of the British Red Cross
CHARLES FREDERIC WILLIAM ILLINGWORTH, M.D., Ch.M., F.R.C.S. Ed, F.R.F.P.S. Regius Professor of Surgery in the University of Glasgow Honorary Director of Surgical Services for the E.M.S. in Western Scotland
THOMAS POMFRET KILNER, F.R.C.S. Nuffield Professor of Plastic Surgery in the University of Oxford For services to the Ministry of Pensions
Major-Gen ROBERT WALTER DICKSON, LESLIE, C.B., O.B.E., L.R.C.P. and S.I. Regional Hospital Officer, Region 3, Emergency Medical Service
THOMAS PORTER McMURRAY, M.Ch. Belf. F.R.C.S. Ed Professor of Orthopaedic Surgery in the University of Liverpool Regional Consultant in Orthopaedic Surgery E.M.S.
JOSEPH FRANCIS ENGLEDEU PRIDEAUX, O.B.E., M.R.C.S. Deputy Director General of Medical Services Ministry of Pensions
ARTHUR CHRISTOPHER TIBBITS, M.R.C.S. D.P.H. County Medical Officer of Health, Nottinghamshire County Council For services to civil defence

O B E (Military Division)

Lieut-Col (Temp) SHIV PARSHAD BHATIA, M.B., B.S., I.A.M.C.
Group Capt FREDERICK RUSSELL CHISHOLM, M.D., F.R.C.P., R.N.Z.A.F.
Acting Wing Cmdr EDWIN DONOVAN, M.B., Ch.B., R.A.F.O.

Surg Cmdr DAVID DUNCAN, M.D., D.P.H., R.N.
Surg Lieut-Cmdr FRANK POLLARD ELLIS, M.B., Ch.B., R.N.
Col PAUL CHARLES GABOURY, M.D., R.C.A.M.C.
Squad Ldr AGNES CHRISTIAN GILLAN, M.B., Ch.B. Employed with Royal Air Force Medical Branch
Acting Wing Cmdr GEORGE BYNG GRAYLING, M.R.C.S., L.R.C.P., R.A.F.V.R.
Acting Wing Cmdr GEORGE ROY GUNN, M.B., Ch.B., R.A.F.V.R. Col (Acting) ERNEST HAMILTON HALL, M.B., B.Ch., R.A.M.C.
Lieut-Col (Temp) GEORGE RONALD HARGREAVES, M.R.C.S. Specialist in Psychological Medicine, R.A.M.C.
Lieut-Col (Temp) WILLIAM HERBERT HARGREAVES, M.R.C.P., R.A.M.C.
Group Capt JAMES MACCONNELL KILPATRICK, M.B., B.Ch., D.P.H., R.A.F.
Acting Squadron Leader HENRY TRESTON MACAULAY, R.A.F.V.R.
Col JOHN COMMING MACKENZIE, R.C.A.M.C.
Surg Cmdr JOHN WENDELL MACLEOD, R.C.N.V.R.
Lieut-Col HARRY EDWARD LE MASURIER, R.C.A.M.C.
Lieut Col JULES MERCIER, R.C.A.M.C.
Temp Col HENRY ALFORD MOFFATT, D.S.O., F.R.C.S., S.A.M.C.
Surg Cmdr HARRY STAFFORD MORTON, R.C.N.V.R. (ret.)
Lieut-Col WILFRED MERLE MUSGROVE, R.C.A.M.C.
Acting Wing Cmdr KENNETH BODELL REDMOND, M.B., B.S., R.A.F.O.
Temp Acting Surg Lieut Cmdr ATTRACTA GENEVIEVE REWCASTLE, M.B., Ch.B., R.N.V.R.
Brig (Local) BERNARD EDWARD SCHLESINGER, M.D., F.R.C.P., A.M.S.
Lieut Col (Temp) PAT ADAM STEWART, M.B., Ch.B., R.A.M.C.
Col (Temp) ALFRED SWINDALE, T.D., M.D., R.A.M.C.
Col (Temp) ANDREW COPELAND TAYLOR, F.R.C.S. Ed, I.A.M.C. Professor of Clinical Surgery, Prince of Wales Medical College, Patna
Col PIERRE TREMBLAY, M.D., R.C.A.M.C.
Col (Temp) DONALD GEORGE WALLACE, M.B., Ch.B., N.Z.M.C.
Lieut Col (Temp) ALBERTINE LOUISE WINNER, M.D., M.R.C.P., R.A.M.C.

O B E (Civil Division)

ERNEST JAMES BLACKBAY, M.R.C.S., Colonial Medical Service Medical Officer, Zanzibar
Lieut Col CUTHBERT ALFRED BOZMAN, M.B., Ch.B., D.P.H., I.M.S. Officiating Public Health Commissioner with the Government of India
Col JOSEPH PATRICK FEHILY, M.B., F.A.C.S., D.P.H., Colonial Medical Service For services in connexion with the reoccupation of Hong Kong
Mrs FREDA EVELYN GIBSON, M.B., B.S., Ceduna, South Australia For services as a flying doctor on Eyre Peninsula
BRIAN MAURICE JOHNS, M.B., Ch.B., N.Z., F.R.C.S. Ed, D.T.M. and H. Colonial Medical Service Surgeon, Malaya For services during internment
NICOL CAMPBELL MACLEOD, M.B., Ch.B., D.P.H., Colonial Medical Service Deputy Director of Medical Services, Hong Kong For services during internment
RICHARD ALAN PALLISTER, M.D., M.R.C.P., Colonial Medical Service Medical Officer, Malaya For services during internment
HAROLD ERNEST RAWLENCE, M.D., F.R.C.S. Ed Residency Surgeon, Srinagar, Kashmir
Major JASWANT SINGH, M.B., Ch.B., D.P.H., I.M.S. Deputy Director, Malaria Institute of India
Mrs MARGARET SMALLWOOD, M.B., B.S., Colonial Medical Service Lady Medical Officer, Malaya For services during internment
DEAN ABBOTT SMITH, M.B., B.Chir., Colonial Medical Service Medical Officer, Hong Kong For services during internment
FREDERICK HILTON WALLACE, M.B., Ch.M. For public and municipal services in Geelong, Victoria
DONALD McDONALD WILSON, M.C., M.B., Ch.B. For services to the Casualty Clearing Hospital in the City of Wellington, New Zealand

M B E (Military Division)

Surg Lieut Cmdr HARRY LYON BACAL, M.D., R.C.N.V.R.
Capt ABDUL AZIZ BASHIRY, I.A.M.C.
Major EDWARD HORTON BENSLEY, M.D., R.C.A.M.C.
Major (Temp) IAN MCKINLAY BURNS, M.B., Ch.B., R.A.M.C.
Fl Lieut ROLAND UPCHER CARR, M.R.C.S., R.A.F.V.R.
Major HARRY HAMILTON CHACE, R.C.A.M.C.
Acting Wing Cmdr RAYMOND FRANK COURTIN, M.R.C.S., R.A.F.O.
Temp Major ALICE COX, M.D., W.A.A.S. (attached S.A.M.C.)
Fl Lieut DAVID CRICHTON, M.B., Ch.B., R.A.F.V.R.
Temp Surg Lieut JOSEPH IRWIN CUNNINGHAM, M.B., B.Ch., R.N.V.R.
Major (Temp Lieut Col) JOHN FINDLAY DAVIDSON, S.A.M.C., attached Union Defence Force Repatriation Unit
Capt (Temp) FRANCIS EDWIN DIAS, I.A.M.C.

Acting Surg. Lieut.-Cmdr. WILLIAM 'CHOWN' STRAUS FIELDS, R.C.N.V.R.
 Capt. ROBERT ERSKINE GLEN, M.B., Ch.B., R.A.M.C.
 Lieut.-Col. (Temp.) SYDNEY HAYDN HEARD, M.R.C.S., I.A.M.C.
 Major (Temp.) JOAN KATHERINE SOMERVILLE INCE, M.R.C.S., R.A.M.C.
 Surg. Lieut.-Cmdr. GAETAN JARRY, R.C.N.V.R.
 Major FREDERICK CYRIL JENNINGS, M.D., R.C.A.M.C.
 Major CHARLES JOSEPH MACDONALD, R.C.A.M.C.
 Major HUGH MACDONALD, R.C.A.M.C.
 Fl. Lieut. ROBERT WYATT McDOWELL, M.B., B.Ch., R.A.F.V.R.
 Acting Wing Cmdr. WILLIAM NEAL MACLAY, M.R.C.S., R.A.F.V.R.
 Acting Surg. Lieut.-Cmdr. PAUL FRANK D'MELLOW, R.I.N.V.R.
 Major BERNARD FRANCIS MILLER, M.D., R.C.A.M.C.
 Fl. Lieut. CLARENCE REGINALD SLUMING, M.B., Ch.B., D.R.C.O.G., R.A.F.V.R.
 Acting Wing. Cmdr. DAVID STEVENSON, M.D., R.A.F.V.R.
 Acting Squad. Ldr. TERENCE GEORGE WARD, L.R.C.P.&S.Ed., L.D.S., R.A.F.V.R.

M.B.E. (Civil Division)

Capt. NUSSERWANJI PIROZSHAH BILLIMORIA, M.B., B.S., Honorary Ophthalmic Surgeon, Indian Military General Hospital, Bombay.
 JOHN AUSTEN PERCIVAL CAMERON, M.B., Ch.B., F.R.C.S., Colonial Medical Service. Medical Officer, Malaya. For services during internment.
 NATHANIEL CRICLOW, M.B., Ch.B., Colonial Medical Service. Medical Officer, British Solomon Islands Protectorate.
 HUBERT CRAYDEN EDMUNDS, M.R.C.S., medical missionary, Hirapur, Santal Parganas District, Bihar.
 Mrs. JEANIE GARDNER FOUGERE, M.B., Ch.B. For services to women's war organizations, Dominion of New Zealand.
 PARESH CHANDRA GUHA, L.M.S., D.T.M. Civil Surgeon (retired), Assam.
 Capt. ABDUR RAHMAN PESH IMAN, I.M.S. (I.A.M.C.), lately Sub-divisional Health Officer, Feni, Bengal.
 NOEL JAMES LINNINGTON MARGETSON, M.D., F.R.C.S.Ed. Medical Officer, District No. 1, and Medical Officer of Health, Montserrat, Leeward Islands.
 ANANT KRISHNAJI NULKAR, L.M.S., Civil Medical Practitioner, Indian Military Hospital, Poona.
 DOUGLAS ALKINS SKAN, M.R.C.S., Colonial Medical Service. Pathologist, Nyasaland.
 HUGH SMITH, M.B., Ch.B. For services during internment in Malaya.
 Rai Bahadur RAM SWARUP SRIVASTAVA, M.B., Civil Surgeon (retired), Dehra Dun, United Provinces.
 RAM LAL TULI, M.B., B.S., D.P.H., D.T.M. Deputy Director of Public Health (Temporary), Central Provinces and Berar.
 Major CHARLES MARK ERNEST WARNER, M.R.C.S. Port Health Officer, Calcutta.
 WILLIAM DE VEEVER WISHART, M.B., C.M. Municipal Health Officer, British Guiana.

Hon. M.B.E. (Civil Division)

MUNIR KHALIL MISHALANY, M.D. Assistant Senior Medical Officer, Palestine.

Kaisar-i-Hind Gold Medal

JAMES WILLIAM BOTTOMS, M.B., B.S., medical missionary, Baptist Mission Hospital, Chandraghona, Chittagong Hill Tracts, Bengal.
 MADELINE ROSA SHEARBURN, M.B., B.S., doctor-in-charge, Zenana Mission Hospital, Tank, N.W.F.P.

In the New Year Honours List, published on Jan. 1, Prof. A. V. Hill, Sc.D., F.R.S., one of the secretaries of the Royal Society, was appointed a Member of the Order of the Companions of Honour. Major-Gen. A. B. Austin, late the Army Dental Corps, Honorary Dental Surgeon to the King, was appointed C.B.; and James Gray, Sc.D., LL.D., F.R.S., professor of zoology in the University of Cambridge, and Prof. H. D. Kay, D.Sc., F.R.S., director of the National Institute for Research in Dairying, University of Reading, both received the C.B.E.

The King, on the recommendation of the Secretary of State for Scotland, has approved the appointment of John Jardine, O.B.E., I.D., F.R.C.S.Ed., to be chairman of the General Board of Control for Scotland in succession to Sir John Jeffrey, K.C.B., who retired on Dec. 31. Dr. Jardine has been a commissioner in the Board since October, 1939, holding the post of principal assistant secretary in the Scottish Education Department. Sir John Jeffrey has had a long association with public health and poor-law administration in Scotland, becoming Secretary to the Department of Health for Scotland in 1929 and Permanent Under-Secretary of State for Scotland in 1933. On the reconstitution of the General Board of Control in 1939 he agreed to undertake for a period the office of chairman.

Reports of Societies

ABDOMINAL INCISIONS

At a meeting of the Section of Surgery of the Royal Society of Medicine on Jan. 2, with Mr. E. F. FINCH in the chair, a discussion on abdominal incisions was opened by Major-Gen. W. H. OGILVIE, who was warmly congratulated by the president, speaking on behalf of the Section, on the announcement made on the previous day that the King had conferred on him the honour of knighthood.

Major-Gen. Ogilvie said that the making of abdominal incisions was a subject which it was well to bring into open debate from time to time, although he knew too much about himself and his fellow-surgeons to expect that discussion would change their views to any great extent. Most surgeons regarded their own particular form of incision in the same way as they regarded their motor-car or fountain-pen—when they had one that suited them they stuck to it although there might be better ones on the market. Their discussion should be confined to methods of approach to organs which lay inside the peritoneal cavity and incisions through the abdominal wall in the ordinary sense. The purpose of an abdominal incision was to give access to the part to be attacked and room for the required job to be done. It should be reasonably extensible and should interfere as little as possible with the function of the abdominal wall and leave it as strong as it was before. While extensibility was demanded, they were not asking for an incision which would cover any wildly wrong diagnosis, but only one which would allow a reasonable latitude in scope. The first essential of an incision was that it should be rightly placed; the second, that it should be large enough to admit the surgeon's hands and the ordinary tools of his craft. Fagge uttered a true aphorism when he said, "Always make your incision twice as long as you think it ought to be, and then you will not have to enlarge it much."

Before opening the abdomen at all the surgeon must ask himself what he was proposing to do and what else he might possibly be forced to do. He must have some idea of what organ he proposed to attack or at least in which compartment of the abdomen he was going to perform. He could extend the standard incision to a length of 12 in. (30 cm.) or more without gross structural damage, but it was seldom right that he should do so. The difficulty arose most acutely in operations for abdominal emergencies. An incision correctly planned for acute appendicitis could be extended to cope with an appendix which was gangrenous, but could not be enlarged with impunity to deal with a duodenal perforation, an inflamed gall-bladder, a gangrenous pancreas, or a ruptured ectopic gestation. While the standard incisions could be—though they seldom should be—extended, there were inextensible incisions, such as those much above the umbilicus, cramped by the narrow epigastric angle. Another criterion of a good incision was that it should do the least possible harm to the abdominal wall itself, the structures under it, and the patient. In making an incision the possibility of adhesions to the deeper surface of the abdominal wall must be taken into account. Fixation of the already fixed did not matter, it was only fixation of the mobile which caused symptoms; thus adhesions to the colon or liver were relatively harmless, but those involving the small intestine might be harmful or even dangerous.

Foremost among the incisions to which unqualified support could be given were the lateral incisions, which were steadily increasing in popularity. They gave excellent access to any structure lying on the same side between the pylorus and the pubis. Within the last two years they had in his practice largely ousted the lower paramedian and median incisions for nearly all purposes. He was tending to abandon all incisions which involved the separation of planes and the retraction of layers. Concerning closure, repair was the function of the tissues, and stitches did no more than bring them into apposition and hold them there. There was no key layer in the abdominal cavity; all must be taken into account and all must heal equally well. In lateral incisions three layers of suture were required; in median and paramedian, one layer only was closed above the peritoneum, and here, therefore, the unsupported suture was not enough; it should be interrupted, or, if continuous, it should

by mattress sutures of unsorbable material. As for poor incisions, he mentioned with disapproval "trans-rectus" incisions, and in particular Battle's incision.

Adequate Access and Firm Scarring

Mr. DIGBY CHAMBERLAIN said that three things had to be borne in mind when making an abdominal incision: adequate access to the structure to be operated on, the leaving of a firm scar after healing; and (a minor consideration) a cosmetic result. Concerning incisional hernia and burst abdomen, he referred to a paper by E. S. J. King, of Melbourne, in the *British Journal of Surgery* (1935, 23, 35), in which he expressed the opinion that such hernias started by the cutting out of the peritoneal stitches or the escape of a tag of omentum between them. As for the size of the incision, it had been said that if one was in a strange country and required an abdominal operation one should ask which surgeon made the biggest incision and go to him. Inadequate incisions might mean that diseases in the abdomen which were unsuspected were missed. Every abdominal exploration should allow the surgeon to pass in review quickly the important organs inside the abdomen. The firmness of the scar depended largely on the suturing of the peritoneum. Adequate suturing of that layer would prevent the incidence of post-operative hernia or burst abdomen, and such suturing was as much dependent on the anaesthetist as on the surgeon. In making an abdominal incision nerves should be avoided, and muscles were better displaced than divided. As a standard incision he used the paramedian in operations for the stomach and duodenum. Paramedian incisions were perfectly adequate for colon work. For operations on the biliary tract he used a right paramedian incision almost exclusively. In closing the abdomen he used a continuous catgut stitch for the peritoneum and if it was thin he took a small piece of the under-surface of the rectus muscle with each stitch in order to reinforce it. He added that abdominal incisions on the whole were not a matter of great interest to surgeons, who only too often left it to their assistants to close the abdomen, but, however much he listened to the assistant, he considered that the surgeon should close at least the peritoneum in view of the importance of that step in relation to incisional hernia.

Prof. JOHN BEATTIE made some general observations on the metabolic disturbances which followed the infliction of a surgical wound and on the physiology of healing. He stressed in particular the need for a high protein intake, and also pointed out the function of cortin in promoting repair in cases of injury, and the high vitamin C requirements in view of the increased production of cortin.

The PRESIDENT referred to the firmly rooted idea among students that an incision began to heal at one end and the process of healing continued gradually towards the other end, so that they had a prejudice against a long incision, which they thought took a longer time to heal. He also asked for an opinion about stab-drawing of the abdomen.

Mr. RODNEY MADGOT said that he had been brought up on vertical incisions, he was taught median and paramedian incisions, and gradually, lately, he had been going more oblique. The transverse incision had the disadvantages that it took a long time to make, was very bloody, and left a weak abdominal wall, so that hernia was prone to arise afterwards.

For and Against Battle's

Sir CLAUDE FRANKAU said that thirty years ago he was a convinced "muscle-splitter," but very soon he abandoned the practice. Contrary to General Ogilvie, in certain conditions he supported Battle's incision. It was the only adequate and proper incision for an appendix about which one was sure. It gave perfectly good access, no nerve was injured and no vital spot was obtained if care was taken to drain at the upper end. Lord Moyrhan once spoke of the mercifulness of the long incision. Arising out of that was the great desirability that the incision should be such that heavy retraction was not wanted afterwards. The worst thing for the patient in any abdominal operation was for the surgeon to be required to use any form of heavy retraction; it should be as light as possible.

Mr. W. E. TANNER said that when he was a house-surgeon he watched Arbuthnot Lane perform his operations. When

operating for a bad peritonitis he did not close the peritoneum at all. He put a tube right along the wound and closed up the other layers. His idea was that paralytic ileus or dilatation of the stomach in these cases was caused by distension in the abdomen. He was bound to say that he saw some of these cases heal perfectly.

Mr. HAROLD DODD said that a very good incision for the appendix, which would deal also with the ruptured ectopic, and which was coming into greater use, was the Ruthersford Morrison iliac incision, often described by Prof. Grey Turner. The gridiron incision was attractive but difficult. He had given up midline incisions on account of the likelihood of hernia. He emphasized the importance of careful protection of the wound edges if first-class healing and freedom from burst abdomen or incisional hernia were desired.

In some further discussion Battle's incision was condemned and defended. One speaker said that as a house-surgeon he had two surgeons above him, one of whom practised Battle's and the other the gridiron, and as a consequence of the results he saw he would never use the former. The gridiron found more advocates than critics. Mr. SOLLY COHEN said he had never seen an obstruction after a gridiron incision, and he believed that Surg. Rear-Adm. Gordon-Taylor once stated that he had never had to open an abdomen for obstruction following that incision. A registrar, Mr. MUNRO, urged the value of a short incision in certain cases, and expressed himself rather surprised at the tendency to long incisions by his seniors.

General OGILVIE, in reply, said that it was undoubtedly the right thing not to use the main incision for drainage, but to make a separate stab. He protested against some of the eccentric incisions—"alphabetical incisions" they had been called in the course of the discussion because a number of letters of the alphabet appeared to be imitated—which were published in certain literature, particularly American. They belonged, he said, rather to the tradition of Heath Robinson than to that of John Hunter. With good anaesthesia especially with field block of the abdominal wall, he thought that everything desired could be got out of the median incision, and he had had no misfortunes with it. It was true that one was dealing with only one layer, but with a tremendously strong layer which could be sutured with the utmost security. He thought that the controversy over Battle's incision should be left where it was.

Mr. CHAMBERLAIN, also in reply, said that one speaker had mentioned Lane's practice of suturing the abdomen and leaving the peritoneum unsutured. He could not subscribe to that procedure and he hoped that no one in that company was now in favour of it.

Correspondence

R.M.B.F. Christmas Gifts

SIR.—It is with great pleasure that I can now announce that the Christmas Gifts appeal which I launched through your columns has reached the magnificent total of £2,127—a new record. In view of the high prices and the scarcity of the amenities of life I asked my colleagues for £2,000, a sum which, in view of last year's record, I scarcely dared to hope would be achieved, but which has actually been passed by a handsome margin. This means that all our beneficiaries are receiving £4 as a Christmas gift, and there is enough over to give some of the poorest £2 for the New Year.

My committee and I are deeply conscious of the great help afforded by the medical press in supporting and giving publicity to this appeal, and to you and your colleagues of the press as well as to all the generous contributors in the profession we tender our most cordial and grateful thanks.—I am, etc.,

ARNOLD LAWSON,

President, Royal Medical Benevolent Fund

Printer, S.W.15.

A Fundamental Principle

SIR.—On reading Prof. J. A. Ryle's letter (Dec. 29, 1945, p. 936) I was amazed and distressed to find one of the leaders of our profession advocating "some measure of direction" of

doctors. Conversation with many doctors in this industrial region has convinced me that we are against any direction, to a man. Most of us joined the profession with the idea of working freely where we liked, and in whatever branch we liked. We did not then think of national socialism, totalitarian methods, direction, and control. If our freedom is going to be taken away, some of us are seriously and regretfully considering the question of giving up what has been our life's work, and finding some other occupation in more congenial circumstances and surroundings.

It is strange that having passed through the war with the slogan of "freedom" in the forefront, individual effort, enterprise, and freedom are now regarded as evil things by the powers that be. It will be a bad day for the patients when doctors are directed where they shall work, what work they shall do, and how they shall do it.

Prof. Ryle speaks from the security and altitude of a professorial chair at Oxford. Is he himself willing to be directed as to "the form, place, and type of work" he is to do? Is he willing, if "the under-privileged and under-doctoring sections of the community" require his services, to be directed to work as a panel doctor, or a physician, in Rotherham or, say, Barnsley? Is not the truth of the matter that Prof. Ryle pictures himself under a State medical service directing others, but not being directed himself?—I am, etc.,

Rotherham.

ERIC COLDREY.

SIR,—Prof. Ryle regards the present distribution of medical man-power as unfair. Presumably he means unfair to the general public and not to the medical profession. But all sorts of things are unfair to the general public—for example, the distribution of diamonds, Rolls Royce motor-cars, fur coats, caviare, smoked salmon, and country estates. All the world knows that the problem of socializing the medical services is one of the simplest, because the capital value of the profession is relatively small; whereas to nationalize the patent-medicine industries would upset all kinds of vested interests.

The scarcity of medical men in the pre-war distressed areas was caused by the local population being unable to remunerate the profession sufficiently well to attract doctors and by the local authorities being unwilling to provide efficient medical services out of local funds. Doctors who might have been tempted to work voluntarily in these areas preferred to join the medical missionary societies.

It seems to me that if such facilities as health centres and modern hospitals are first provided in these areas, and if doctors are offered reasonable salaries, sufficient medical personnel will migrate voluntarily to these parts of the country, for there they are sure to find excellent clinical material. Whereas Prof. Ryle wants direction of medical personnel, I ask for efficiency and modern facilities, and maintain that the power of direction not only is unnecessary but is an indication of incompetent administration.—I am, etc.,

London, W.1.

WILFRED SHAW.

SIR,—Your footnote to Prof. J. A. Ryle's letter underlines also the statement of the Negotiating Committee that the problem of maldistribution exists. This must have annual results of ill-health, incapacity, and mortality in the big manufacturing areas of Britain which are of great importance for the immediate future if our economic position is to be stabilized. These sanitary areas are as much a part of our national inheritance as the tradition of liberty. Our profession has a duty not only to each individual patient and doctor but to the nation as a whole, and this duty is, out of present resources to give a disinterested medical service at the earliest possible moment. If we have the complete and efficient medical care of the industrial populations as the responsibility of the next generation of doctors, which is what the Negotiating Committee and your footnote suggest, millions of employees and their families will have, for the next seven years or so, medical attention which is admitted to be unsatisfactory.

This is a perpetuation of the pre-war mentality which handed on responsibility for rearmament from Government to Government, and if we believe medical treatment is any use at all I do not see how we can tolerate it. We could not reject the heritage of Governmental inefficiency when war came in 1939,

and we cannot safely reject it in peace. If we object to Governmental direction we must direct ourselves. The Negotiating Committee should aim at immediate terms of service which should make it very well worth while for the best men to move to the Black Country or elsewhere, and should appeal for volunteers in an intensive campaign, so that this generation faces the problem. There seem four reasons why medical men do not move where they are most needed, three justifiable—children, health, finance. The commonest, least important, and most powerful—disinclination—it is the collective responsibility of the profession to overcome, and we, like the Government, will be judged by our collective efficiency. If we fail we cannot blame the Government for attempting direction.—I am, etc.,

Hove.

WILLIAM BOURNE.

Increasing the Number of Doctors

SIR,—In your note appended to Prof. J. A. Ryle's letter (Dec. 29, p. 936) on the question of direction of medical men you say that the proper solution of the problem of distribution of doctors is an increase in their number. I am sure that Prof. Ryle would agree that such an increase is urgently needed if the public is to get the service it needs, though it may not follow that this will abolish the uneven distribution of medical manpower without the Government retaining some such power of direction as is suggested in Dr. A. G. Winter's proposal (p. 936).

So far, however, there has been little evidence to indicate that the Government is particularly concerned with increasing the number of practising medical men and women. I understand that the proposal of the Goodenough Committee that all the London medical schools should accept a quota of women students is now being implemented. The effect of this will be to reduce the numbers of men accepted by such schools until such time as the accommodation for students can be materially increased. The immediate effect of the adoption of such a policy must be to decrease the number of practising doctors, as there is a well-known wastage of women through marriage and other domestic causes. It is a fair estimate to assume that some 30% of the women admitted under the new proposals will not be practising five to ten years after qualification, and the present shortage will be accentuated until the schools have enlarged their capacity. The only proposal for such enlargement which seems likely to materialize in the immediate future is the removal of Charing Cross and St. George's Hospitals to suburban sites. These two schools at present admit some 70 students annually, and this number should be increased to about 200 when their new hospitals have been built and equipped. This means that accommodation for an additional 130 students will ultimately become available, and a recent announcement in the Press suggests that the new St. George's Hospital may be ready in five years' time—possibly a rather optimistic estimate. In the meantime nine schools which at present do not admit women are to take a quota of women students. I do not know what numbers of women are to be accepted by these schools, but the average will not be more than fifteen if the number of men admitted is to be maintained at its present level. Should the average number of women admitted to these nine schools be over fifteen there is still likely to be a gross reduction of male students, and hence, allowing for the inevitable wastage of the qualified women, a total reduction in the number of practising doctors emerging from the London schools.

I have left out of account the 70 women students at present being trained at this school. If the further proposal of the Goodenough Committee that this school should be abolished is also carried into effect the prospects for increasing the number of doctors will recede even further into the distance.—I am, etc.,

West London Hospital Medical School,
Hammersmith, W.6.

MAURICE SHAW.

Principle III

SIR,—I was glad to see that Sir Ernest Graham-Little (Dec. 29, 1945, p. 936) had drawn attention to the probability that the citizen will be unable to pay both a compulsory levy and a private fee, and so the independent doctor will disappear. I had, however, assumed that the Negotiating Committee, by stating Principle III, intended to see to it that private practice

was efficiently safeguarded. This necessity has been emphasized over and over again at our Representative Meetings. Nevertheless, it may be that many of our profession are not aware of the Belfast resolution (an amended version of one by Perth), which was carried by a large majority at the last Annual Representative Meeting. I therefore ask you to allow me to repeat this resolution:

"That in any National Health Service (1) all persons compulsorily insured should have the right to opt out from the Government service in matters of medical advice and treatment and receive a financial grant towards a private contract, and that no agreement be entered into which do not effectively safeguard this right. (2) Insured patients should be in a position to assign to the hospital or nursing home of their choice any financial grant received through their health insurance authority."

Unless such a state of affairs is secured to me our fight for freedom will have been in vain. I am, etc.

Dorking.

CYRIL E. BEARE.

The Colonial Medical Service

SIR,—Your restrained leading article (Nov. 17, p. 663) will be welcomed by many members of that "nebulous organization"—the Colonial Medical Service. I feel that you might have added that many of the defects of the service should not be laid at the door of its members, but are the direct result of the Colonial system of administration plus lack of funds.

You do not mention salary and pension conditions. The newly qualified man is attracted by the rather mendacious advertisement offering him £600 p.a. or more private practice, and opportunity for specialization. When, after a few years, he realizes that he will be over 40 before attaining £1,000 p.a., that most stations offer no private practice, and that he will not be granted study leave to qualify for one of the few specialist posts, it is usually too late. If he is single or has been very lucky with private practice he can get out, with a small gratuity if he has done ten years. Otherwise he remains.

I will not comment upon your suggestions for a central directorate. Specialist appointments are being promised, but who will take them at a flat rate of £1,300 p.a.? Remember that specialists rarely qualify for high administrative posts. More frequent transfers from one Colony to another are certainly desirable. At present such a transfer is too often "an Irishman's rise." More desirable still is a reduced frequency of transfer from one station to another, which often happens several times in one tour (I do not refer to officers on specific travelling jobs). The abolition of private practice is long overdue. It creates endless jealousy and intrigue. But one is promised £150 p.a. staff pay when disallowed private practice. Will the Colonies give us £600 p.a. (or more) plus this £150? Many would be glad of the offer.

On joining the service salary should not be at a fixed rate for everyone. It should be graded according to length of qualification and possession of special qualification. Promotion should then be on merit, not largely on seniority alone. Your suggestions for short-service commissions as in the Forces, and for house appointments, are good. Technical officers labour under some unnecessary burdens designed for other needs. For example, even a highly experienced medical man is put on probation, without increments, for three years. The raw administrative cadet, who must, of course, be on probation while learning his job, is given relatively large increments in his early years. Soon after reaching 40 his salary is equal to that of the M.O. Again, the language examination should not be compulsory in all posts—e.g., for laboratory workers or where the local language is unspeakable or a maze of dialects.

Pensions are quite inadequate. On the new, 1936, conditions one must serve at least 25 years and reach a fairly high administrative post to acquire the annual pension formerly attained by a plain M.O. after 20 years: this with a steadily rising cost of living both at home and in the Tropics.

Many good men are now leaving the Colonial Service, and recent, mostly wartime, recruits are far from happy. Something will have to be done. Can the Colonial system rise to it? For obvious reasons I sign myself

"WEST COAST."

Post-haemorrhagic Blindness

SIR,—Dr. James Black's interesting description of an example of blindness following haematemesis encourages me to offer some observations upon this happily rare complication, which naturally concerns the general physician however inadequate his ophthalmological approach.

My own experience is limited to two examples which, with that impish propensity of coincidences to enliven our matter-of-fact routine, occurred in the same week. My oculist colleague was, of course, quite familiar with this association of which I was then completely ignorant, but I did not find the references to the literature particularly instructive. I learnt, however, that Pergens had traced 50 cases, in 85% of which the blindness was permanent, and that males predominated, incidentally both mine were in middle-aged females. It is clear that haemorrhage *qua* haemorrhage is not the responsible factor—one excludes the temporary loss of sight that is consequent upon retinal anaemia—otherwise examples would certainly be forthcoming from military surgeons. The majority—possibly all—result from haemorrhage from the stomach or uterus, a circumstance which has led to a number of explanations, some of which have been examined by Dr. Black. The latent period is in itself puzzling: Dr. Black mentions from 12 hours to 18 days and longer after the initial haemorrhage; in my examples the interval was 16 days and 22 days respectively. Another circumstance which would appear to exclude a general cause is the occasional unilateral limitation. If toxæmia is responsible, what sort of toxin with such specificity could be indicted? Anoxæmia has been invoked to bring the condition into line with quinine amaurosis. I recollect an article on this aspect some years ago, but regret I have no note that permits an exact reference. I recollect also another article—again I cannot particularize further—in which an explanation was advanced in regard to the viscera.

This trivial contribution adds little to the elucidation of the problem, but I hope it may stimulate opinions from others more experienced.—I am, etc.

London W.

ADOLPHE ABRAM'S.

Galvanic Stimulation of Denervated Muscle

SIR,—In order to avoid undue protraction of this correspondence we are selecting the four points from Dr. R. G. Abercrombie's last letter (Dec. 22, 1945, p. 598) which cannot be allowed to pass unchallenged.

(1) The use of Tinel's sign as an index of nerve regeneration.—If a prize were to be offered for the unreliability of any particular sign of regeneration, then Tinel's would win by a big margin. It may be absent when, from other evidence, regeneration is known to be progressing satisfactorily; it may even regress for no apparent reason. Functional recovery may fail in the presence of a strongly positive and persistent Tinel. Arguments based solely on its behaviour are worthless.

(2) Facial palsy.—How does Dr. Abercrombie assess recovery quantitatively? It is difficult enough in limb muscles; it must be nearly impossible in the facial. Has he considered the possibility in his cases of recovery not being due until about the time when he first observed the "apparent acceleration"? The coincidence of improvement with the cessation of galvanic treatment may have been attributable simply to the functional maturation of the regenerating axons occurring during the period when the patient happened to be receiving no treatment.

(3) Evil effects of galvanism resulting from ionization.—Radiant energy and electrotherapy can burn a patient; valuable drugs can poison him. Our paper was addressed only to those who know how to use galvanism; and surely three minutes' treatment daily to individual muscles can scarcely be termed "long-continued" or "exceptionally intensive." Nervousness about ionization may be allayed by the use of the excellent buffer solution recommended by Holbourn and Guttmann: the stock solution contains 25 g. of Na_2HPO_4 and 12 g. of NaH_2PO_4 in one litre of tap water, diluted as required with 5 to 10 times its volume of tap water.

(4) Contractures.—Dr. Abercrombie is unfortunately correct in believing that most clinicians hold the view that under ordinary circumstances denervated muscle does not undergo

contracture. This erroneous belief is responsible for the not inconsiderable and sometimes permanent disability that has occurred in hundreds of cases of nerve injury during the last six years. Admittedly contracture of denervated muscle is not invariable, and it can be greatly aggravated by injudicious splinting; but it will occur in the unsplinted hand if movement of the paralysed part is neglected. In the many cases that we have seen the contractures developed before and not after the institution of galvanism. Furthermore, they have been seen in cases which have had no such treatment at any time. In the untreated muscle fibrosis is rapid, in the treated muscle it is not; and fibrous tissue contracts.—We are, etc.,

E. C. S. JACKSON.
R. E. M. BOWDEN.
H. J. SEDDON.

Wingfield-Morris Orthopaedic Hospital, Oxford.

Nylon for Buried Sutures

SIR,—I was pleased to read in Mr. T. Russell Stevens's letter (Dec. 22, p. 901) that his experience with nylon for buried sutures supports my claims for it. I have continued to employ it for the great majority of my cases in the past twelve months, using catgut only occasionally for the purpose of comparison, except in bladder and stomach operations where it is usually employed. As a result of these comparisons I remain convinced that catgut results in greater inflammation, induration, and pain, and in a higher incidence of wound sepsis and breakdown. This is not attributed to any fault in the manufacture of the catgut but to its property, as an animal material, of provoking the inflammatory reaction necessary for its absorption.

In the last twelve months I have seen, and heard of, an unusually large number of burst abdominal wounds in cases in which catgut was used. The surgeons in all cases were men of much experience and technical skill. In those disruptions which I saw the catgut (20-day) had been almost completely digested even as early as four or five days after operation. Most of the wounds showed no macroscopical evidence of infection. It seems from this that in an assessment of the war-time catgut the rate of absorption in the body is a factor even more important than variations in size and strength—a point insufficiently stressed in the recent correspondence on this subject.

In the matter of knot-tying I feel I must point out to Mr. Stevens that there is no question of changing hands in tying the knot which I described in my article (Jan. 6, 1945, p. 12). The short end is held in one hand, usually the left, throughout, and all half-knots are tied with that hand. The question of which way the knots slide is determined purely by the relative tensions on the two ends when the half-knots are being tightened. With equal tension a flat knot is obtained, while unequal tension will always result in a sliding knot. If the same end is held taut throughout, as Mr. Stevens suggests, all the half-knots slide on the taut end, and the result is a knot which will slip relatively easily, especially with a smooth material such as nylon, even with four or five half-knots. If the tension is changed so that the third half-knot slides down the short end it acts as a lock, and the knot is secure except when thicknesses of nylon greater than 5 N are used, when the addition of a fourth half-knot is advisable. An alternative is the reef-knot with the addition of a third flat half-knot. This holds well, but the tension of the ligature or suture cannot be adjusted with the same delicacy as with the running-and-lock knot.—I am, etc.,

HERBERT A. HAXTON.

Surgical Catgut

IR.—Mr. John Hosford's letter (Nov. 10, 1945, p. 668) stated conditions experienced by myself and my surgical colleagues. There is another aspect of present-day surgical catgut to which I wish to draw attention, and that is its untrustworthiness in use. Like most surgeons I occasionally had a ruptured wound pre-war; it was usually associated with a distended abdomen and a bad chest; it happened possibly once or twice a year. War-time Michel clips and synthetic silkworm increased these cases and clean wounds began to come apart. In these cases I blamed myself for technical carelessness until six months ago when two abdominal hysterectomies, uncomplicated by either infection or chest complications, opened out completely (with the exception

of two tension sutures), one 48 hours and the other 72 hours after operation. While performing secondary suture the extraordinary feature was the complete absence of catgut; the wound had been sutured in layers with No. 1 (a stout variety) 20-day chromicized catgut. The makers investigated my complaint and proved to their own satisfaction, although not to mine, that this extraordinary rate of disappearance was due to a technical error on the part of the theatre sister. Subsequently we carried out their directions meticulously, but in addition I used deep-tension sutures of thick silk for all my abdominal wounds and continuous nylon for the skin. During the intervening six months our troubles have been definite but small, but during the last month they have been catastrophic.

Two days after a colleague had sutured a perforated duodenal ulcer the patient started vomiting and the wound was bulging, the condition became a frank intestinal obstruction, and when the wound was opened up later the same day the whole of the deeper layers had given way. Two weeks afterwards a perforation of my own had what I thought was acute dilatation of the stomach but responded to an indwelling Ryle's tube and intravenous saline. The sutures were removed on the tenth day. That night the patient coughed and felt the wound give; two coils of dilated small gut extruded; they had obviously been adherent to the wound and the cause of his early vomiting. In another case I transplanted a solitary ureter into the colon for tuberculous cystitis, leaving a small drain in the lower angle of the abdominal wound: this was removed after 48 hours, and the following day gut could be seen through the opening. At exploration the whole of the deeper layers of the wound had given way and no catgut whatsoever was visible. This case had had a previous laparotomy a few weeks earlier and the wound had healed by first intention and no adhesions were present.

A second-stage right hemicolectomy had a troublesome convalescence; when the stitches were removed on the 10th day the skin edges gaped, and on the 14th day I performed a secondary suture, when I discovered, to my amazement, that what I had taken to be a muscle basis was densely adherent small gut so affected that I had to do an excision and end-to-end anastomosis. A week ago I excised the protruding portion of rectum for a considerable prolapse in a child. I left my sutures long beyond the last knot, three strands of No. 1 20-day chromicized catgut; all three strands had come away next morning. A few days ago I saw a man upon whom I had performed a choledochotomy; he was over 16 st. (102 kg.), and made an uneventful convalescence without cough or wound suppuration. Owing to his size and the persistent biliary drainage he remained in bed about five weeks. Now, eight weeks from operation, he has an enormous ventral hernia which threatens to burst the skin.

Over many years I have made an invariable practice of using 20-day chromicized catgut, and it is an extraordinary feature that any firm should market a product which even occasionally disintegrates in a wound in 24 hours.—I am, etc.,

Halifax General Hospital.

H. I. DEITCH, M.S., F.R.C.S.

SIR,—I have no wish to enter into any acrimonious correspondence on the subject of catgut. One of the main difficulties of any surgeon is to find out the true facts of the situation, and if this discussion brings them to light I feel that I shall have done a service.

Sir Weldon Dalrymple-Champneys (Dec. 29, p. 937) says he is in a position to contradict several statements that I made, yet curiously enough his statements are at variance with certain statements made in a brochure issued by the Ligature Department of the London Hospital, which states that "the intestines used for sterile surgical catgut at the London Hospital are from New Zealand milk lambs"; yet he states that it is untrue when I say that the material for making catgut is imported. I was also informed by a representative of a catgut firm that they were not allowed to use mercuric salts in surgical catgut. This again is entirely at variance with the brochure referred to above. When one finds such contradictory statements what is one to believe?

I would suggest that the real test would be to make available supplies of Davis and Geck's catgut, at a price comparable to the English catgut, and see which surgeons prefer. T. J. diffi-

culty in any controversy of this nature is that political and commercial interests are apt to affect the scientific atmosphere—I am, etc.,

Howe

H J MCCURRICH

The Child with Frequent Colds

SIR,—We were interested to read the letters commenting on our article. We do not feel that there is any controversy with Dr F M Mallinson (Nov 10, 1945, p 667) who stresses the importance of the infective factor in the environment. It is apparent that the majority of the cases seen by us fall into the group whose infection is derived from contact at school, but we entirely agree with Dr Mallinson on the importance of the family as a source of infection. A comprehensive examination of the affected individual should, however, precede the extension of the investigation to the family. We doubt whether detailed investigations of the children's home conditions would give us greater knowledge of the social background of these children than is already known from social surveys done on various classes of the population. Such extensive studies would have been difficult and possibly misleading under war conditions. We did not extend our investigations to a larger number of children as we did not feel that there would be significant differences in the results.

Dr Anne Greig (Nov 17, p 703) should not assume that we regarded the anaemia as being 'more or less' unimportant. The anaemia affecting a number of the children was of the microcytic type, and our mean haemoglobin levels corresponded to those obtained in large numbers of school children during 1944 in London and Edinburgh. They corresponded therefore, to those found in the general school population, and we did not think that the anaemia was evidence of some defect connected with the frequent colds. The colds were not more frequent in the anaemic children, nor was the positive Mantoux test related to the degree of anaemia. Dr Greig is justified in her suggestion that conditions in other parts of the country might have given rise to different conclusions, and it would be interesting to compare studies done in Glasgow with the one we have completed. We doubt whether the differences would be very great.

Some correspondents mentioned the importance of excess of carbohydrate in the diet, and some stressed the nervous factor and "coddling" of these children, without giving any evidence to substantiate these theories. Many parents were very worried about the frequent colds and accepted our reassurance and advice with gratitude. We do not think the parents would share the view of your correspondent who accused us of treating these children like "cases".

Our conclusions are based on the results of clinical and laboratory investigations, and we did not concern ourselves with the treatment of this condition. We should be interested to hear whether other workers on this problem have discovered constant abnormalities or defects affecting the catarrhal child. There is certainly room for much further study on this interesting and prevalent condition.—We are, etc.,

D H IRWIN
E FRANKEL

Essex County Hospital Wansford E11

SIR,—The article on colds in school children by Drs Irwin and Frankel (Oct 27, p 566) omits all reference to one common and important cause—chalk dust. The use of chalk on a blackboard and its removal with a dry duster ensures that for a considerable part of each day children who sit near the board are breathing air impregnated with highly irritating particles of dust. Even the teachers are not immune from its effects, but certain children suffer so acutely as to present a typical picture.

The usual history is that the child enjoyed very good health until going to school and still keeps well during the longer holidays. Whilst at school, however, he gets cold after cold. No sooner does he recover from one, after a period of absence from school than he returns to catch another. The clinical appearances are equally characteristic. There are, usually, some conjunctivitis and catarrhal otitis media, nasal congestion with a watery discharge, and a short dry cough without any sign of bronchitis. In short, they suggest an allergic reaction rather than an infective process. In one case I have found that during

a prolonged absence from school only one cold occurred and that followed the use of a blackboard and crayons at home.

There is no doubt that chalk dust can and does produce these effects, and I am informed that there has been an increase in allergic respiratory disorders in Derbyshire as a result of increased quarrying during the war. It is rather a prosaic explanation to offer and will not satisfy those who explain all childhood's ills by the poverty, ignorance, and stupidity of the parents, but it does account for the facts which are generally, that these children suffer from colds, not when they are at home, but only during their attendance at school.—I am, etc.,

Urms on Lanes

M L POSTON

Abdominal Nerve Block

SIR,—In the *Journal* of Oct 20, 1945 (p 547) one notes with interest the technique advised by Lieut-Col F R W Kinhead Allen for blocking the ilio inguinal and ilio hypogastric nerves. However, a simpler and surer method is that described by Farr (*Practical Local Anaesthesia*). The intracutaneous wheal is raised 2 cm medial to the anterior superior spine. The needle is inserted perpendicularly backwards till it is felt to pierce the aponeurosis of the external oblique with a characteristic jerk. After the usual aspiration test, 30 ccm of 1% novocain (containing m 3 (0.18 ccm) of adrenaline) are injected without moving the needle. Both nerves are thus soaked as they lie beneath the aponeurosis and anaesthesia results within five minutes.—I am, etc.,

Johannesburg

M ARNOLD

Spinal Analgesia in Operative Obstetrics

SIR,—The sad stories of the misadventures which have followed the use of spinal analgesia, recently published in the *Journal* would appear to support my contention that this form of analgesia should be used only when positively indicated, and then only by those who have made a special study of the technique of administration.

No one can object to an experienced anaesthetist making use of any method at which he has become specially proficient but the not uncommon practice of using spinal analgesia for straight forward uncomplicated cases simply because of its convenience can no longer be justified in view of such tragedies as have recently been reported.—I am etc.,

New Barnet Herts

JOHN ELAM

Diagnostic Acumen of the G.P.

SIR,—In the Section of Surgery of the Royal Society of Medicine on Dec 5 Mr Ernest Finch in his presidential address on the treatment of the cancer patient (reported in the *Journal* of Dec 22, 1945 p 894) spoke *inter alia* of the part played by the general practitioner in the diagnosis of early cases of cancer of the breast. He is reported as saying that "the student left his school with a definite picture of the final stages of cancer," and later that "when he [the practitioner] saw a lump in the breast with no fixity, no retraction of the nipple, and no palpable lymphatic nodes in the axilla his training led him to think and say that it was chronic mastitis or some relatively innocent condition." If Mr Finch is correct in his animadversions, one wonders, Sir, who these general practitioners might be who show such colossal ignorance of the rudiments of diagnosis, and, if they exist at all, surely their hospital training must have been defective in every way, and what of those (alleged) specialists surgical and otherwise who went through the tedious farce of teaching them? Statements like this from an eminent source call for further investigation.

For some years now the general practitioner who at one time did 90% of the midwifery in this country and did it well, has been told in season and out that he is a careless and poorly equipped accoucheur a positive danger to any woman bearing and should on no account attend a midwifery case. A specialist—a urologist I believe—implored general practitioners not to pass a catheter on any account no matter how great the patient's need for relief of acute retention but to send for the urologist, whose methods presumably were far less antiseptic than the general practitioners. And now, the unkindest cut

all, we are assured on the authority of Mr. Ernest Finch that we cannot even diagnose an early carcinoma of the breast!

No doubt the G.P. needs high flights of imaginative skill to reach such acumen in the realms of diagnosis, but he is, or must be a dull dog; and more, does anybody really believe him capable of properly writing out a panel certificate? Surely it is a waste of time and energy training a young man or woman to be an "ordinary doctor." Why not train them as specialists right away and save much time and trouble? The whole thing is preposterous, and if gentlemen like presidents of Sections must give addresses—and I suppose they must—then they should keep to their subject and avoid unfair criticism of the general practitioner, who is not the fool he is made out to be. If he is a fool at his work then it is time, and more, that the whole scheme of medical education was recast. Maybe those time-consuming hours wasted in learning the fleeting facts of physiology and the dry-as-dust bones that "present" for examination might be more profitably employed in learning to recognize the early as well as the final stages of disease.—I am, etc.,

Bournemouth.

VINCENT NORMAN.

Penicillin by Intramuscular Drip

SIR,—The note by Dr. T. A. Grimson with reference to the intramuscular drip method of administering penicillin (Dec. 15, p. 849) brings up several relevant points. Most persons with much experience of using penicillin will agree that this method is that of choice, especially when administration is to be prolonged, as it is less painful and does not disturb sleep. It is felt that so simple a technique as that described needs full publicity, as no doubt, when supplies become more easily available, its use in general practice may well become of importance.

The total dosage for the twenty-four hours should be made up to a volume of half a pint (280 c.cm.) only, as larger quantities tend to cause pain and boggy swelling around the needle site. The lateral aspect of the thigh is the site of election, and the institution of regular quadriceps exercises appears to facilitate absorption. Using the standard E.M.S. transfusion set, 8 drops a minute has been found to be the average rate of drip to allow for the half-pint to be run in during the twenty-four-hour period. A strip of plaster stuck down the side of the bottle with the appropriate times graduated upon it keeps a check on the rate of flow, and it has been found that most patients of any intelligence will help any shortage of nursing staff by watching their own drip and adjusting the screw-clip from time to time as required. A stainless-steel saline infusion needle with side perforation in addition to a terminal one, such as that of Souttar, which is $2\frac{1}{2}$ in. (6.35 cm.) long and has an S.W.G. of 14, was found to be ideal as it exactly fits the connexion on the tubing of the transfusion set, is long enough to lie snugly and flat on the thigh, and is less liable to get blocked than a needle with only the terminal opening.

The presence of sepsis at the needle site, which is referred to in the *Lancet* (Dec. 22, p. 817), is very common, and there appears no certain method of preventing its occurrence, although fortunately the pus is usually sterile and any sepsis as a rule clears up completely in two or three days. It would seem that changing the needle site from one thigh to the other frequently (every two or three days) reduces the liability to this mishap, as it also reduces the tendency to any local pain or swelling.—I am, etc.,

Hatch End, Middlesex.

MARTIN STRATFORD.

Treatment of Breast Abscess

SIR,—With reference to the very interesting letter of Dr. nie Fulton on infective mastitis (Dec. 15, p. 862) may I add a note on treatment.

Of the 27 cases which came to my notice in January and February, 1944, 24 were in multiparous married women and 3 in virgin unmarried nulliparae. Of the 24 multiparae 12 were seen in the first six weeks of the puerperium and were to be seen in the presupplicative stage of the infection. In 20 of the cases the infection was circumareolar. Three of the cases were interstitial and one retromammary. At this stage the breast on palpation presented a definite painful irregular

mass. There was some slight temperature and pulse. The course of treatment was the same in all cases.

Stilboestrol medication was started to inhibit lactation, if any. Simultaneously the affected breast (or breasts) was irradiated with deep infra-red rays. Fifteen minutes under the rays night and morning was sufficient. The surface of the treated area looked now like mild sunburn. After three days of such treatment the breast was opened with a deep incision radiating from the nipple. Gas and oxygen were used as an anaesthetic. Frank white creamy pus was always evident after the three-days irradiation. The micro-organism was predominantly staphylococcus. Infra-red irradiation was started as before, and the incision healed from below upwards with healthy granulations, leaving a pink flexible scar, thus conserving the artistic and ornamental value of this organ. Three cases were pre-operatively treated with the sulpha drugs and poultices, but it took two days longer for fluctuation and abscess formation to occur, and at least ten days to heal, even with the application of urea crystals, leaving a contracted ugly scar. With the advent of penicillin deep infra-red irradiation, by causing a local hyperaemia, would bring more leucocytes to the site of infection, and a higher concentration of penicillin or the sulpha drugs if they were used. Abscess formation and fluctuation occurred more quickly by this method than with poultices and the sulpha drugs. Healing of the incision took place more readily, as there was a greater flood of fibrocytes, phagocytes, and healthy serum brought to the part.

More use could be made of infra-red rays for local infections elsewhere, and with the added aid of penicillin and the sulpha group of drugs local infections could be quickly and safely dealt with. All the above cases gave a successful and satisfactory result with this treatment.—I am, etc.,

Ryde.

JOHN M. CAMPBELL.

Treatment of Amoebiasis

SIR,—I was very interested in a letter in your columns recently concerning amoebiasis among ex-prisoners of war from the Far East. As an ex-prisoner of war myself I can state that very many of these cases received no specific treatment whatsoever and some as little as 1 gr. (65 mg.) of emetine hydrochloride owing to the lack of drug supplies. I impressed on all my amoebic cases that they had not been cured, even though their symptoms had abated, and that they would require further investigation and treatment on return to the U.K.

It can be taken almost dogmatically that any diarrhoea, flatulence, or other mild gastro-intestinal disturbances occurring in repatriated prisoners of war from the Far East should be regarded as amoebiasis unless repeated examinations of the stools have proved negative. This is especially the case if there is any enlargement or tenderness of the liver, or if the caecum or sigmoid colon is palpable and tender.

Examinations of the stools can easily be carried out by the general practitioner, but I would like to emphasize that it is essential for success to have a fresh specimen. The stool should be passed at the consulting-rooms into a warmed bedpan. It will be remembered that to the naked eye the amoebic stool is bulky, foul-smelling, acid to litmus, and may contain blood and mucus. If a little of the mucus is now transferred on to a slide and mixed with equal parts of normal saline *E. histolytica* can be seen under low power as glistening refractile specks, and if these are examined under high power the contained R.B.C.s, movement of the pseudopodia, and the differentiated endoplasm and ectoplasm will identify the parasite. Cysts are less easy to identify and the stool should be sent to the pathologist, since in the case of cysts a fresh stool is not essential. The presence of *E. coli*, Charcot-Leyden crystals, or the spirochaete of Werner, or other similar motile organisms, should be viewed with grave suspicion. Sigmoidoscopy should be carried out in all cases before pronouncing the patient free from infection; the parasites may often be found in a smear taken directly in this way, or a typical flask-shaped ulcer with undermined edges may be seen even when no sign of disease is found on ordinary stool examinations.

Even when all findings are negative, if the symptoms persist without apparent cause a full course of specific treatment should be given. Relapse is extremely common among incompletely treated cases, and the combined treatment recommended by Manson-Bahr is in my experience most satisfactory. The patient should be kept strictly in bed; 1 gr. (65 mg.) of emetine hydrochloride subcutaneously each night should be given for 10 nights. Soda bicarb. gr. 30 (2 g.) daily by mouth enhances

the effect of the emetine. This should be accompanied or followed by emetine bismuth iodide 3 gr (0.2 g) nightly by mouth for 10 days. At the same time 8 oz (240 ccm) of selen retention enema should be given daily. This should be followed by carbarsone 4 gr (0.25 g) twice daily for a fortnight. A short time after treatment the stools should again be examined, and a sigmoid examination carried out as a test of cure. Might I plead that any investigation and treatment less than that outlined above is not doing full justice to the patient—I am, etc.

Glasgow

E SNELL

Shortage of Nurses

SIR—Dr T R Aynsley in his letter (Dec 15, p 865) on the shortage of nurses shows a lamentable ignorance of the industrial nurse's function when he writes of her "waiting for minor accidents preparatory to sending them to a hospital outpatient department." Primary treatment is but a small part of the industrial nurse's work which is mainly preventive in character and the nurse who has obtained her certificate in industrial nursing which requires among other things a sound knowledge of social science will justly resent Dr Aynsley's criticism of her work. Does he think that nurses engaged in other branches of preventive medicine, such as health visiting are also wasting their time?

Dr Aynsley need not be unduly disturbed in mind, however, as nurses are not "directed" to industry, and it is only possible to "entice" nurses who are approved for the work by the Appointments Department of the Ministry of Labour. Such approval is given to only a few classes of nurses who are not subject to direction—e.g., married women with children or whose husbands are in the Forces abroad.

The number of trained nurses employed in industry is estimated at 5,000, which works out at about one trained nurse to each 3,000 persons employed. Nurses below the age of 27 other than a few special classes, have long since been directed to other spheres of work, so that the only trained nurses in industry who could be directed to hospital work are those with special qualifications and skill who are better employed where they are—I am, etc.

The Butterley Co. Ltd. Derby

G F KEATINGE

Benjamin Rush's Death

SIR—In "Nova et Vetera" (Dec 22, 1945, p 893) it is stated that Benjamin Rush's death "is alleged to have been hastened by injudicious bleeding." It is a pity that this old libel should have been even tentatively resurrected, for there is nothing in it. Rush was, of course, a violent advocate of bleeding. His "three tens" treatment for yellow fever—10 oz (300 ccm) blood, 10 grains (650 mg) of calomel, and 10 grains of jalap—is historical, was certainly ferocious, and probably cost a good many lives. But his own death actually was due to pleurisy, and the rumour from America that reached Lettison in 1813 and started the story in England was stated by Dr Mease, one of Rush's oldest friends, to have been circulated by his enemies to gratify "the little and mean spirits amongst us who exulted in the report of his having fallen a victim to the depleting system and who will be glad to find the report has been circulated in Europe" (Pettigrew's *Lettison*, vol 3, p 22). The whole story is retold in my *Lettison* (London, 1933, p 375) and in *Benjamin Rush* by N G Goodman (Philadelphia, 1934, p 346).

It is curious that the same story should have been circulated about Lettison's son, John Miers, whose death, according to gossip recorded by Farington in his *Diary* (vol 1, p 294), was said to have been caused by over-bleeding. This was equally fallacious and probably due to the same cause—jealousy—I am, etc.

London W 1

J JOHNSTON ABRAHAM

Doctors Wanted for Boys' Clubs

SIR—It is a regrettable gap in our health and social services that, while machinery is in being for periodic examination by qualified doctors of children of school age none exists for the "vetting" of the adolescent boy or girl at work other than that provided by some enlightened industrialists.

For many years clubs affiliated to the London Federation of Boys' Clubs or its parent body, the National Association of

Boys' Clubs, have done something to make good this deficiency by arranging for local doctors or senior medical students to "vet" their boys, to the great benefit of the health of the boys and the peace of mind of their leaders.

My own boys' club in Hoxton has for nearly twenty years now been fortunate enough to have the services voluntarily given, of house physicians or last year students from a great teaching hospital in East London. Other clubs have not been so fortunate, and the purpose of this letter is to seek through your *Journal* the help of other doctors and students who may be able to spend a couple of evening hours weekly or fortnightly in a boys club in some part of London. Though in the nature of a "busman's" holiday, there is enjoyment in such work, especially as time passes and "the Doc" becomes like the managers, a part of the furniture of the club, the London boy requires no praise from me.

If any young physicians reading this feel they can give a little time to this invaluable work, I shall be grateful if they would write to me at 222, Blackfriars Road SE 1, when I shall be able to put them into touch with a club in their neighbourhood.—I am, etc.

JAN M LESLIE
Chairman London Federation of Boys' Clubs

Obituary

W B FEATHERSTONE, M.D., J.P.

Dr William Barltrop Featherstone, who died on Dec 25, had been a member of the British Medical Association for 60 years. Though professionally a general practitioner, his long association with public work in Birmingham—he was a member of the City Council for 37 years—stands as an example to others. At the funeral representatives were present from many aspects of the life of Birmingham and particularly of Erdington.

Born on May 16, 1861, at Laleham in the house where Dr Thomas Aynsley had lived before becoming headmaster of Rugby School, he was educated at Queen's College and at Mason's College, Birmingham, and won prize medals in four subjects and qualified M.R.C.S. in 1887, graduated M.B. Lond. with first-class honours in 1887, and practised for 10 years later. When newly qualified he was beaten by a more senior man in a close contest for the post of house physician at the Birmingham Medical School. Featherstone decided that he would wait for the next vacancy and felt after some time that the public health service was not sufficiently absorbing to him. He had taken the D.P.H. Therefore after holding posts elsewhere he entered general practice at Erdington in 1897. For 10 years his main preoccupation was his busy practice, but he found time to develop local medical, nursing, and social work.

Moreover, in 1899 he joined as chairman of the directors of the Birmingham Erpense which in the next 46 years prospered under his energetic leadership and balanced judgment. At the arbitration of amalgamation of Erdington with Birmingham in 1911 he was a member a year later he was returned unopposed as Councillor for No. 5 Erdington on the Birmingham City Council, continuing to be a vigorous member until last October. He was opposed at only one election and was made an alderman in 1912 while still in practice. A member of the Education Committee, he was chairman of the Elementary Education Subcommittee for 14 years and spent each Easter at the annual conference of the National Union of Teachers. He was also an active member of the Hygiene and Special Schools Subcommittee and served on other important committees and boards. He was a Birmingham magistrate and for 30 years took a keen interest in local politics. When the controversy raged over the National Health Insurance Act in 1912 he was a firm supporter of moderate opinion, and for many years served on the Birmingham Panel Committee. Dr Featherstone's other public activities and the parts he played in philanthropic work were too numerous to mention here. He practised at the Grove, by Erdington Village Green, for over 40 years, and in retirement lived at Wide Green, Sutton Coldfield.

Punctual, quick, and methodical, he fulfilled each of his many duties with an ease that astonished those who knew how busy he was. He was a clear and concise speaker, and until his hearing failed a most efficient chairman, brief in utterance, far-seeing, tactful and good tempered, with a thorough grasp of the subjects to be discussed. In all things he endeavoured to keep acquaintance with what was going on. His oft repeated inquiry was "Anything fresh?" A man of affairs, he loved to have plenty of appointments to keep.

When asked if he would have preferred to be a consulting physician he replied that he had no regrets; he was deeply interested in his community and in contact with people from so many aspects of their lives. Too old for active service in either of the great wars he worked as medical officer at the Norlands Red Cross Hospital in 1914-18. He married in 1893 Isabella, daughter of Henry J. Davies, of Brooklyn, U.S.A. She brought her vigorous personality to help him in his activities and was a well-known figure in the charitable, social, and political work of Birmingham until her death in 1929. Of their two sons, the younger was killed in France in 1918; the elder, Dr. H. W. Featherstone, O.B.E., served in the R.A.M.C. in both wars.

A. SIMPSON-SMITH, M.Ch., F.R.C.S.

Temp. Lieut.-Col. Alexander Simpson-Smith, R.A.M.C., surgeon to Great Ormond Street Hospital, was reported missing at Tobruk in June, 1942, but was known to have escaped once after all casualties had been dealt with. He is now reported killed, and buried in the war cemetery at Halfaya-Sollum, aged 42.

He was educated at Workson School, at Cambridge University, and at Guy's Hospital, qualifying in 1925. He obtained the F.R.C.S. diploma in 1929, and a year later, after taking the M.Chir. degree at Cambridge, he was awarded a Richardson research fellowship at Massachusetts General Hospital, Boston. After returning to England he became resident surgical officer and radium registrar at Guy's, where he had already been junior demonstrator of anatomy and staff anaesthetist; later he was appointed resident assistant surgeon and then surgeon to outpatients at the West London Hospital and was elected to the surgical staff of the Hospital for Sick Children, Great Ormond Street. Alex. Simpson-Smith was also consulting surgeon to the Lord Mayor Treloar Cripples Hospital at Alton and to the mental hospitals at Napsbury and Shenley. He joined the B.M.A. in 1925, had been honorary secretary of the Medical Society of London and of the Clinical Section of the Royal Society of Medicine, and a member of the Council of the Harveian Society. On the outbreak of war he left his many civilian appointments to take a commission as major in the R.A.M.C., and after the fall of France went to the Middle East and served in Cairo and Tobruk with promotion to the rank of lieut.-colonel. For his work in Tobruk he was mentioned in dispatches, and a tribute to his original and successful methods of treatment has reached us from a surgeon in Rome, Dr. Giorgio Colognato, who saw the excellent results in an Italian hospital ship which carried many British prisoners of war in 1942.

News has been received from Canada of the death in Montreal of Dr. DAVID ALEXANDER SHIRRES, who was physician to the late Marquess of Aberdeen during his term as Governor-General of the Dominion. Dr. Shirres was born in Aberdeen in 1864 and studied medicine at the University of Aberdeen and at St. Bartholomew's Hospital and graduated M.B., C.M. Aberd. in 1886. He practised for a time in London in Harley Street before going to the United States in 1893, where he became professor of diseases of the nervous system in the State University of Vermont. Later he was appointed neurologist to the Montreal General Hospital.

Dr. JOHN GRACIE, consulting physician, Western Infirmary, Glasgow, died on Nov. 17, 1945. John Gracie was born at Moidart, Lochailort, Inverness-shire, in 1877. He graduated M.B., Ch.B. at Glasgow University in 1900 and became a Fellow of the Royal Faculty of Physicians and Surgeons in 1920. After graduation he engaged in general practice in the Partick district of Glasgow with his brother, the late Dr. Farquhar Gracie. During the war of 1914-18 he served in France with the R.A.M.C., and was in charge of a hospital in Marseilles. He joined the staff of the Western Infirmary in 1907, and was visiting physician from 1927 until 1942. Owing to staff shortage he was asked to retain his post as visiting physician. This he continued to do until March, 1945, despite the burden imposed upon his failing health. Dr. Gracie was honorary lecturer in clinical medicine at Glasgow University from 1930 until 1945. He was also visiting physician to Larkfield Hospital, Greenock, and Killearn E.M.S. Hospital. His advice and judgement were sound and always helpful, and by his original and kindly personality he earned the respect and affection of his colleagues and patients. He was medical superintendent to the Anchor Line, Ltd., Glasgow, and derived

great pleasure from the personal contacts that this work afforded him. However, his greatest pleasure came from his teaching and associations with medical students. They were a source of unending interest to him, and he had the remarkable facility of forming lasting friendships with students and junior colleagues. He was keenly interested in the Highlands, and took an active part in the various Highland associations, especially those which concerned themselves with the welfare of students. A keen fisher, he always looked forward to a quiet month's fishing in his native county.

News has been received of the death on Dec. 6 of Dr. ERNEST BARON ROGERS, who in 1935 went to India as medical officer to a tea-planting firm in Assam and practised at Dooars, in Bengal. He was a medical student of Guy's Hospital and took the M.R.C.S., L.R.C.P. in 1929, becoming house-surgeon to the Warneford General Hospital at Leamington Spa. Dr. Rogers was honorary secretary of the Bengal and Dooars Division of the B.M.A. in 1939 and honorary secretary of the Assam and Northern Bengal Branch in 1941-3.

Dr. ENID KESTENBERG, formerly of the Malayan Medical Service, died at Epsom on Dec. 14. Born at Kilmarnock in 1899, Enid Aimée Robertson entered Queen Margaret College, Glasgow, and obtained the M.B., Ch.B. degrees of Glasgow University in 1921. After a period with the Church of Scotland Missionary Society at Kalimpong, India, she was appointed by the Colonial Office to various posts in Malaya at Kuala Lumpur and Kuala Kangsar. She took the D.T.M.&H. in 1928 and carried out research in Malaya on tropical diseases, more particularly typhus fever, which she herself contracted in 1936 and was invalided home. When war broke out she became interested in the M.T.C., and it was then that she met her husband, Mr. Arthur Kestenberg, who survives her with a son aged 2. Her brother, Dr. R. Cecil Robertson, of Shanghai and Hong Kong, died in Japanese hands in 1942.

Dr. EDWARD MILLIKEN GOLDIE, who died suddenly on Dec. 15, 1945, was the eldest son of the late James M. Goldie, a Northumbrian who came to London and was one of a small group of civil servants who founded the Civil Service Stores about 80 years ago. He was born in 1866, and was educated at King's College School and at Edinburgh University, where he became M.B. in 1890 and M.D. in 1896: a younger brother was also in the medical profession—Dr. J. O. Goldie, who died some years ago. After qualification Dr. E. M. Goldie held a resident post at the Mental Hospital at Bootham, York, and thereafter was for some years at the Poplar and Stepney Sick Asylum (now St. Andrew's Hospital). Before the end of the last century he had started in private practice at Woodford, Essex, from which he retired about ten years ago. For many years he was visiting medical officer to the Royal Merchant Seamen's Orphanage, Snaresbrook. He is survived by his widow, formerly assistant matron at the "Poplar and Stepney," and has one son and two daughters. His modest and unassuming disposition did not conceal from those who knew him his merits as a careful and trustworthy general practitioner of the older school. He joined the British Medical Association in 1894.

Dr. HARRY CORNER, of Jersey Farm, Sandridge, St. Albans, who died on Dec. 18, 1945, aged 81, was the second son of the late Dr. F. M. Corner, of Poplar. His elder brother was the late Dr. Frank Corner, J.P., and one of the younger brothers is Mr. Edred Corner, F.R.C.S., formerly surgeon to St. Thomas's Hospital; the late Dr. Cursham Corner was a first cousin. The family are of Yorkshire origin, from the village of Lythe, near Whitby, and are related to many Yorkshire families in that part of the North Riding. Harry Corner was educated at Epsom College and at the London Hospital, where he became house-physician. He qualified as M.R.C.S., L.R.C.P. in 1888, proceeding to M.B.Lond. in 1890 and M.D. in 1892. He took up mental hospital work, was assistant medical officer at Bethlem Hospital, and finally became medical superintendent at the Earlswood Idiot Asylum. He was also at one time lecturer on neurology and psychiatry at the North-East London Postgraduate College. In his youth Corner was a very good rugby player, both for his hospital and for Kent County. After retirement he took up the breeding of pedigree Jersey cattle and made much more than a local reputation at it. He married Miss Janet Connell, who died about ten years ago, leaving two sons and a daughter. The latter is also a keen Jersey breeder, and has her own herd. Dr. Corner joined the B.M.A. in 1891.

Dr. GEORGE VICTOR BAKEWELL, who died on Dec. 19 at Beaconsfield, was chairman of the Bucks Division of the B.M.A., which he joined in 1918, and represented his

Division at two Annual Meetings. Born in 1887, he studied medicine at Cambridge University and the London Hospital, taking the English Conjoint qualifications and the B.A., M.B., B.Ch. degrees in 1912. At the London Hospital he served as house-physician, house-surgeon, and resident accoucheur, and during the war of 1914-18 held a commission in the R.A.M.C. as specialist in operative surgery with the rank of major, and was mentioned in dispatches and awarded the O.B.E. He was a past-president of the Windsor and District Medical Society, and in recent years had been medical officer in charge of the Red Cross convalescent home at Beacornish.

The death took place on Dec. 22 at the Kent and Sussex Hospital at Tunbridge Wells, of Dr. EDWARD TAYLOR, formerly honorary physician to the Hull Royal Infirmary. He was the third son of the late Thomas Coates Taylor, L.D.S., of Gooch and was educated at Drax Grammar School and the Leeds Medical School. He graduated M.B., Ch.B. with honours at Victoria University in 1898 and in the same year passed the M.R.C.S., L.R.C.P. He obtained the M.D. degree in 1902 and the membership of the Royal College of Physicians in 1904. After acting both as house-surgeon and as house-physician at the Leeds Royal Infirmary he served as a captain in the Cape Medical Staff Corps in the South African War and was awarded the Queen's and King's medals. Shortly after his return from South Africa he was appointed an honorary physician to the Hull Royal Infirmary, to which he rendered distinguished service for many years until his retirement. He was also consulting surgeon to the Beverley and Duffield Hospitals. When the Territorial Force was formed he received a commission as captain in the 5th Batt., East Yorkshire Regiment with which he was mobilized in 1914. He was given command in 1915 of the 2/1 Northumbrian Field Ambulance, which he took out to Salonika with the rank of lieutenant-colonel. He was very active in the social life of Hull and was for two years president of the Hull Literary and Philosophical Society. He was a past-president of the East Yorkshire Branch of the B.M.A. and of the Hull Medical Society. He was a Past Master of the Kingston Lodge of Freemasons, being one of three brothers to hold this office, and a P.P.G. Deacon of North and East Yorks. He leaves a widow and one son. In his younger days Dr. Taylor was a keen athlete and was particularly interested in wrestling. He was also an excellent shot with a Service rifle. He retired from practice somewhat early in life, but will be remembered by the older members of the profession in Hull and district as an able and painstaking physician who inspired the confidence of his fellow-practitioners. He was always willing and anxious to assist his colleagues, and to the younger ones his sound advice and friendly help were unselfishly accorded.—H. L. M.

Dr. CHARLES HORNE WARNER, who died at Southwell, Notts, on Dec. 29, studied medicine at the Middlesex Hospital after graduating B.Sc.Lond. in 1908, and took the M.B., B.S. degrees in 1917 and the M.D. in 1921. He was house-physician and house-surgeon at the Middlesex and assistant M.O. at the Western and Park Fever Hospitals under the Metropolitan Asylums Board. Before taking the D.P.H. and becoming M.O.H. for the Beeston and Stapleton Urban District Council Dr. Warner had been lecturer and member of the board of examiners of the Pharmaceutical Society of Great Britain. During the war of 1914-18 he held a commission in the R.A.M.C., serving as M.O. to the 1/5 London Field Ambulance and the 1/20 Battalion London Regiment. He published a number of papers on chemical subjects and an article on "Ankylostomiasis in London" in these columns on July 26, 1919. He married Dr. Refna Horne Mallet.

We regret to report the death in London of Dr. H. A. DE MORGAN, of Douglas, Isle of Man, where he had practised for the past twenty years and was much beloved by his patients. A student of the Middlesex Hospital, where one of his relatives was a surgeon and is commemorated in the name of a ward, Harold Aylmer De Morgan qualified in 1915, and after serving with the rank of captain, R.A.M.C., in the war of 1914-18 and as house-surgeon in Torbay Hospital, he took the M.B., B.S.Lond. degrees in 1920. Soon after settling in the Isle of Man he was elected honorary physician to Noble's Hospital; he was also a medical referee under the National Health Insurance Acts, and held numerous other appointments, including that of medical assessor to the Royal Courts of Justice. In 1938-9 Dr. De Morgan was president of the Isle of Man Medical Society and the Isle of Man Branch of the B.M.A., which he had joined in 1927. Though the strain of the war years must have told upon his strength he seemed in good health until November, when he came to London for specialist advice at his old hospital, and died there on Dec. 8. At the funeral

service in St. Thomas's Church, Douglas, Archdeacon Stockwood gave an address paying tribute to Dr. De Morgan's work and character. The congregation included almost every member of the medical profession in the island and representatives of the hospital committee and nursing staff.

WILLIAM HENRY OGLE WOODS, a senior member of the medical staff of the Swansea General Hospital, who died on Dec. 29, aged 70, had been chairman of the Swansea Division of the B.M.A. in 1933. The son of an Irish father and a Welsh mother, he studied medicine at Cambridge and at St. Thomas's Hospital, taking his B.A. in the Natural Sciences Tripos and becoming M.B., B.Ch. in 1901, and then served as house-surgeon at St. Thomas's and senior resident medical officer at Queen Elizabeth's Hospital. He obtained the F.R.C.S. Ed. diploma in 1902. His work at the Swansea General Hospital began as senior resident surgical officer in 1916, and from January, 1925, as an honorary anaesthetist until his appointment as superintendent surgeon in April, 1926. He became a full surgeon in 1927 and orthopaedic surgeon a year later; he was also medical officer in charge of the venereal diseases clinic. Mr. Woods suffered much disability after the amputation of one leg twenty years ago. He was, in the words of a colleague, "a painstaking surgeon whose judgment was very sound; an extraordinary man of tremendous courage, who just carried on despite his handicap, probably doing more work than any of us. A medical mind and perhaps his own experience, helped him in his orthopaedic work, and he made at least as great demands on himself as upon his patients."

B. G. S. Antes May I be allowed to pay tribute to my old chief, Surgeon-Commander A. H. D. RICHMOND, R.N.V.R., who was S.M.O. for over 2 years at H.M.S. *St. Vincent*, Gosport. I feel the profession as a whole, and the Royal Naval Medical Branch in particular, have lost a fine figure. I served under him for 10 months during parts of 1944 and 1945, and he has certainly have had a more lovable and loyal superior officer. He was a gifted organizer and knew how to obtain the best from his juniors. He had served with the R.N.V.R. during the war at Grimsby, where he was formerly a practitioner and had occupied the post of Admiralty surgeon and agent and police surgeon as well. He was universally popular at *St. Vincent*, and no one ever consulted him professionally without feeling better for it. His personality radiated confidence. In later life he battled most heroically against a big affection which needed constant watching and treatment; it might well have daunted a man of lesser spirit, and of the ultimate issue he was well aware. His sudden death after a short sharp illness in the Royal Naval Hospital at Haslar has come as a shock and sorrow to all who knew him. He has bequeathed to them the memory of a great gentleman and inspiring chief.

The following well-known medical men have died abroad: Dr. ALEJANDRO A. RAYMOND, an eminent phthisiologist of Buenos Aires, aged 67. Dr. F. H. ALBEE, a prominent orthopaedic surgeon of New York, aged 63.

Thirty-two members of the Canadian Forces who served overseas and are now demobilized have been awarded scholarships by the British Council to enable them to study in Britain. All of post-graduate standing, they have been selected in co-operation with the Canadian Department of Veterans' Affairs, and their subjects include medicine, dentistry, physics, geology, textile technology, town-planning, librarianship, economics, law, education, music and drama, and fine arts. The scholarships are for periods ranging in the first instance from six months to a year, but some may be extended. The holders of medical scholarships and the colleges, etc., at which they are now studying are: Capt. R. W. Begg, educated at Dalhousie University and was medical officer with the 1st Canadian Parachute Batt., studying pathology at Lincoln College, Oxford; Capt. J. M. Corston, of Halifax, N.S., educated at Dalhousie and Edinburgh Universities, a medical officer, studying obstetrics and gynaecology at the Radcliffe Infirmary, Oxford; Major C. Hollenberg, of Winnipeg, educated at the University of Manitoba, a medical officer, studying surgery at the University of Liverpool; Capt. G. Homer, of Winnipeg, a medical officer whose early work was among Eskimos, studying surgery at the Royal College of Surgeons; Surg. Cmdr. A. B. McCaren, of Winnipeg, educated at the University of Manitoba, studying surgery at St. Bartholomew's Hospital; Capt. W. H. Rose, of Montreal, a medical officer, studying cardiology at the British Postgraduate Medical School, London; and Major F. R. Tucker, educated at the University of Manitoba, a medical officer, studying orthopaedic surgery at the University of Liverpool.

Medico-Legal

ANTI-VIVISECTION SOCIETIES AND INCOME TAX

For over fifty years anti-vivisection societies have been granted exemption from income tax on interest on their very large investments, as the result of a finding by Mr. Justice Chitty in 1895, although in 1929 Mr. Justice Russell (now Lord Russell of Killowen) threw doubt on that decision in his judgment in the Grove-Grady will case. In 1942 Sir Leonard Rogers drew up a memorandum on "Are Anti-vivisection Societies Good Charities?" and this, by direction of the committee of the Research Defence Society, was sent to the Treasury with the request that the grounds on which anti-vivisection societies were exempted from income tax as "charities" should be reconsidered in the light of the immense advances in curative and preventive medicine due to animal experiments during the last half-century. The Inland Revenue authorities asked for evidence in support of the statements in the memorandum, and on receipt of this from nine medical and veterinary scientists a test case was heard in December, 1943, by the Special Commissioners of Income Tax. The findings of the Commissioners were cited in an article in the *British Medical Journal* of Sept. 1, 1945 (p. 291); after an appeal in the King's Bench Division of the High Court before Mr. Justice Macnaghten at the close of July. The Commissioners found that, on balance, the object of the National Anti-vivisection Society, "so far from being for the public benefit, was gravely injurious thereto, with the result that the society could not be regarded as a charity. . . . But, upon the authorities, we regard ourselves as precluded from so holding," and they therefore felt bound to allow the society's claim. Mr. Justice Macnaghten, after hearing legal arguments for two days, reversed that decision, allowed the appeal, and revoked the order granting exemption from income tax, with costs against the society.

At the close of December this case (*Inland Revenue v. The National Anti-vivisection Society*) came before the Court of Appeal, consisting of the Master of the Rolls (Lord Greene), Lord Justice MacKinnon, and Lord Justice Tucker. The Crown contended that if experiments on animals were abolished medical science and research would be retarded, and benefit to the health of the community would be frustrated. The Court, by a majority, dismissed the appeal against Mr. Justice Macnaghten's judgment, but gave leave to appeal to the House of Lords.

The Master of the Rolls in his dissenting judgment said there was nothing to be gained by pretending that vivisection did not cause pain to animals. The objects of the society, to prevent infliction of pain on animals, were clearly good in themselves and were not prevented from being so by the fact that experiments on animals might lead to benefits for mankind. Lord Justice MacKinnon, on the other hand, held that whether the objects of a trust were beneficial to the community was a question of fact to be established by evidence. Here he was satisfied that the achievement of the society's purposes would not only not be beneficial to the community but would inflict injury on all mankind. The motives of well-meaning subscribers were not material; it was for the Court to decide whether in fact the purposes of the society were of benefit to the community. Lord Justice Tucker, in his judgment agreeing that the appeal should be dismissed, said that the practice of vivisection had been legalized under safeguards, and he could not see how a trust to abolish vivisection could be a benefit to the community.

The twenty-sixth annual report of the James Mackenzie Institute Clinical Research, St. Andrews, covers the year ending July 31, 1945. As war conditions still prevailed the activities had to be confined on the restricted lines of the past few years; but 63 new cases and 521 additional notes were added to the files; 397 films were exposed in the x-ray department, and 399 examinations were carried out in the laboratories. As in former years, the voluntary medical inspection of university students was again carried out at the Institute by Dr. R. V. C. Ash. The council is now faced with the need to plan for the future and is giving close attention to the task that lies ahead, so that the resources at its command may be used to the best advantage.

Universities and Colleges

UNIVERSITY OF LONDON

A course of five public lectures on "Pharmacological Chemistry" will be given by Mr. F. Bergel, Ph.D., in the Department of Pharmacology, University College, Gower Street, W.C., on Tuesdays, at 5.15 p.m.:—Jan. 15: Survey of the fields of pharmacotherapeutics. Jan. 22: Prosthetic compounds: vitamins, hormones, and other active substances occurring in the body. Jan. 29 and Feb. 5: Symptomatic drugs: synthetic analgesics and antispasmodics. Feb. 12: Etiotropic compounds: antimicrobials. The lectures are open without fee or ticket to students of the University and others interested in the subject.

UNIVERSITY OF BIRMINGHAM

The following candidates have been approved at the examinations indicated:

M.B., Ch.B.—*†J. K. Baird, *†D. H. Barnbrook, K. D. Roberts, R. J. Bennett, D. L. Crombie, J. C. Foster, †J. C. Haworth, Rachel M. Hickinbotham, G. Jacobs, R. F. Martin, W. I. Murdoch, T. A. W. Parkes, F. C. S. Pearson, H. M. Rodger, Dorothy M. Tidmas, P. T. Walker. *Part I (Midwifery and Diseases of Women and Paediatrics)*: E. J. Allaway, A. C. Allin, P. G. Bevan, W. I. H. Bourne, J. Butler, B. O. Clements, Pamela J. Chappell, Fay P. S. Cull, S. P. Dawson, Rosemary Dearden, W. B. L. Downing, Leah M. MacN. Dunn, Margaret J. Dutton, Jeanette G. Eveson, Barbara M. Finch, D. P. Fitzgerald, Frances A. Fouracres, D. M. Garratt, Joan E. Garside, N. L. Gleiberman, F. R. Goodwin, P. H. T. Hall, Norah K. S. Howkins, Jose V. Keats, H. M. Kent, D. E. T. Laird, Sylvia E. Leather, Rosemary T. Mitter, G. C. Richards, Jeannie E. Roulston, Patricia E. Smith, J. E. Tremlett, F. E. Webb, J. T. H. Wise, C. Wood.

*With second-class honours. †Distinction in surgery. ‡Distinction in paediatrics

The following scholarships, exhibitions, and prizes have been awarded in the Faculty of Medicine:

Queen's Scholarship (Final Year): D. H. Barnbrook. *Ingleby Scholarships*: D. H. Barnbrook, J. C. Haworth. *Arthur Foxwell Memorial Medal*: J. C. Haworth. *Sampson Gamgee Memorial Medal and Priestley Smith Prize in Ophthalmology*: J. K. Baird. *Lawrence Barnard Carlton Scholarship*: E. A. Marsland. *Alexander Youngson Prize*: Dylis A. Owen, P. Goodwin.

UNIVERSITY OF BRISTOL

Mr. R. Milnes Walker has been appointed professor of surgery in succession to Prof. A. Rendle Short, who is retiring. The announcement last week stated erroneously that this is a newly established chair. The University of Bristol, since it first received its Charter in 1909, has had a chair of surgery, which has been filled in succession by Prof. James Swain, the late C. A. Morton, the late E. W. Hey Groves, and Prof. Rendle Short.

UNIVERSITY OF DURHAM

Richard Charles Browne, B.M., B.Ch., M.R.C.P., has been appointed to the Nuffield Chair of Industrial Health at Newcastle-upon-Tyne.

At a Congregation held on Dec. 21 the following medical degrees were conferred:

M.S.—R. J. Rutherford, W. K. Yeates.
M.B., B.S.—Isabel Aitchison, Lilian Alexander, Jean E. Arkle, J. Arkles, R. J. Belas, Eileen E. Cameron, Rachel Cameron, E. S. Clarke, Barbara E. Corlett, G. R. Cottrell, J. D. K. Daves, R. J. Dias, Joyce Dixon, R. H. Etherington, V. Franks, G. D. Fullerton, G. S. Graham, Jean A. Grant, V. F. Harrison, Joyce C. Harvey, Rita Hedley, G. L. Hindson, P. J. Hogg, A. S. Hughes, Patricia M. Hutchinson, A. C. Jenkins, C. Johnson, W. Latimer, Elizabeth Lawson, S. Ley, Mary Meikle, F. R. G. Mellor, M. Menzies, Jean H. Mitchell, J. S. Noble, J. Oldfield, A. C. Parry, Jean McM. Paterson, B. E. Roebuck, W. M. Ross, C. B. S. Schofield, H. L. Simon, Jean D. Smedley, E. R. Smith, F. J. Spencer, N. B. Sprague, Kathleen M. Stevens, Mary Storrier, S. M. Spiro, C. P. Tanner, T. C. Taylor, D. S. Thomson, J. N. Walton, D. D. Webster, A. E. White, Joan Williams, M. Wood, W. Wood, K. D. Woodas, W. F. M. Hudson (In absentia).

UNIVERSITY OF WALES

The following candidates for the degrees of M.B., B.Ch. at the Welsh National School of Medicine have been approved at the examinations indicated:

SURGERY.—J. W. Bowen, Gwenllian M. Griffith, D. B. Harries, K. I. Roberts, D. L. Stone (with distinction), D. R. Thomas, W. D. C. Thomas.
PATHOLOGY AND BACTERIOLOGY.—Beryl H. Jones, B. F. Richards, T. M. Warren.
PHARMACOLOGY.—S. I. Cohen, Anne Guy, Constance A. M. Llewellyn, Mary C. Sumption.
MEDICINE.—Jane W. Anderson, D. Anthony, A. J. Barry, L. A. J. Evans, I. D. Jacobs, P. G. Jagger, D. G. Jones, Enid A. Reed.
OBSTETRICS AND GYNAECOLOGY.—A. H. Beynon, Nora C. Curran, Gareth E. Davies, Margaret E. Davies, Clare G. M. Dillon, E. D. Edwards, J. M. Huxley, M. G. Jones, N. E. H. Jones, Mary Lawrence, R. Medlicott, Goronwy Owen, Barbara M. Parker, Beryl P. Roberts, K. I. Roberts, D. M. Rowlands, Jean T. Smith, D. M. Watkins.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

The William Blair-Bell Memorial Lecture, 1946, will be delivered by Dr. Leonard Colebrook, F.R.C.O.G., on Friday, Jan. 25, at 5 p.m., at the College House, 58, Queen Anne Street, W. His subject is "Looking Backwards and Forwards: Control of Infection in Obstetrics."

New regulations have been made increasing the special and general training required of candidates for admission to membership of the Royal College of Obstetricians and Gynaecologists. The regula-

tions will apply to all who sit for the membership examination for the first time in January, 1947, except those who have served in a medical capacity in the Forces during the war, who may apply for permission to take the examination at any time under the provisions of the regulations of March, 1944. Details may be obtained from the Secretary of the College, 58, Queen Anne Street, W.1. It is also the intention of the College, when facilities are available, to increase the period of training for the membership examination from the present minimum of three years to five years. Sufficient notice of this will be given to enable intending candidates to plan their courses of training.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The following letter has been received by Sir Alfred Webb-Johnson, Bt., President of the Royal College of Surgeons, from Dr. Donald Balfour, Director of the Mayo Foundation, accompanying a gift of \$5,000 to the Restoration and Development Fund:

My dear Sir Alfred,

At the meeting to-day of the Medical Graduate Committee of the Mayo Foundation it was recommended to the Board of Trustees of the Mayo Properties Association that a gift be made to the Royal College of Surgeons of England on behalf of the staff of the Mayo Clinic and the faculty of the Mayo Foundation.

We hope that this gift will be received as it is given—namely, as evidence of the desire of the staff of the Clinic, particularly the surgical staff, to aid in the plans for the reconstruction of the buildings and facilities of the Royal College of Surgeons so that in this restoration the great influence of the College in elevating surgery and the surgical specialties will be continued in the future not only in the British Empire but throughout the world.—Yours sincerely,

DONALD C. BALFOUR

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF
GLASGOW

Prof. Harry Platt, M.S., F.R.C.S., will deliver the James Watson Lecture in the hall of the Royal Faculty of Physicians and Surgeons, 242, St. Vincent Street, Glasgow, on Wednesday, Jan 23, at 4 p.m. His subject is "Localized Cystic Lesions of Bone"

The American College of Surgeons has conferred (*in absentia*) its Fellowship (F.A.C.S.) on Mr E R Garnett Passe, F.R.C.S., at the meeting of the Regents in November, 1945.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week the incidence of whooping-cough and of scarlet fever continued to fall, notifications being 95 and 35 fewer, respectively. Dysentery was less prevalent, with 83 fewer cases. The only disease with a greater incidence was acute pneumonia, of which there were 197 more notifications than in the preceding week.

No further cases of dysentery were reported from the large outbreak of the preceding week in Hertfordshire, Hatfield R.D. The one fresh outbreak during the week involved 10 cases in Rutland, Oakham U.D. and R.D. A large rise occurred in Surrey, from 9 to 33. The other large returns were Lancashire 52, London 20, Essex 15, Warwickshire 12, Yorks West Riding 11, and Middlesex 10.

The decrease in whooping-cough was mainly confined to the northern section of the country. The only large fluctuation in the trend of scarlet fever was a fall of 29 in London. The main changes of any size in the returns of diphtheria were decreases of 13 in both Suffolk and Yorks West Riding. The most notable of the local increases in pneumonia was in Herefordshire, Hereford R.D., where the cases rose from 1 to 51. There were rises in the notifications of measles in Norfolk 40, and Lancashire 26.

In Scotland infectious diseases were less prevalent, notifications all showing a decrease, except those for diphtheria, which rose by 2. During the past six weeks dysentery has been at the lowest level since last July. The recent outbreak of paratyphoid fever in the East Fife coast area has been traced to a girl who sold ice-cream.

Infantile Paralysis in Malta

In the last fortnight of December 33 cases were reported in the island. Among those affected were a sailor and a member of the W.R.N.S.

Week Ending December 29

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,376, whooping-cough 724, diphtheria 514, measles 565, acute pneumonia 1,118, cerebrospinal fever 38, acute poliomyelitis 25, dysentery 265, paratyphoid 5, typhoid 9.

INFECTION DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Dec. 22.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for: (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Ireland

Figures of Births and Deaths, and of *d* *et* *c* recorded under early infectious disease, are for: (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire

Figures of *d* *et* *c* are given no cases; a blank space denotes disease not notifiable or not return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)*	(e)	(a)	(b)	(c)	(d)*	(e)
Cerebral fever Deaths	43	—	13	—	2	33	2	12	—	—
Dysentery Deaths	569	50	155	—	21	456	23	117	—	20
Enteric Deaths	230	20	43	—	—	173	44	13	—	—
Encephalitis lethargica, acute Deaths	1	—	2	—	—	1	—	—	—	—
Erysipelas Deaths	—	—	30	—	3	—	—	52	—	2
Infective enteritis or diarrhoea under 2 years Deaths	58	4	5	21	1	52	3	6	12	2
Measles Deaths	62	52	9	—	3	8,431	16	339	—	248
Orbitomyxomatosis Deaths	4	2	10	—	2	5	4	13	—	—
Paratyphoid fever Deaths	4	—	—	—	—	3	—	1(B)	—	—
Pneumonia (influenza) Deaths (from influenza)	1,166	92	6	—	5	715	28	10	—	13
Pneumonia (primary) Deaths	76	6	4	—	—	28	4	3	—	—
Poliomyelitis, acute Deaths	1	—	192	18	7	—	41	336	18	18
Poliomyelitis, acute Deaths	23	—	3	—	—	5	1	—	—	—
Purpura fever Deaths	—	2	11	—	—	—	1	15	—	1
Puerperal pyrexia, Deaths	136	19	10	—	2	130	4	11	—	—
Relapsing fever Deaths	1	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths	1,718	139	251	—	45	1,906	52	216	—	44
Smallpox Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever Deaths	5	1	1	—	1	5	—	2	—	3
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough Deaths	1,100	92	50	—	6	1,317	53	117	—	10
Deaths (0-1 year) Infant mortality rate (per 1,000 live births)	424	62	52	49	12	420	37	75	45	31
Deaths (excluding still- births) Annual death rate (per 1,000 persons living)	6,058	979	665	234	141	5,354	785	717	223	164
Live births Annual rate per 1,000 persons living	6,890	956	841	332	239	6,857	605	889	279	257
Stillbirths Rate per 1,000 total births (including stillborn)	227	14	31	—	—	202	20	27	—	—

* Returns for infectious diseases for Eire are included in with those for the following week.

† Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

The Liverpool Queen Victoria District Nursing Association announces that the launching ceremony of its mobile physiotherapy unit will be performed by the Lord Mayor of Liverpool at the Central Home, 1, Princes Road, on Tuesday, Jan. 15, at 2.30 p.m. Liverpool, which was the first city to start domiciliary nursing in 1859, is now the first city to run a mobile physiotherapy unit for domiciliary massage treatment. The unit is primarily meant to serve those patients who cannot attend out-patient departments of hospitals or afford to pay an economic fee for private treatment.

The Ministry of Labour's industrial rehabilitation centre at "Woodlee," Egham, Surrey, will be formally opened on Jan. 15 by Mr. Ernest Bevin, who was Minister of Labour when the centre was established. The ceremony will be at 2.30 p.m. and visitors will be able to make a short tour of the centre to see what is being done there.

A meeting of the Food Group of the Society of Chemical Industry will be held on Wednesday, Jan. 16, at 6.30 p.m. at the rooms of the Chemical Society, Burlington House, London, W.1, to discuss the subject of science and tea. Sir Frank Engledow will open the meeting, and papers will be read by Dr. L. H. Lampitt and Dr. A. E. Bradfield. Members may introduce friends in person.

The annual general meeting of the Research Board for the Correlation of Medical Science and Physical Education will be held at the Royal Institution, 21, Albemarle Street, W.1, on Jan. 16, at 2.30 p.m. Dr. Frank Howitt, chairman of the board, will preside, and the speakers will include the Minister of Health, Mr. Aneurin Bevan, Sir Alfred Webb-Johnson, Air Marshal Sir Harold Whittingham, Sir Reginald Watson-Jones, and Brigadier F. A. E. Crew. The board's report on medical science and physical education in industry will be presented at the meeting. This is the fourth of the series; the three earlier ones, which were presented at the meeting last year, were on medical science and physical education in relation to maternity and child welfare, education, and the Services. Tickets for the meeting on Jan. 16 may be obtained from Miss Bronwen Lloyd-Williams, 37f, Regent's Park Road, London, N.W.1.

The following radiological meetings will be held in London this month: British Institute of Radiology, 32, Welbeck Street, W., Thursday, Jan. 17, 8 p.m. Prof. H. T. Flint, "Development of Ultra Short Waves." Therapy Section of Faculty of Radiologists, at Royal College of Surgeons of England, Lincoln's Inn Fields, W.C., Friday, Jan. 18, 2.30 p.m. Discussion on "Treatment of Birthmarks, Keloids, and Warts," to be opened by Dr. S. Bryan Adams, Dr. Inez Aphthomas, Dr. J. F. Bromley, Dr. C. J. L. Thurgar, Dr. W. Shanks, Mr. J. Jackson Richmond, Dr. A. J. Durden Smith. Radiology Section of Royal Society of Medicine, 1, Wimpole Street, W., Friday, Jan. 18, 8 p.m. Papers by Dr. J. Blair Hartley, "Tomography in the Diagnosis of Lung Carcinoma"; Dr. R. A. Kemp Harper, "Some Observations on the Radiology of the Pancreas"; Dr. A. S. Johnstone, "Experimental Study of the Vertebral Venous System."

A meeting of the Tuberculosis Association will be held at 26, Portland Place, W., on Friday, Jan. 18, at 5 p.m., when Dr. Norman Tattersall will deliver his presidential address on "The Tuberculosis Service and the Future." This will be followed by a paper on "The Pathological Changes in the Pneumoconiosis of Coal-miners" by Dr. Jethro Gough. At 8 p.m. Dr. Enid M. Rogers will read a paper on "The Incidence of Tuberculosis in the Pneumoconiosis of Coal-miners."

A course of twelve lectures on "Recent Advances in Dairy Science" will open on Jan. 22 in the lecture room of the Central Laboratories, Express Dairy Co. Ltd., 133, Euston Road, London, N.W. The course, under the auspices of the Chelsea Polytechnic, is intended both for persons engaged in the control of milk in its preparation for the consumer, and for medical officers of health, public analysts, food chemists, and others concerned with milk as a foodstuff and with public health. Prof. H. D. Kay, F.R.S., director of the National Institute for Research in Dairying, will give an inaugural address on Tuesday, Jan. 15, at 6 p.m., his subject being "The Future of Dairy Research." Fee for the course £1; individual lectures 2s 6d. Applications should be sent to the Principal, Chelsea Polytechnic, Manresa Road, S.W.3.

On Thursday, Jan. 24, at 3 p.m., Dr. Clarence Crafoord, of Stockholm, will lecture before the Society of Thoracic Surgeons of Great Britain and Ireland on "Congenital Coarctation of the Aorta and its Surgical Treatment." By permission of the President and Council of the College the lecture will be given at the Royal College of Surgeons, Lincoln's Inn Fields, London, W.C.

At a meeting of the Medical Group of the Association for Scientific Photography, to be held in the Hastings Hall, B.M.A. House, Tavistock Square, W.C., on Thursday, Jan. 24, at 6 p.m., Dr. P. Richardson-Bell will give a talk on "Medical Photography, or Photomicroscopy Medico."

Dr. Charles Hill, Secretary of the B.M.A., and Dr. Stark Murray, vice-president of the Socialist Medical Association, will speak on "The State and Your Doctor" in the series "Questions in the Air" in the Home Service programme of the B.B.C. on Jan. 18 at 7.30 p.m.

The Ministry of Health announces that the Civil Nursing Reserve, formed in 1939 to reinforce the nursing services in the event of war, is to be continued for the present. New and improved terms of service came into force on Jan. 1. These are: (1) higher salaries for all members, (2) payment for part-time service, (3) additional leave and travel facilities for certain classes. A special emergency class of the Reserve is also being created. It is for those who, through marriage or for other reasons, cannot do regular nursing work, but who would be ready to give whole- or part-time service limited to an emergency such as a widespread or local epidemic or abnormal pressure on a hospital. Work of this kind will be paid for. Emergency members must have sufficient training to be able to serve as trained nurses, assistant nurses, or nursing auxiliaries, without further nursing instruction. Members of the St. John Ambulance Brigade or the British Red Cross Society holding certain qualifications are eligible to enrol.

Sir Alexander Macgregor, medical officer of health for Glasgow, has been appointed chairman of the Scientific Advisory Committee to the Department of Health for Scotland to fill the vacancy caused by the resignation of Sir John Boyd Orr from the chairmanship on his election to Parliament. The function of the committee is to advise the Secretary of State for Scotland on the application of the results of scientific research to public health administration and to promote medical investigation designed to assist the Secretary of State in the discharge of his responsibilities for the health services in Scotland. Sir John Orr remains a member.

By an alteration in the application of the Control of Engagement Order, 1945, which took effect on Dec. 20, 1945, women pharmacists, dispensers, and drug hands, other than those working in essential undertakings, are free from control. They may take their own steps to obtain employment, and employers are free to engage them without prior permission. The Central Pharmaceutical War Committee has therefore ceased to function as an agency of the Ministry of Labour and National Service for the placing of such persons in employment, and is no longer receiving notices of vacancies. Doctors seeking to engage women dispensers and women dispensers seeking employment with doctors may now do so without reference to that committee.

Letters, Notes, and Answers

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh

ANY QUESTIONS?

Treatment of Cough in Pneumonia

Q.—What is the symptomatic treatment of cough in cases of pneumonia?

A.—Cough in pneumonia requires treatment: (1) if the cough is unproductive and interfering with the patient's comfort or rest, (2) when the cough is productive but the sputum is so viscid that the cough exhausts the patient without adequate result.

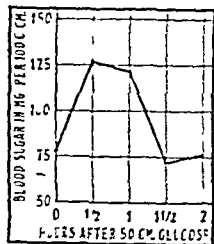
When the cough is not productive it is useless and should be damped down. The milder degrees are best dealt with by the use of a codeine linctus containing, e.g., codeine phosphate (gr. 1/16 to gr. 1/8; 4 to 8 mg.), every four hours. For the more severe type of linctus heroin (gr. 1/32 to gr. 1/8; 2 to 8 mg.) should be used sufficiently often to produce the required result. Often the unproductive cough requires treatment not so much in itself as because of the pain it causes; in these cases the pain rather than the cough should be treated.

When the cough is productive warm alkaline draughts, sod. cit. and sod. bicarb. $\bar{a}\bar{a}$ gr. 15 (1 g) in 2 oz. (56 c.cm.) of warm water, four-hourly, are most useful. With these a mixture of old matured tinct. camph. co. and oxymel of squill $\bar{a}\bar{a}$ gr. 30 (2 g.) should be given. This has been proved to have an expectorant action as well as making the cough less frequent. In some of these cases there is an element of spasm and small doses of pot. iod. and stramonium are of value.

Idiopathic Hypoglycaemia

Q—(1) Is there a syndrome in which one might call idiopathic hypoglycaemia and if so what is the blood sugar curve shown in the chart come within the pressure limits of such a condition? In this case glucose at 140 mg per 100 ml was found in the urine. (2) When insulin is used in small doses is it presumed to exert its toxic effect by increasing the amount of sugar available for combustion in proportion to the stored in the liver as glycogen? Is it possible that a degree of hypoglycaemia (with symptoms) might result from an undue preparation of the latter function over the former? (3) Could you tell me a safe dose of insulin used as above, and also the approximate safe limit? Are there any recent publications on this subject and on hypoglycaemia generally, apart from those dealing exclusively with diabetes and schizophrenia?

A.—There is such a syndrome. The symptoms are very diverse and it is impossible to do justice to them in a short answer. The initial symptoms are identical with those due to an overdose of adrenaline. Indeed they are probably due to the ready response of the adrenal medulla to a falling blood sugar. Among the symptoms are sweating, weakness, tremor, dizziness, hot or cold sensations, palpitations, precordial pain, dyspnoea, and nausea.



If the hypoglycaemia is not relieved by sugar or by the response of the liver to the increased output of adrenaline, other symptoms due to starvation of the nervous system may appear. There may be visual disturbances, incoordination of the limbs, headache, disorientation in time and space, paraesthesiae, convulsions, mental disturbances of many kinds, auditory disturbances, dysarthria, urinary incontinence, and finally coma. The second group of symptoms does not occur in the comparatively mild condition of spontaneous or "idiopathic" hypoglycaemia but is common after an overdose of insulin and may be seen also in the rare condition of tumour of the islets of Langerhans. The blood sugar curve so far as it goes, is just within the limits of normal. This does not, however, exclude spontaneous hypoglycaemia. Many of these patients show normal curves unless the test is carried out for four hours, the abnormal drop being noted between the third and the fourth hour (See *Journal* leading article of Sept. 7, 1944).

Insulin has no "tonic" effect. It does, in some but not in all patients, increase the appetite, but usually only when given in a dosage sufficiently high to produce slight hypoglycaemia. In some patients hypoglycaemia produces a remarkable increase in appetite, and it is said that normally well behaved citizens have, while hypoglycaemic, broken shop windows to get at the food. Others suffer from nausea and have to be persuaded to take sugar. It is impossible to state an average dose for the purpose of increasing appetite, or the approximate maximum, for patients vary so greatly in their reactions. It is usual to give 10 units of soluble insulin before meals, and to increase the dose gradually until success is achieved, or until hypoglycaemia without increase in appetite terminates the experiment. The literature of the subject is enormous. Some of the most useful references will be found in the leading article already mentioned.

Tuberculin positive Reactors

Q—What percentage of ordinary men and women become reactors when tested with human tuberculin? What proportion of them have the disease in an active form?

A.—The proportion of tuberculin positive reactors among apparently normal adults has been the subject of a large number of surveys (Whitney, J. S., and McCaffrey, J., *Amer. Rev. Tuberc.*, 1937, 35, 597). It has been found that about 50 to 90% are positive reactors, according to their environment, the incidence of positive reactors being higher in urban than in rural areas. Judging by recent mass radiography statistics, approximately 0.5% of the adult population have active tuberculosis.

B coli Cystitis

Q—A patient has suffered for the last three years from *B. coli* cystitis due to catheterization which became necessary during an attack of intestinal colic. Alkalis, sulphonamides, mandelic acid, autoserums etc. in different hospitals have given only temporary relief. What is the correct treatment?

A.—The urinary tract should be investigated to exclude the presence of any lesion requiring surgical treatment. If the results are negative, it is next desirable to know whether these successive attacks are due to reinfection or are merely exacerbations of an infection which has persisted throughout. This can be determined by cultivating the urine during a symptom free interval, not simply by ordinary methods but by cultivating considerable volumes (e.g.,

100 ml of 1 cc in fluid media). If the urine is then bacteria free—i.e., if the attacks are due to repeated reinfection—attention might with advantage be directed to the state of the bowel, the possibility of some disorder here is suggested by the history of intestinal colic. The infecting organism is found to be still present even during a symptomless interval, more prolonged treatment with a urinary antiseptic is indicated. The sulphonamides are both the most efficient and the most suitable for prolonged administration. After an initial course of ordinary doses (3 to 4 g daily) a dose of only 0.25 g four times a day suffices to maintain the effect, and may be taken for considerable periods, without inconvenience or any but the most remote danger of toxic effects. It is presumably known from past experience which of the sulphonamides is effective in this case, for discussion of their relative merits the questioner is referred to M.R.C. War Memorandum No. 10, 2nd edition.

Penicillin in Chronic Otitis

Q—If at treatment is advised for chronic otitis media after failure of 30% spirit drops, sulphathiazole powder and boric powder in equal parts and iodized boric powder? Has penicillin been used in this condition and what is the most successful method of application?

A.—Successful treatment of chronic otitis media often depends on factors other than the type of antiseptic used. Local treatment cannot be successful if the middle ear is reinfecting by a focus in the middle ear, the nasal sinuses or the adenoids. Further, it must be possible to introduce the antiseptic into the middle ear. For this the perforation must be sufficiently large and not obstructed by granulations and the middle ear must be emptied of purulent or mucopurulent discharge by suction or Eustachian inflation. Given these conditions, penicillin will act on sensitive organisms as effectively as in other regions. It may be used in solution or in powder form. The low temperature of solutions necessary to preserve activity may cause temporary vertigo. A note on penicillin in chronic otitis media appeared in the *Journal* of Jan. 5 (p. 13).

Icteric Index

Q—Will you please give the following information about the icteric index: (1) renal threshold level, (2) highest recorded figure, (3) usual figure in a marked catarrhal or infective jaundice, (4) average normal figure, (5) figure when clinical icterus is just visible, (6) fallacies in estimation?

A.—Bilirubin appears in the urine when the icteric index is 18 and over. The highest recorded figure is not known, but indices over 400 have been mentioned. The usual figure in a marked catarrhal or infective jaundice is 50 to 100. The average normal figure is 4 to 6 and icterus usually becomes clinically apparent at 15. Fallacies in the estimation may be due to cloudiness or haemolysis in the serum or staining of the serum by pigments other than bile. A diet rich in vegetables increases the colour intensity of the serum, owing to the presence of carotin, lutein, etc., and the serum may also be coloured by drugs such as mepacrine (atebrin). It should be appreciated that figures for renal thresholds and clinical thresholds are only approximate, as the factors influencing the appearance of bile pigment in the urine, conjunctiva, and skin are complex and variable. Finally, there is not a close correlation between the icteric index and the serum bilirubin content, and high index figures merely indicate in a general way that the serum bilirubin is raised.

Miscarriages and Congenital Syphilis

Q—Is a woman showing strong evidence of congenital syphilis prone to have miscarriages as a direct result of her early previous infection? Can a congenital syphilitic, after all evidence of active disease has subsided, later develop acquired syphilis by reinfection?

A.—If the possibility of third generation syphilis is admitted—and most people nowadays regard it as proved—there seems no reason why a congenital syphilitic woman should not suffer from miscarriages as a result of her original infection. "Prone" is hardly the word, since the condition must be rare. The answer to the second part of the question is, Yes.

Corneal Ulcer and Glaucoma

Q—If atropine is instilled in elderly people with corneal ulcers is there no danger of glaucoma? If so, are such cases to be treated without atropine? Is there any alternative?

A.—Guttae atropinae 1/2% may be used in old people who have a corneal ulcer. The danger of glaucoma is very slight, whereas in such cases not treated with atropine iritis and secondary glaucoma may follow. The certainty of improving the condition outweighs the very problematical danger of glaucoma from the atropine. If the patient has a tendency to primary glaucoma, homatropine 1% could be used initially. If no rise of tension resulted atropine increasing in strength from 1/4% should be employed. In all cases of corneal ulcer it may be necessary to distinguish between glaucoma from the

mydriatic and glaucoma due to iritis or iridocyclitis. The decision often carries a heavy responsibility, since the treatment of the two conditions is entirely different.

Sex Hormones and Infertility

Q.—What is the value of injections to increase fertility in husband and wife, each aged about 40? It is not advisable to do any of the usual tests on either. I am now using progesterone, 1 mg. weekly, and testosterone propionate 1 mg., also weekly.

A.—The causes of infertility are so many and so varied that it is doubtful whether any treatment is justified without some sort of preliminary investigation. The usual tests are certainly "advisable," but presumably they have been refused by the couple in question. In that case there is much to be said for refusing treatment. The administration of progesterone to the woman presupposes that the fault is an inadequate preparation of the endometrium, by the corpus luteum, for the embedding of the ovum—in other words, that the woman is becoming pregnant but the uterus will not harbour the blastocyst. If such is the case, and it is not very likely, then the progesterone should be given during the latter half of the cycle only and in larger doses more frequently; 1 mg. weekly can have little, if any, effect, good or bad. In favour of giving testosterone to the man, it could be argued that it might increase sex desire, but this again is unlikely. There is also some evidence that small doses can stimulate the testicular tubules, but in general it can be stated that in large doses, or in small doses continued for any length of time, testosterone depresses spermatogenesis. The most that can be said for this side of the case is that the amount of testosterone given is so small that, unless it is continued for a long time, it is probably doing no harm.

Infertility is not often due to hormone deficiency *per se*, and the treatment employed here has little, if any, scientific basis. It might be regarded as a placebo and therefore of some psychological benefit, but for such a purpose many cheaper and more suitable alternatives come to mind. Even if a pregnancy occurs it will be in spite of treatment rather than because of it. The blind and empirical treatment of infertility is unsatisfactory. The indiscriminate use of sex hormones without any evidence to show that the patient is deficient in such hormones is always to be deprecated, and particularly where infertility is concerned.

Sticking-plaster

Q.—What are the constituents of common adhesive sticking-plaster? Why is it called zinc oxide plaster, and why is zinc oxide included in it? On being removed it very often leaves particles of the adhesive material on the skin; why not use some other material—for example, the American "Scotch tape"—in which the adhesive agent always prefers its own backing to the skin?

A.—The spread of common adhesive sticking-plaster consists essentially of crêpe rubber and resins, together with various plasticizers and fillers. This is still available, if required, for special purposes, such as those in which the presence of metal is undesirable, but zinc oxide has been found to be particularly suitable as a filler, and is now usually incorporated in the plaster for this purpose, quite apart from any dermatological advantages it may provide. It has, therefore, become known as zinc oxide adhesive plaster. At the present time, of course, a proportion of synthetic rubber is being used in place of the crêpe rubber, and it seems to be even better, in some cases, than the natural product, and leaves less residue on removal. We understand that the basis of American plaster is very similar to that of the British, but the method used in applying the spread to the backing differs in the two countries, and it is recognized that by using the American process a plaster is produced which leaves less residue on removal than the plaster made by the British process.

INCOME TAX

Ceasing to Reside in the United Kingdom

LETTERS, NOTES, ETC.

Venereology

Dr. LOWELL WEBB (Bournemouth) writes: Dr. Robert Cook (Nov. 3, p. 634) suggests that the word "venereology" should be replaced by "astartology," but this is merely playing with names, for Roman Venus is identical with Semitic Astarte, who is equated with Egyptian Isis, upon whom have descended the attributes of Hathor, the original goddess of motherhood in its purest form, which later became debased into the type of "love" usually associated with the names of Venus and Aphrodite. In fairness to the latter it should be remembered that she was only secondarily a courtesan and primarily a lady doctor: a herbalist whose special remedy was the mandrake—the original love-apple—which she wore on her girdle as a prescription for fertility and easy parturition. If only her feminine weaknesses are to be recalled and not her medical virtues then the name of Venus is appropriate for the nomenclature of "love" disease, for the deity was bisexual—as also were the mandrakes—with a female form and a bearded male counterpart, and thus aptly becomes the symbol of both the sexes in their "venereal" misfortunes.

Suggestible Warts

Dr. N. HOWARD JONES (London, W.) writes: In your "Any Questions?" (Aug. 25, p. 271) a correspondent asking advice on the treatment of multiple warts is told that "they may be cured by suggestion or clear up spontaneously. . . ." This answer has remarkable, indeed revolutionary, implications. If warts can be cured by suggestion, may not this method of treatment be applied to other tumours? Again, does not the success of psychotherapy in the treatment of warts suggest that this tumour may perhaps be the incarnate expression of a neurosis? Developing this line of thought further, may not the quality of malignancy of a cancerous tumour be sought in the tenebrous regions of the subconscious, whence it might be exorcised by deep psychotherapy? Tempting as it is to speculate further upon this new and exciting application of psychotherapeutic endeavour, I am deterred by one small point that seems to require elucidation. How does the expert who answered this question distinguish between those warts which are "cured by suggestion" and those which "clear up spontaneously"—or, in his concluding words, "may at any moment vanish without a trace"?

Service Conditions and the Ethical Code

"HIPPOCRATES" writes: I was consulted recently by a dental officer attached to one of the armed Forces who had the misfortune to scratch his finger while attending to a patient and to develop a syphilitic sore at the site of the injury. At the voluntary hospital to which he had been referred for investigation he was treated with great consideration, care being taken to preserve as much secrecy as possible in view of his professional status, but his medical officer colleagues, to whom he had, of course, reported the matter, appeared to treat it as a joke. He was then sent to a Service hospital for treatment, and the driver of his vehicle refused to carry his case when he saw which department he was destined to enter. No attempt was made to soften the blow to a professional colleague who had contracted the disease accidentally in the execution of his duties, and he had to line up with the other patients of all ranks for his injections, which were administered by N.C.O.s, apparently without any direct supervision in the absence of a medical officer. He was therefore exposed to the risk of recognition at some future date by fellow-patients from all parts of the country. I understand that several dental officers have had similar misfortune and similar treatment, but having no desire to advertise the facts, which might damn them afterwards in their professional life, they have suffered in silence. If this is true—and I have no reason to doubt the veracity of my patient—it would appear that Service conditions tend to produce a much lower ethical code than that which is current in civilian practice, and the dental profession must have a very poor opinion of us.

LONDON SATURDAY JANUARY 19 1946

SPRUE IN INDIA

A CLINICAL SURVEY OF 600 CASES

BY

K. D. KEEL, M.D., Lieut.-Col., R.A.M.C. AND J. P. BOUND, M.B., Capt., R.A.M.C.

(From Sprue Research Team, Poona)

During the years 1942-4 British troops poured into India, finding their way into Bengal, the Arakan, to Imphal in Assam, and over the border into North Burma, the Chindit forces leading the way. In these areas dysentery and malaria were rife, as was that ill-defined syndrome of sprue. The object of this paper is to present observations, concerning aetiological factors, made on 600 cases of sprue; to describe the clinical picture; and to point out inadequacies in our present techniques of investigation. This seems all the more necessary as considerable numbers of such cases are being returned to England incompletely treated and ripe for relapse.

The difficulty here is well exemplified by the fact that no two authoritative definitions in textbooks are compatible. For the present purpose sprue is defined as a syndrome, consisting of diarrhoea, with the passage of light-coloured stools of high fat content, sore tongue, flatulent dyspepsia, and emaciation—all of these features being grossly variable in their presence or absence at one time and in their relation to one another. The term "parasprue" appears to serve no useful clinical purpose, and has not been adopted.

Malnutrition may manifest itself as the sprue syndrome. Steatorrhoea, however, is too variable a feature upon which to separate the two. The syndrome, as defined above, has been diagnosed as sprue even in the presence of an isolated normal faecal fat.

Seasonal Incidence

There are three seasons in India: the "cold," from October to February, with hot dry days and cool nights; the "hot" season, from March to June, when both day and night are almost unbearable; and the monsoon or rainy season, from June to September, when there is a slight decrease of temperature and much increase of swamp, flies, mosquitoes, and their accompanying diseases. In the hills, as at Imphal, the heat

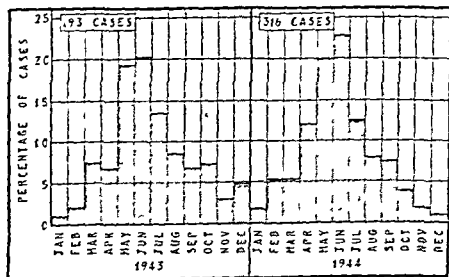


FIG. 1.—Monthly incidence of sprue in India and North Burma.

is not so extreme and the rains are heavier and of longer duration. Throughout India the incidence of sprue was highest in May and June, and minimal in November, December, and January in both 1943 and 1944 (Fig. 1). This seasonal incidence applies whether the cases originated in the cool hills of Assam (54%) or in the hot plains of Bengal and Bihar (23%) or from the rest of India (23%).

Geographical Distribution

The geographical distribution of 450 cases was as follows: Assam and North Burma, 54.2%; Bengal and Bihar, 23.1%; South India and Ceylon, 9.1%; Bombay Presidency, 8.9%; North-West and Central India, 4.7%. In view of the vast and frequent movements of troops occurring at the time, inferences must be limited. But it would seem justifiable to say that Assam, Bengal, and Bihar presented an environment favourable to the onset of sprue. In the Bombay Presidency, too, the incidence is almost equal to the rest of Southern India and Ceylon. In the Bombay Presidency the Western Ghats produce a moist, relatively cool climate during the months of maximal incidence. That cool, rainy conditions should be favourable to the development of sprue emphasizes its relationship with hill diarrhoea and the likelihood of relapse or occurrence in temperate climates.

Within a climatic zone sprue is regional. Of the cases here reported 14% occurred near Imphal and the high incidence from this place continued long after the siege had been raised. Chittagong (9%), on the coast at the edge of the Ganges delta, produced a nest of cases—six from one aerodrome in two weeks. The difference in climate of these two places illustrates how the local regional factor may supersede that of the climate.

Duration of Service in India

The maximal incidence occurred after one or two years' service in India—45% of all cases, as shown in Table I. The earliest incidence was in the Red Sea, on the way out to India. Army statistics have shown that heat effects *per se* diminish

TABLE I.—Period of Tropical Service before Onset of Sprue (475 Cases)

6 mths or less	6 mths. to 1 yr	1-2 yrs	2-3 yrs	3-4 yrs	4-5 yrs.	Over 5 yrs
8.6%	15.8%	45.4%	24.9%	2.3%	0.9%	2.1%

very rapidly after the first hot season, so that adaptation to heat, excessive sweating, etc., are probably not important. Again, before the war tropical sprue was associated with long tropical residence.

Relation to Dysentery and Malaria

There has for long been a suspected relationship between sprue and dysentery. The following observations clarify the issue.

1. A comparison of the seasonal incidence of sprue and dysentery (amoebic and bacillary), in the same region over the same time, is shown in Fig. 2. All cases of both diseases were drawn from Assam, North Burma, and Bengal during the years 1943 and 1944. It will be seen that the incidence of sprue precedes that of dysentery surprisingly clearly, in a manner that makes it very unlikely that sprue follows an attack of dysentery at all commonly. Rather the reverse is suggested. The relation to chronic or relapsing dysentery is, of course, not to be derived from such cases.

2. The incidence of dysentery preceding sprue (23.6%) is shown in Table II. In 16.7% of cases dysentery had occurred more than

one month previously. In nearly 7% it had occurred within one month of the onset. In 340 control cases the incidence of dysentery was nearly 21%. The incidence is not significantly higher in those with sprue.

3. In individual cases a close relation is sometimes found to exist between an attack of amoebic or bacillary dysentery and the sudden passage of tropical sprue stools. It is difficult to believe that this is entirely fortuitous, though the effects of dysentery may be non-specific in activating the latent syndrome.

A group of 87 cases labelled "malnutrition" drawn from the Chindit Forces in June and July, 1944, were found to

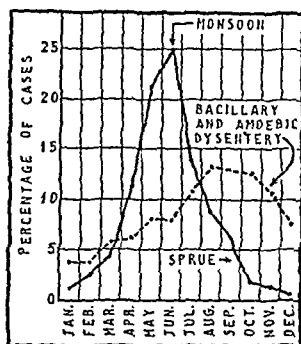


FIG. 2.—Comparison of monthly incidence of sprue (302 cases) and bacillary and amoebic dysentery (2,200 cases) in Bengal, Assam, and North Burma, 1943 and 1944. (Dysentery curve by courtesy of Lieut.-Col. C. S. Seward, R.A.M.C.)

include 52 patients with the syndrome of sprue. These cases were seen under circumstances that rendered investigation incomplete, but glossitis, with diarrhoea, pale stools, flatulent dyspepsia, and marked emaciation, was present. Fat analysis of stools in 15 cases showed 12 with faecal fat over 30%. Malaria was found clinically and by positive blood-slide in 42%. Response to sprue therapy was unsatisfactory in many, but improved dramatically after malaria had developed and been treated. This effect of malaria and/or antimalarial therapy on the sprue syndrome was repeatedly demonstrated. If sprue is present concomitant latent malaria undoubtedly exacerbates it.

Complexion

Racial selectivity of sprue is said to be according to pigmentation. The darkest negroes do not get it at all. In dark Indians it is said not to occur, while the brunt of the incidence falls

TABLE II.—Incidence of Dysentery Preceding Sprue (525 Cases), and in Control Cases (340)

Dysentery	More than One Month before Onset of Sprue	Within One Month of Onset of Sprue	In Control Cases
Bacillary	8.0%	2.5%	6.6%
Amoebic	5.1%	3.8%	6.8%
Bacillary and amoebic ..	1.7%	0.2%	2.4%
Clinical	1.9%	0.4%	5.0%
Totals	16.7%	6.9%	—
Total dysentery ..		23.6%	20.8%
No dysentery ..		76.4%	79.2%

on Anglo-Indians and Europeans. It is undoubtedly true that Indian troops have developed the full syndrome of sprue during the war, though difficulty in diagnosis is increased by the commonness of malnutritional anaemias. In British troops, though there is no difference in the incidence between dark and fair, it is the latter who have provided the majority of severe cases.

Diet

Most troops first developed diarrhoea under jungle warfare conditions, but many were on ordinary field service rations. A large number of cases developed diarrhoea on a diet consisting of: protein, 95–103 g.; fat, 114–143 g.; carbohydrate, 425–435 g.; with calcium, 1.6–1.7 g.; iron, 20–25 mg.; vitamin A, 1,450 i.u.; thiamine, 1.2–1.8 mg.; riboflavin 2.1 mg.;

niacin, 16.3 mg.; ascorbic acid, 6 mg. (supplementary tablets, 50 mg., were added). It is interesting that this diet, well balanced and adequate on paper, was found monotonous, and parts of it distasteful, so that men were vomiting while trying to eat, and within 4 to 6 weeks on the diet developed diarrhoea and later sore tongue. Such was the story in the group of cases described above from Chindit forces.

Coincident dysentery and malaria must have played a part in the development of symptoms, but the stories of these patients strongly emphasize the psychological necessity for palatability of diet, as well as the correct caloric and vitamin value.

Clinical Picture

In these years 1943 and 1944 the clinical picture of sprue has been modified. The following is a brief description of the types seen.

The Classical Picture of Sprue.—This is well known. Its characteristics are a long history of some years' diarrhoea, with sometimes transient sore tongue. Asthenia, slight at first, increases with each bout and between them; the tongue becomes more sore, red, and smooth; loss of weight and pale large stools, at first intermittent, then become constant. Dyspepsia and distension are persistent. Emaciation progresses until the most stubborn officer is constrained to report sick some months or a year after he has suspected what was wrong with him. On examination signs are marked—a smooth sore tongue, abdominal distension, complete achlorhydria, high stool fat (40 to 50%), and macrocytic anaemia are all usually present with emaciation. This type of case was not common in our series.

Acute Sprue—Mild and Severe Forms.—In contrast to the classical picture the following is the type of story of the majority of our cases.

Onset.—A man aged about 25 arrives in India. During his first year he goes through jungle training and contracts the usual short fevers, dysentery, etc. He is sent to Assam after this and becomes involved in the fighting round Imphal and afterwards across into Burma. In these arduous circumstances he lives for varying periods, from a few weeks to months, on an adequate but monotonous diet, described previously. He naturally, therefore, attributes his onset of diarrhoea after 3 to 6 weeks to this. Diarrhoea may be acute of dysenteric type or insidious in onset; a week or two later anorexia becomes marked, and at the same time soreness of the tongue is noticed. Flatulent dyspepsia with heartburn increases, and vomiting occurs. He reports sick. Rapid improvement ensues if he is put in hospital on ordinary diet. The tongue is clear within a few days and the diarrhoea stops. His case is very much like that of clinical dysentery; exudate may or may not be found in the stools. He returns to duty feeling fairly fit. Within a week or two the diarrhoea returns; the stools are pale, sometimes quite fluid, sometimes large and bulky. He returns to hospital with the typical sprue syndrome, and finds his way in due course back to base, as either a mild or a severe case.

(a) *Acute Sprue (Mild).*—By the time the base is reached (perhaps 1 to 2 weeks are spent in transit hospitals) the man is apparently well. The tongue is normal; the stools coloured. Weight is not much reduced. He responds well to treatment and may be sent back to duty in a lower category. After a few weeks he again relapses and re-enters hospital. He repeats this tantalizing part of his story anything from two to six times before he is finally boarded out of India, still perhaps appearing well but now with glossitis or angular stomatitis and persistent distension. The stools are still pale, though their fat content may not be much raised.

(b) *Acute Sprue (Severe).*—The acute attack proceeds straight from onset to produce a dehydrated, emaciated patient with gross distension and a smooth, dry tongue. Steatorrhoea is present; anaemia may develop suddenly, necessitating transfusion; hypotension is present, and response to treatment is often satisfactory. Such cases form about one in ten of those seen. After months of treatment weight is slowly restored, two or three major or minor relapses occurring in hospital, particularly when the diet is increased. Finally he too is evacuated from India. On the average, with mild and severe cases, the period between onset and evacuation has been about one year.

Post-dysenteric Sprue.—During or after an attack of dysentery (usually amoebic) there occasionally develops a sore tongue, and stools are pale and contain 30 to 40% of fat. This change usually lasts for about a month, then clearing, but may continue and turn into a long-standing case of sprue. After repeated attacks of dysentery steatorrhoea may come on

insidiously over months with but little diarrhoea (3 to 4 stools a day) and minimal dyspepsia and glossitis

A man with glossitis angular stomatitis, marked emaciation, steatorrhoea, but no diarrhoea (2 to 3 stools a day) and no dyspepsia, with stool examination repeatedly negative for exudate and amoebae died suddenly of a perforating ulcer of the caecum. Necropsy revealed a normal stomach and small-intestine mucosa, but gross amoebic ulceration from caecum to rectum was found

This case suggests that the colon may be involved in the production of the sprue syndrome. The case also is of interest in that it was for 10 days diagnosed and treated as sprue. The patient did not respond to sprue diet and liver extract by mouth

Subacute Hepatic Necrosis and Sprue—Though subacute hepatic necrosis is not common, several instances of the condition showing the sprue syndrome have been seen at a time when jaundice was absent, bile pigment was absent from the urine and present in the faeces. The sprue symptoms, including the tongue and steatorrhoea, have improved as the liver has diminished in size

Steatorrhoea with Minimal Glossitis—This clinical picture of 'incomplete sprue' as described by Manson-Bahr (1943) has been seen in 3.6% of cases. It has most often been found in fat analysis of the stools of chronic cases of diarrhoea treated as chronic dysenteries. Chronic diarrhoea in itself does not produce a rise in faecal fat as judged from chronic amoebic dysenteries so examined. Further examination of such cases of steatorrhoea brings to light achlorhydria and other changes suggestive of sprue. Response to sprue diet is good, but sore tongue may develop on it. These cases form one extremity, so to speak, of the sprue syndrome. Time often draws them further into the group. Giardiasis and tabes mesenterica cases have not been included in this group

Glossitis with Minimal Steatorrhoea—At the other extremity of the syndrome is the condition described by Manson Bahr as 'larval sprue' glossitis with slight, if any, steatorrhoea. Differential diagnosis from pellagra is sometimes made by the later appearance of the steatorrhoea dyspepsia etc.—some times not. Hamilton Fairley (1936) in his cases found 20% with less than 25% total faecal fat. In our own series 20% of cases had total faecal fat of less than 30%. It is probable that the numbers with normal faecal fat would be greatly reduced if the examination was repeatedly performed, which it never has been. Secondly, the percentage of fat is erroneous by the standard techniques used. These considerations lessen the importance of this apparently exceptional group of cases. The clinical features of such 'low faecal fat' cases were not distinguishable from the others. Such cases are no milder, and their prognosis appears no better so far as response to treatment and tendency to relapse are concerned. The group provides many examples of the type of case which repeatedly relapsed in India before being evacuated

Characteristic Symptoms and Signs

Mouth Lesions—Glossitis has been practically constant (96%). The longer cases are observed the fewer exceptions are found. Soreness of the tip of the tongue, with redness comes first, spreading to the sides. The changes are very variable, the tongue may become smooth and depapillated in a few days, and recover equally quickly. Tongue changes coincide to a day or two with diarrhoea in many cases. Glossitis responds surprisingly quickly to diet alone, but often nicotinic acid and riboflavin have seemed to accelerate improvement. Cheilitis and angular stomatitis have not been so common (40%), nor so quick in response to treatment. Fissures of the tongue may be congenital or acquired. It seems that the congenital type may deepen and ulcerate in their depth, the acquired may appear with or without oedema of the tongue. Response to treatment has shown shallowness and disappearance of some, while others, presumably congenital, are unaffected. The typical magenta tongue of riboflavin deficiency has not been seen

Appetite—Variability from voracity to extreme anorexia is, in all phases of the disease as characteristic as either variation alone. The mechanism relating normal appetite to physiological need seems grossly deranged. While a return of appetite is welcomed, rash increase of diet subsequently produces dyspepsia, diarrhoea, and return of anorexia. This illustrates the

process of relapse in unsupervised patients after discharge from hospital

Vomiting has been present in 18%, particularly in cases of acute onset. Heartburn is common (70%) and causes considerable distress. Dysphagia has not been marked. Dyspepsia of the flatulent type is practically constant (94%). Fats exacerbate it, in spite of it, gastric acidity is usually normal—in at least 66%.

Distension—One of the salient signs of sprue, distension comes early and disappears late, if not last of all. It is maximal in the hypogastrium. Abdominal girth alters by only 1 to 2 in (2.5 to 5 cm), though the patient's sensations lead one to expect more. Barium meal examinations did not show convincing evidence of small intestine dilatation, but one instance of megacolon was found in a patient who was not more distended than the others and whose progress was better than the average. At his own wish he was retained in India under observation. When last seen 1½ years later, he was quite well on active service. Actual dilatation of, as well as reflexes from the gut producing loss of tone of abdominal muscles, provides two elements in the production of distension. The latter would appear to be a common mechanism in sprue

Diarrhoea—This constant symptom is of first importance in diagnosis and management of sprue. Diarrhoea is often as acute though not as painful as in dysentery, and 15 to 20 watery pale stools are passed daily. Even the response to sulphaguanidine is similar to that in dysentery, but the stools are pale with no exudate, and there is no pyrexia or leucocytosis. The onset of sprue is often sudden and unexpected. An example of this is provided by a soldier who set off for his day's jungle training. Unusual and plentiful borborygmi with flatulence induced him to go to stool. On rising he turned, and what he saw frightened him, for, as he put it, he thought he had passed a 'white elephant's stool'. Diarrhoea preceded sore tongue by about six weeks in 80% of cases. Glossitis precedes diarrhoea very rarely. In a few instances asthenia marked and persistent has been a presenting symptom before diarrhoea

Emaciation—On admission most patients had lost some 25% of the normal Indian body weight. One-third returned only to within 19 lb (8.6 kg) of their normal weight by the time they were evacuated. The average loss ranged from 20 to 60 lb (9 to 27 kg) at a body weight of 130 to 195 lb (59 to 88 kg) respectively

Cramps and Tetany—Cramps, usually in calves and thighs, were present in 25% of cases. No observations on calcium and phosphates could be undertaken. Plain skiagrams showed no osteoporosis. Chvostek's and Trousseau's signs have been negative except in one case which later developed gross tetany while being shown at a clinical meeting. Total blood calcium was returned as 12 mg per 100 ccm. Though mental change was marked, there was no hyperventilation. Response to liver nicotinic acid, calcium gluconate, salines, and transfusion though satisfactory clinically, was unsatisfactory as to interpretation

Skin Changes—Dry skin is a common complaint, with falling out of hair. Scaling of parakeratotic nature has occurred in 27% of cases. It improves on treatment and body cleanliness—a luxury many men have been without. Follicular hyperkeratosis also clears rapidly in hospital. These changes suggested vitamin A deficiency, but dark-adaptation tests done in 20 cases were normal with one exception only. Pigmentation, usually consisting of scattered patches, occurred in 4%. In one case it suggested haemochromatosis. The liver was enlarged, but no glycosuria existed. The distribution has not suggested pellagra, nor has any been seen in the mucous membranes

Circulatory Changes—Hypotension—blood pressure below 100/70—occurred in only 8% of cases. These were all severe, with persistent signs of dehydration and low urinary chlorides. The hypotension persists, and rises only slowly in response to treatment. It is stable, pulse pressure alters little on exercise, and Aalsmeer's test with adrenaline shows only a slight fall in diastolic level—nothing to suggest thiamin deficiency. Oedema has not been at all prominent. No evidence of left- or right-sided heart failure has been found. Screening has shown no change in heart size or shape but this examination has not been done on severe cases

Signs of Vitamin Deficiencies.—It was thought that these cases would present examples of typical deficiency states. This has not been so. **Vitamin A.**—The skin changes mentioned above were at one time taken as examples of A-deficiency, but normal dark-adaptation made this doubtful. Improvement in the skin condition occurs rapidly without any specific therapy. No evidence of deficiency of the other fat-soluble vitamins, D and K, has been found, in that no osteoporosis has been seen, and tetany was present in one case only, with normal blood calcium. The prothrombin time in several cases has been normal. **Nicotinic Acid.**—Most of the tongues seen have suggested this deficiency, but rapid response to a diet without addition of nicotinic acid therapeutically in many cases is surprising. In other more obdurate cases nicotinic acid has been effective. **Riboflavin.**—Though glossitis, with angular stomatitis, has been common, magenta tongues have not, and the rest of the syndrome—circumcorneal vascularization conjunctivitis, rosacea, etc.—has been absent. No case showing evidence of thiamin deficiency or scurvy has been seen.

Investigations

Appearance of Stools.—The typical large pale frothy stool is well known. Pallor at some period is almost constant: it is due not only to the fat in the stool but to alteration of the bile pigment. This alteration usually accompanies a raised stool fat, but not always, so that a pale stool may have a normal fat content, and a coloured stool may have a raised fat. It is important to remember this dissociation in diagnosis (Black and Fourman, 1945). Microscopically, fatty acid crystals, fat globules, and soaps may be seen, but they give little guide to quantitative fat excretion and cannot replace analysis of the stools.

Fat Analysis of Stools.—Analyses done on single stools show great variability. For example, two consecutive specimens so collected produced results of 21% and 36% total fat content respectively. As a routine a 24-hour collection of stools, well mixed, is a minimum procedure. Where progress is to be followed, three-day specimens, well mixed, should furnish the material. This should be done with the patient on a known daily fat intake for at least three days previous to and during collection. The fat-analysis figures given here have been produced by the inadequate present standard methods. Their error is great, and their interpretation must be treated with great reserve. In 10 normals total faecal fat averaged 30% on a diet of 70 g. of fat daily; 20% of cases had faecal fat below 30%. In such cases repeated analysis might have revealed a rise at some time. Clinically these cases differed in no way from others with raised fat in the stools. Conversely, high faecal fat above 50% did not indicate a case of clinical severity. The percentage of faecal fat therefore does not seem to be related to prognosis or to therapeutic response. Duration of steatorrhoea is probably more important. Fat-splitting is excessive in sprue. In the majority of 274 cases the ratio of split to unsplit fat has been between 3 : 1 and 10 : 1; and in 6% it was over 30 : 1. This high ratio may be interpreted as due either to delayed absorption or to excessive lipase action.

Fractional Test Meal.—Hyperchlorhydria or normal acid curves were present in 66% of cases. In a further 27% hypochlorhydria (less than 10 units HCl) was present: this group includes those with apparent achlorhydria. No histamine was available.

Blood Changes.—Table III shows the blood changes. Severe anaemia has not been common even in the clinically severe cases, though the type with "blood crises" has been seen

several times. These cases respond dramatically and permanently to one transfusion. Haemoglobin of less than 12 g.% was present in only 24% of cases. Age of patients and short duration of disease probably account in part for this. At a haemoglobin value of 12 g.% the M.C.H. is minimal 29.5. Variation in either direction shows a rise in M.C.H. It appears that as the anaemia increases it becomes progressively more hyperchromic, and that on recovery this tendency remains.

Blood-sugar Curves.—Few curves have been done in these cases; those of severe cases have shown normal fasting values with low rise as described by Thaysen and Fairley.

Treatment

The object of treatment has been to make the patient fit to travel, not to complete a cure. Criteria of successful treatment have been: (1) ability to take an ordinary hospital diet; (2) stools normal in number and appearance; (3) weight restored to within 10 lb (4.5 kg.) of normal; (4) distension nil, or slight only. Only 31% of our cases reached all these criteria—an index of the number needing further treatment on arrival in England. Treatment has been orthodox; principles only will be mentioned.

Diet.—The high protein, low fat, low carbohydrate diet designed by Hamilton Fairley (1930) has been adopted. A series of five diets in ratios of protein 1, fat 0.5, carbohydrate 2, compiled by Napier (1943), have been used as a basis. Diet 4, with P. 168 g., F. 69 g., C. 235 g., Cals. 2,237, has been most commonly used. All mild cases can take it. When one realizes that milk diets (Manson), high carbohydrate diets (Collin), pure fruit diet (Van der Berg), have all been successful in sprue, one is inclined to ask, What is the principle of dieting in sprue? Constancy and regularity of diet are important in themselves. Any increase, particularly of fat or meat is often followed by a relapse. Liver, marmite, yeast, and bananas are included in the diets for possible therapeutic effects. Vitamins added have been nicotinic acid 50 mg. t.d.s. and riboflavin in some cases. Low fat diet is undesirable since it excludes fat-soluble vitamins. Evidence of K-deficiency has been attributed to unwise fat restriction.

Bed Rest.—This is as important in sprue as in peptic ulcer and should be enforced until diet 4 or equivalent is taken. Fatigue often precipitates relapse.

Parenteral Liver.—Unnecessary in most mild cases, parenteral liver (crude Indian preparation, assayed in England) is useful in all severe cases. The dose used has been 10 c.cm. i.m. for four days, followed by 4 c.cm. i.m. every two days.

Relapse.—(a) *Mild*:—Usually a return to previous diet on the scale, with bed rest, is sufficient. (b) *Acute*:—The sudden onset of 15 to 20 stools a day destroys very rapidly the benefit of weeks of dietetic discipline. Response to sulphaguanidine in the usual dosage, up to a total of 70 g., is almost always good. Sudden anaemia indicates whole-blood transfusion, but with severe dehydration plasma or saline is also indicated. Parenteral nicotinic acid, liver, and cortine have been used on these occasions.

Response to Therapy.—Though immediate response is good many patients have left India showing one or more of the four signs of therapeutic failure: (1) One or more fluid or pale stools daily; (2) distension; (3) weight more than 10 lb. below normal; (4) capacity for sprue diet 5 only. These signs indicate that remission is not complete. It is hoped that they have disappeared in England.

Prognosis

Immediate prognosis for life is good. No patient in the 60 of this series has died. Four deaths have been heard of during three years. Prognosis as regards function on returning to England is not known, but of 40 cases followed up for one year six have had severe relapses, and the remainder less severe recurrence of symptoms. None have been quite well (Lieut. Col. Elder, personal communication). This information is depressing. It is hoped that a fuller survey will be less so.

It is apparent that, in the absence of knowledge as to the essential pathology of sprue, our methods of management and treatment are not curative. Even liver, nicotinic acid, and riboflavin ameliorate only.

TABLE III.—Blood Pictures (250 Cases) (Grouped according to the Hb Level)

Hb Group		% of Cases	Av. Hb (g. %)	Av. R.B.C. (M/c.mm.)	M.C.H. ??
%	G. %				
45-52	7-8	2.8	7.7	2.3	33.5
52-58	8-9	2.8	8.6	2.6	33.1
58-65	9-10	4.0	9.9	3.1	31.9
65-71	10-11	5.6	10.9	3.3	33.0
71-78	11-12	8.4	11.8	4.0	29.5
78-84	12-13	17.3	12.7	4.0	31.8
84-91	13-14	24.9	13.7	4.5	30.4
91-97	14-15	20.9	14.7	4.6	31.9
97-104	15-16	13.3	15.5	4.8	32.3

Summary and Conclusions

The sprue syndrome has been modified by war conditions in India, bringing into prominence certain aetiological and clinical features. Such aetiological points are (a) There is a marked seasonal incidence reaching its peak in the month of June. (b) The condition is prevalent in Assam, North Burma, Bengal, Bihar, and less so in Bombay Presidencies. Whether military or geographical factors have predominated in this incidence cannot be stated. (c) There is a surprising lack of positive relationship with dysentery regarding the monthly incidence and the incidence of dysentery previous to sprue, which is not greater than in normals, but one still retains the impression that in individual cases dysentery may unmask the latent sprue syndrome. (d) Suppressed or latent malaria exacerbates sprue. In such instances eradication of malarial infection rapidly improves the sprue syndrome. (e) A fair or a dull complexion bears no relation to the incidence of sprue, but fair men form a majority of severe cases. (f) Acute sprue has developed on a well balanced diet under jungle warfare conditions. Palatability of diet is as urgent a physiological need as calories.

The clinical picture of acute sprue has been contrasted with that of the classical disease, not often seen in this series. The syndrome following dysentery and subacute hepatic necrosis is described, and emphasis laid on the borderline cases with ptylosis or stenterotheca dissociated.

The complete pictures of vitamin deficiency syndromes have not been met with. Signs of A-deficiency were equivocal. Nicotinic acid deficiency has been more frequent than riboflavin deficiency. No evidence was found of deficiency of vitamins B₁, C, D, and K.

Faecal Fats—The methods of collecting stools at present standard are inadequate. Three day collections on known fat diet, with quantitative measure of stool fat per day, are essential for accuracy. The degree of stenterotheca has little prognostic value.

Blood changes have rarely been severe. With the haemoglobin less than 12 g %, hyperchromic anaemia was more frequent.

Prognosis as to life is good, but as to function it is poor. There is reason to believe that a large percentage will progress into the chronic form unless liver therapy is continued.

From the above description it is clear that in sprue the whole alimentary tract from lips to anus is affected—the accent of the process falling on different regions at different times. We are entirely ignorant of the nature of this process, though we know it to be modified by liver, nicotinic acid, and riboflavin. Nor are we well informed as to the nature of the dysfunctions in digestion and absorption in this condition.

The frequency of remission and relapse and the dissociation of signs and symptoms make assessment of diet or drug therapy very difficult. Many more controlled observations are needed, and until these are forthcoming theorizing on sprue is like trying to do a jigsaw puzzle without most of the pieces.

Our thanks are due to the Director of Medical Services, India, for permission to publish this paper.

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The University Extension and Tutorial Classes Council, in co-operation with the Provisional National Council for Mental Health, is prepared to hold this year, provided sufficient applications are received, a course on educationally subnormal children and mental defectives. It is hoped that the course can take place, as in recent years, at the London School of Hygiene and Tropical Medicine, Keppel Street, Bloomsbury, and the date fixed is March 25 to April 5. Students will be required to arrange their own residence. The course is intended for medical practitioners, more especially those who are engaged as school medical officers and as certifying officers to local authorities under the Mental Deficiency Acts. Registration fee 10s. 6d., fee for course £5 15s. 6d. Intending candidates should apply at the earliest possible date, but in any case by Feb. 28. The registration fee must be paid at the time of application and the fee for the course before March 16. If applicants withdraw before this date the fee of £5 15s. 6d. will be returned or carried forward to another course as preferred. Should the course have to be cancelled all fees will be returned. Cheques should be made payable to the Provisional National Council for Mental Health, and crossed Barclays Bank Ltd. All communications with reference to the course should be addressed to Miss Evelyn Fox, C.B.E., c/o University Extension Department, University of London, 39, Queen Anne Street, London, W.1.

OUTBREAK OF WEIL'S DISEASE IN THE BRITISH ARMY IN ITALY

PART I CLINICAL STUDY

BY

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PART II POST-MORTEM AND HISTOLOGICAL FINDINGS

BY

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(Abridged)

PART I

CLINICAL STUDY

Weil's disease was first proved to be caused by the *Leptospira icterohaemorrhagiae* by Inada, Ido, and others, in Japan, in November, 1914. Cases were described among British troops fighting in the rat-infested trenches of the Western Front (Dawson and Hume, 1916; Stokes, Ryle, and Lytler, 1917). Between the wars the disease was shown to be prevalent in certain parts of Great Britain among fish workers (Davidson and Smith, 1939), sewer-workers, and others. About 25% of rats appear to be infected with the *Leptospira* even in areas where the disease rarely appears (Hurst, 1941). During the recent war the disease has not been common among British troops, presumably because static trench warfare has not been a feature. An outbreak in the British Army in Normandy has been recorded by Bulmer (1945).

The outbreak described in this paper occurred in Italy among soldiers who had all been bathing in the River Arno and its tributaries and in bomb craters, which were just behind our forward positions, during August and September, 1944. The majority of the cases (17 undoubted cases and 2 probables) were dealt with by this military hospital.

Clinical Picture

All the 17 undoubted cases ran a similar course. Onset was sudden, with general weakness, shivering and high fever, nausea, and sometimes vomiting. Severe headache was common at onset, although in some cases delayed for 24 to 36 hours. General muscular aching and stiffness commonly developed with progressive severity over the course of the next few days, sometimes rendering the patient incapable of unaided movement, and in a few cases requiring morphine for relief. This severe pain decreased when jaundice developed. Neck stiffness was complained of in 3 cases.

Intense conjunctival suffusion with a typical varicosity of the arterioles was constant and early in appearing, and tended to persist until the patient began to improve. Icterus developed between the 3rd and 8th days of the illness, in all but one mild case rapidly became very deep, and in every case had a remarkable orange-yellow tint, this colour presumably being due to jaundice in a skin flushed by general arteriolar dilatation. The icterus persisted for weeks, and assumed a more greenish colour as conjunctival and skin suffusion disappeared. Profound anorexia and distressing vomiting characterized the early icteric phase. Tachycardia was marked.

Haemorrhages were seen in every case in this series, varying in degree and situation. Haemorrhagic herpes occurred in 9 cases; petechiae and ecchymoses of skin and mucous membrane were invariably found; subconjunctival haemorrhages and epistaxes were common, and small pre-retinal haemorrhages were observed in 3 cases. Visceral bleeding—in one case frank haematuria—was common, and its severity was a factor in causing death in 5 fatal cases.

All the cases began with high fever (103–105° F.), which settled by rapid lysis as a rule. The duration of the fever, which was unrelated to the severity of the illness, was 5 to 12 days, save in one case in which it persisted for 26 days.

A striking feature of the illness, common to all cases and appearing at about the onset of the icteric phase, was some degree of oliguria; in 3 of the fatal cases and in 2 others this became anuria for a variable period. The urine contained a large quantity of albumin; granular casts and red blood cells were common microscopical findings. Specific gravity tended to remain constant at about 1010, and the amount of bilirubin was less than would have been expected from the severity of the jaundice. During this ictero-oliguric phase extreme prostration, mental torpor, and quiet delirium were the rule. During this phase also the blood urea figures were raised considerably (save in the one mild case). Death occurred in 5 cases between the 7th and 14th days of illness—in four from uraemia and in one from uraemia and massive pulmonary haemorrhage.

The spleen was palpable in 1 case and doubtfully so in 2 others. Hepatomegaly was inconstant and never great. Polymorphonuclear leucocytosis occurred in all save the one mild case during the acute stage of the disease.

Treatment

Specific therapy employed was penicillin in 6 and antileptospiral serum in 3 cases. When the first cases were diagnosed the only information available was that *L. icterohaemorrhagiae* was insensitive to penicillin *in vitro* (Abraham *et al.*, 1941). It was decided, however, to use penicillin in "orthodox" dosage and await results. The dosage in the 6 cases was 15,000 units three-hourly by the intramuscular route to a total of 600–660 thousand units. Unavoidably penicillin could not be started in the pre-icteric stage, but between the 6th and 10th days of illness. One patient treated on the 7th day died after 210,000 units. Five cases recovered after illnesses of great severity, not differing from those which did not receive specific treatment. The absence of any obvious benefit on the fever, toxæmia, icterus, pulse rate, or urinary output discouraged us from using heavier doses of a drug then scarce. Antileptospiral serum, also scarce, was used in 2 cases in doses of 60 c.c.m. intravenously on the 7th and 8th and the 6th and 7th days of illness respectively, with 1 death; and in the third case, also fatal, 60 c.c.m. was given only on the 7th day of illness. The serum had no obvious beneficial effect. In 8 cases (2 fatal) no specific therapy was used.

General measures were directed towards combating liver and renal failure. Fluids with added glucose were pushed by mouth, heavy doses of alkali given orally, and intravenous drip infusions of 3.3% glucose in 0.3% saline used as a routine. The impression was formed that unless oliguria can be rapidly abolished a fatal outcome is certain in this disease.

Laboratory Findings

[Here the authors acknowledged the help of three laboratories—No. 1 Central Pathological Laboratory, the Emergency Vaccine Laboratory U.K., and the laboratory of the British Traumatic Shock Research Team.]

Guinea-pigs were inoculated intraperitoneally with 5 c.c.m. of blood taken from 15 of the cases on the 3rd to 11th days of illness, and with 10 c.c.m. of urine (alkalinized) from the other 2 cases on the 13th and 16th days respectively. Eleven of the guinea-pigs remained well; the other 6 became ill, and of these 5 died, and at necropsy showed to a varying degree jaundice, haemorrhages into the abdominal viscera and retroperitoneal tissues, and the characteristic "butterfly" haemorrhage in the lungs. *Leptospira* were grown from the kidneys of 3 of them. From 13 of the 17 cases in this series serum was examined for leptospiral agglutinins, some being tested against local "Cartwright" strains, some against stock "Winjberg" strains, and some against both. No serious antigenic difference between the strains was demonstrated. All the sera gave a "positive" result at a conservative diagnostic level of titres of 1/300.

Total leucocyte and differential counts were carried out on all 17 patients between the 4th and 8th days of disease. A leucocytosis ranging from 11,000 to 34,000 per c.mm. was found in 10 cases; 5 in which the counts were below 10,000 reached levels of 13,000–20,000 by the 9th to the 15th day. In 12 of

the 17 cases a blood urea estimation was carried out between the 5th and 15th days, and in 8 the figures obtained ranged from 150 to 288 mg. per 100 c.c.m. There was evidence of some degree of nitrogen retention in all cases. The value of guinea-pig inoculation and the estimation of leptospiral agglutinins, total and differential leucocyte counts, and blood urea in the diagnosis of Weil's disease is amply supported.

Convalescence

Convalescence was slow in each of the 12 patients who recovered, and they were not considered fit for discharge to a convalescent depot until 17 to 20 weeks from the onset of their illness. During the convalescent period a series of investigations were made in an attempt to judge progress and to determine whether or not there was any permanent hepatic or renal damage.

With the exception of the one comparatively mild case, all showed a degree of anaemia. During the 4th week haemoglobins ranged from 70 to 80% (Haldane), with total red cell counts of between 3.5 and 4.5 millions per c.mm. This anaemia responded very slowly to iron therapy. The polymorphonuclear leucocytosis of the acute stage of infection disappeared during the 3rd and 4th weeks, and a total count below 10,000 per c.mm. with a relative lymphocytosis was common to all cases during the convalescent period. Sedimentation rates of between 20 and 40 mm. in 1 hour (corrected Wintrobe) were observed in all cases up to the 8th week, and figures of under 10 mm. were not encountered until the 10th week, thus confirming the slowness of convalescence.

Urea concentration tests were carried out between the 8th and 11th weeks of disease. In all but 3 cases a normal concentrating power was observed, and in these 3, on repeating the test later, the concentrating power was found to be satisfactory. Thus there was no evidence of gross renal damage as judged by the only renal function test readily available in the field. Hippuric acid liver function tests were carried out between the 8th and 15th weeks, and all but one case (and that case also on a later repetition of the test) gave results within the normal range. This again was the only suitable test available under field conditions, and showed no evidence of serious impairment of liver function.

Discussion

The 17 cases were all examples of the haemorrhagic form of the disease, and all but one were severe. Few diseases simulate the clinical picture outlined.

[Here the authors described other cases admitted to the wards in which the possibility of Weil's disease had to be seriously considered.]

During the period when the Weil's cases were in the wards over 1,800 cases of infective hepatitis were seen; but in only a very small minority, with fever, muscle-aching, conjunctival suffusion, and occasional neck rigidity, was Weil's disease really simulated, and it was felt that the possibility of confusion between Weil's disease and infective hepatitis is remote.

It is probable, however, that even severe cases of Weil's disease may occasionally run an atypical course. Such a case was one of two "probables" in this outbreak, in which the diagnosis was thought to be enteric fever with jaundice until, after the patient's recovery, the leptospiral agglutination results became available and the patient's serum taken on the 13th and 23rd days of illness showed a rising titre from nil to 1/1000 respectively. Such a case illustrates the difficulties which may confront the clinician in a country where Weil's disease, enteric fever with jaundice, malaria with jaundice, infective hepatitis (and even amoebic hepatitis combined therewith) may all occur at the same time.

The occurrence of non-icteric cases of Weil's disease has been recognized in previous outbreaks (Davidson and Smith, 1939); attention was called by Bulmer (1945) to the existence of such undiagnosed cases in the Normandy outbreak. The recognition of non-icteric cases depends on two factors: the suspicion that cases of P.U.O. may be instances of this disease, and the conversion of that suspicion into a certainty by serum agglutination reactions. The second "probable" case in this series, the diagnosis of which was not made until long after the patient's return to duty, was suspected because of the excessive severity of muscle-aching, a seven-day fever with one spot of herpes

PRIMARY TUBERCULOSIS IN CHILDHOOD*

BY

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The problem of tuberculosis in infancy and childhood—especially in infancy—is still far from being solved. The British Paediatric Association published a report (1943) on "The Early Diagnosis of Intrathoracic Tuberculosis in Childhood," and this report gave rise to considerable criticism on the part of the various tuberculosis organizations. Arising out of this a joint meeting of the Tuberculosis Association and the British Paediatric Association was held, and, in spite of the friendly spirit evident, it was clear that each party viewed the problem in an entirely different light. The Tuberculosis Association members quoted figures from their official returns, both of morbidity and of mortality, which were totally at variance with the clinical experience of the paediatricians, and in the main their conclusion was that "childhood tuberculosis is not of great importance to the public health services," and their plea was for the paediatricians to preserve a sense of proportion!

Now, there must be some explanation for this divergence of views about both the incidence and the importance of the condition. Are paediatricians wrong in stressing the matter as they do? Are they making too much fuss about something of less importance to the community than adult phthisis? I do not think so. Anyone working among children, and particularly in children's hospitals, and seeing the scores of infants dying of tuberculous meningitis must realize the gravity of the situation, considering that the majority of such infants die within three months of their initial infection and that every year thousands of infants and children are infected by phthisical adults. Although the majority pass through their primary infection and are none the worse for it, and although only a very small proportion progress to tuberculous meningitis, yet there is much pain and illness due to bone, joint, and kidney disease following a primary infection, as the records of any children's hospital will show.

It is interesting that the American public health administrators take a view similar to that of our tuberculosis authorities. Plunkett (1939) estimates that it costs 40 times as much to find a case of childhood tuberculosis as it does an adult case, and he therefore recommends investigating only children from known tuberculous households—which is what obtains generally in this country. Nelson (1942) says, further: "One must recognize the necessity of being selective in the expenditure of the efforts of public health agencies and the need for directing activities into the channels which will be productive of the greatest good to the general population."

Why is there this divergence of views? I think the tuberculosis officers do not get a fair view of the picture as paediatricians see it. Many cases are missed: many more are never seen by the tuberculosis officer; they are sent direct into hospital or to the out-patient department, and there their notification is either intentionally or inadvertently overlooked. Few convalescent homes will admit cases of tuberculosis even though they are certified as non-infective, as most of them are, and prolonged convalescence is an integral part of their treatment and it is unwise for them to go to sanatoria, where there is a risk of their coming into further contact with open tuberculosis. Furthermore, from a practical point of view, it would be impossible for tuberculosis officers, under existing conditions, to deal with all the cases, even if there were adequate accommodation.

Diagnosis

Primary tuberculosis is important because it is the commonest manifestation, because it is often difficult to diagnose, because it most easily leads to the tracing of the adult infector, and because when adequately treated it gives excellent results. As is well known, it is usually intrathoracic and due to direct droplet infection or, in the case of crawling infants, to infected dried dust from the floors or carpets of a house where a phthisical adult lives.

The ordinary symptoms of adult tuberculosis—cough, fever, night sweats, loss of weight, sputum and haemoptysis—are not common symptoms in primary tuberculosis in infants or children.

Cough.—Excluding children ill with bronchitis, pneumonia, and whooping-cough (and remembering that many children with primary tuberculosis are not ill when first seen) the commonest cause of cough in childhood is upper respiratory infection—especially tonsillar.

Fever.—The commonest causes are upper respiratory infection (including otitis) and pyelitis, both especially common in infancy. There is an "initial fever of infection" in primary tuberculosis which lasts for a week or ten days and is usually overlooked or considered influenzoid in nature. It is seldom of diagnostic value.

Night Sweats.—These are rare in children: they do not occur in primary tuberculosis. In infancy, rickets, digestive disorders, pyelitis, and pink disease may be causative.

Loss of Weight.—This occurs in many nutritional disorders in infancy and is of no real help in arriving at a diagnosis of primary tuberculosis.

Sputum.—Children rarely expectorate, except occasionally in bronchiectasis, and haemoptysis is even rarer. Neither of these is a symptom of primary tuberculosis.

In fact, the condition is often subclinical throughout, and there are no characteristic physical signs which can be considered pathognomonic.

Erythema nodosum and phlyctenular conjunctivitis are two commonly encountered conditions in paediatrics, and they are both very suggestive of primary tuberculosis. The younger the child the more likely are they to be tuberculous. They are not in themselves tuberculous, but are manifestations of tuberculin allergy. Erythema nodosum may occur in rheumatism, cerebrospinal fever, and as a sign of sensitivity to sulphathiazole; but by far the largest number of cases occur in primary tuberculosis, and it has been called "the exanthem of tuberculosis." It usually marks the onset of allergy at the end of the incubation period.

X rays are of value in the diagnosis of primary tuberculosis, especially serial films, as there are few other causes of persisting abnormal lung shadows in childhood.

The tuberculin test is the only sure diagnostic test. It is impossible to diagnose primary tuberculosis with certainty without its use (except by actually finding tubercle bacilli—as, for example, in stomach washings). Often it is the only positive finding at the time of examination, and further confirmation may not be forthcoming for months till skiagrams reveal a parenchymal or glandular lesion.

As a routine a preliminary percutaneous test (jelly, ointment, or plaster) may be used, but if this is negative a Mantoux test must follow before tuberculosis can be definitely excluded. The technique of intradermal injection is so easily acquired, however, and, properly performed, so little upsetting to children, that the Mantoux test still remains the method of choice as a routine. For infants and children it is safe to use 0.1 c.cm. of 1 in 1,000 old tuberculin (i.e., 0.1 mg.), except in cases of erythema nodosum and phlyctenular conjunctivitis, which are generally hypersensitive and in which a 1 in 10,000 solution should be employed. If the 1 in 1,000 solution gives no reaction and there is still doubt about the possibility of tuberculosis, then a 1 in 100 solution may next be tried, and if this too is negative a 1 in 10 solution. If there is no reaction to this the child (unless moribund) is not suffering from tuberculosis. Once a child is known to be Mantoux-positive, the fact should be noted in his record in the same way as his Schick test, immunizations, etc. It has been said, "If 100% be allotted to the Mantoux test in the diagnosis of primary tuberculosis, then x rays earn 25% and physical examination a fraction of 1%."

Of course, finding a positive reaction does not mean that the child is necessarily suffering from tuberculosis, but it does mean that he should be further investigated—first by skiagrams; if these show any abnormality a blood sedimentation test may give some indication of activity, and gastric lavage and guinea-pig inoculation may yield confirmatory evidence.

Treatment

If the sum total of these investigations confirms the diagnosis of primary tuberculosis, what is to be done with the child? The most important thing is rest in bed until the blood sedi-

* Abridged from an address delivered to the York Medical Society, Oct. 20, 1945.

mentation rate is normal and skiagrams show evidence of healing or the lesion appears quiescent, then fresh air, good food, adequate amounts of vitamins A, C, and D, and not too much fat and "malt and oil," which are often given to the detriment of the appetite.

There is abundant evidence that repeated exposure during the initial period after infection tends towards severe disease and liability to military spread. Therefore children, and especially babies, should be carefully watched for three months until the likelihood of meningitis is passed, and should be separated from any known contact. If a home contact must persist—e.g., the parent cannot go to a sanatorium—then the infant should be sent to a preventorium, where special care should be taken to avoid exposure to, or have immunization against, epidemics such as measles and whooping cough.

There is, again, ample evidence that breaking the contact materially lessens the mortality and morbidity. Children with erythema nodosum need careful watching—being "hyper-allergic"—and should have bed rest for six weeks after which time the chance of dissemination is less. After the period of bed rest the children should be allowed up for increasing periods daily and be permitted exercise also. School-children are preferably allowed to run wild for a term if reasonable hygienic conditions prevail at home and they can have plenty of fresh air.

Finding a positive reaction in a child—for example, by routine testing—does not involve an immediate diagnosis of active tuberculosis: a warning to the parents of possible meningitis, notification to the tuberculosis officer, and so on, but it does involve a little extra work. Park says, "There are two ways of finding out if an adult has tuberculosis: one is to find the bacilli in his sputum—the other, the infection in his infant. Under the age of 2 years over 80% of infections are intra-familial in origin, so the parents and other members of the family (including nurses and maids, if any) should be examined and x-rayed. At school age the contacts are so many and varied that it is manifestly impossible to trace them all."

What is the Fate of the Primary Infection?

Either spontaneously or with treatment it may undergo fibrosis and calcification and heal completely. This is usual. Untreated, it may proceed to caseation in the primary focus, bronchogenic spread, glandular spread in the hilum, or blood spread with resultant metastases. The site of these depends on the vessel involved and the number of bacilli entering the circulation. If a branch of the pulmonary artery is involved military tuberculosis results, if the pulmonary vein either meningitis or, if only a few bacilli enter, isolated bone or kidney metastases. If the glands caseate and discharge into the thoracic duct both lung and systemic spread may occur.

Clinical Importance of the Primary Infection

A healed primary lesion does not confer complete immunity to reinfection, but partial immunity may result, with ability to withstand heavier infections or to cause greater localization of lesions. This limited immunity can be overcome by vast or virulent infection. Immunity takes some time to develop, perhaps 12 to 24 months. Wallgren says that, after immunity is developed, further exposure to infection is not harmful. There are two schools of thought about the importance of the primary infection—one that it is benign but that the resulting allergy is dangerous, the other that allergy is beneficial. Wallgren goes so far as to recommend vaccination with BCG. The relationship, if any, between allergy and immunity is not known.

Immediate Dangers of the Primary Infection

The majority of cases quiesce, but age is the important factor. The death rate is higher in the first two years of life than at any other period of childhood, because of lower resistance and greater and more repeated exposure (due to the intra-familial nature of the infection). Wallgren (1941) found a mortality of 36.9% in the first year of life, and Price (1942), in Dublin, of 77% in 1937, reduced to 28% in 1940 after instituting routine tuberculin-testing in the newborn on the district and treating the positive reactors in preventoria. Terplan (1940), in doing 699 routine necropsies, found 35 deaths from tuberculosis, of which 30 were due to primary

tuberculosis. Mitchell and Willis (1944) treated 213 children under the age of 3 for a year or more, with a 9% mortality and Salomonsen and Traetteberg (1935) in a ten-year follow-up found a mortality of 4%. The conclusion is that, given adequate treatment for a sufficiently long period, the prognosis is excellent.

Extrathoracic Foci of Primary Infection

The alimentary tract is the chief site. Infection follows ingestion of bacilli, either human from dried dust or bovine from milk. The primary focus is in the ileum in the region of Peyer's patches, and the complex is completed by the mesenteric gland draining that area. As in other extrathoracic foci, the primary lesion is usually microscopic. The tendency is for the lesion not to localize as well as a primary pulmonary focus, and there is a danger of meningitis by rupture of the caseating mesenteric gland into a mesenteric vessel. Normally the gland calcifies.

I have seen one case of primary tuberculosis of the skin following ritual circumcision, the complex being completed by the inguinal gland. The tonsil is sometimes a primary site (as in the Lübeck disaster), and the cervical gland on the affected side then becomes involved.

Some Practical Points

Lastly, a few practical considerations concerning childhood tuberculosis in general (i.e., not limited to the primary form).

Watkins (1945) in Cardiff, working in a children's ward which specifically excluded cases of tuberculosis, discovered by routine Mantoux-testing that 22% of the children admitted reacted positively, and that 2.2% of these had in fact, active tuberculosis. The presenting signs and symptoms of the intrathoracic cases were bronchitis and pneumonia, pleural effusion, wasting, erythema nodosum and phlyctenular conjunctivitis, and diarrhoea.

Capon (1937) working at Alder Hey Hospital, Liverpool, reported 56 cases of active tuberculosis among 200 children tested there (partly selected), with almost identical presenting symptoms.

What symptoms bring a child up to the out-patient department with the diagnosis "tuberculosis," and from what is the child really suffering? I have found the commonest conditions to be: (1) cough, (2) glands in neck, (3) diarrhoea especially if with a swollen belly, (4) limping, (5) swollen joints, (6) fever.

Cough—This is most commonly due to upper respiratory infection. Post-pneumonic fibrosis, with or without bronchiectasis, is an occasional cause.

Glands in Neck—Dirty heads, impetigo and tonsillar and oral sepsis predominate. Cystic hygroma and secondary malignant glands occur rarely, but I have seen examples of both which needed differentiating from tuberculous glands.

Diarrhoea—Rickets, Hirschsprung's disease, coeliac disease, and cystic fibrosis of the pancreas will all cause diarrhoea similar to that occurring in *tabes mesenterica*. The last named is perhaps the commonest, and many of the cases labelled coeliac disease really belong to this group; they are differentiated from them by having less buttock wasting, by having recurrent attacks of pneumonitis, and by clubbing of the fingers. *Tabes mesenterica* is even more to the fore in differential diagnosis as if the lacteals become blocked in *tabes*—as they may from glandular pressure—the faeces become pale, foul, and fatty just as in pancreatic fibrosis.

Limping—I think tuberculin-testing finds some of its greatest usefulness in orthopaedic cases. Lincoln has said "The onus is on anyone making a diagnosis of tuberculosis in any child with a negative Mantoux unless the child is moribund."

Swollen Joints—or usually *One Swollen Joint*—Tuberculous joints must be differentiated from rheumatism without carditis, Still's disease, and "tuberculous rheumatism." The Mantoux test is more valuable than skiagrams in joint disease, in cases of doubt. *Tuberculous rheumatism* is an allergic arthralgia rather than a true arthritis—not responding to salicylates, not having carditis, and having a positive Mantoux. It has been described chiefly in the French literature, but Sheldon (1945) recently reported a series of cases in this country.

Fever Especially Continued Fever of Unknown Origin—Urinalysis, a differential white blood count, and blood agglutinations will often clear up the diagnosis. A negative Mantoux with 1 in 100 will exclude tuberculosis as a cause.

Among in-patients the commonest diagnostic difficulty is probably differentiation between appendicitis and tuberculous

mesenteric glands. Here, to wait for the result of the Mantoux test is impracticable, and in cases of doubt the surgeon will always operate. If he finds a tuberculous adenitis no harm will be done, and an opportunity will be afforded for testing the potency of a new bottle of tuberculin on an undoubtedly positive case!

Conclusion

I may conclude by quoting a remark of Nelson's. He said: "One of the shortcomings of the average general practitioner is his failure to recognize the relationship of his private practice to the general health problems of the community. The ideal procedure would be for him to do tuberculin tests on all children under his care and order x rays on all positive reactors and their contacts." If we could get this far we should at last really be on the way to solving the problem of primary tuberculosis in childhood.

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INTELLIGENCE AND INFANT MORTALITY IN PROBLEM FAMILIES

BY

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The objects of the investigations described in this paper were:
(1) To discover the number of problem mothers in an area which was predominately rural, with a population of 90,800.
(2) To ascertain the intelligence of these problem mothers.
(3) To discover the effect on the development of children living in the inefficient domestic environment made by the problem mothers and to compare them with children from normal homes (controls). This is of great interest when the intelligence of problem and control mothers is the same. (4) To examine the rate of infant deaths occurring in problem and control families.

A "problem mother" is a woman who does not give her children at least the minimum of care and refuses to co-operate with the health visitors and make effective use of the technical advice available to her. The fathers have not been included in the investigation; but it is not denied that their influence on the children is considerable (though probably less than the mothers').

The problem families were detected through the affected children. These children became known through the school medical officers, the health visitors, and the school nurses. Children were sometimes reported from other agencies such as the N.S.P.C.C. In all these cases the homes were visited and the mothers instructed by the health visitors. When the mothers persistently failed to take advantage of this teaching and continued in their inefficient domestic practices the family was recorded in the problem group. Whenever there was any doubt about recording a family in the problem group a special visit was made by the supervising health visiting staff. In the course of the survey I have personally visited most of the families. In these ways a uniform standard was preserved.

For the purposes of this survey it was necessary to make a comparison with a number of families whose domestic management was at least moderately efficient, and who lived under the same general economic standards as the problem families. These were the control families; they were selected by the health visitors. The standard of housing of both the problem and the control families was similar. There is room for improvement in some of the houses in both groups. Most of the families under review come within the Registrar-General's Social Class V. Although the whole summary took many

months the records were kept completely up to date; the following tables therefore record the position on the day when the survey was completed. The preliminary ascertainment made are expressed in Table I:

TABLE I.—Survey Area

Population	90,800
Number of families with pre-school and elementary-school children	7,215
Number of problem families	89
Percentage of problem families	1.23
Population of pre-school and elementary-school children (7,295 + 10,168)	17,463
Number of pre-school and school children in problem families	333
Percentage of problem family children compared with all children in the area	1.9
Annual infant mortality rate for the area (1944)	38.7
Infant mortality rate for the area during the last 10 years	48.5

The total number of families was estimated from the records of pre-school and school children in a section of the area, and the number in the whole area was calculated from this information.

In my view, one of the most important observations to make in a problem mother is an assessment of her intelligence. When the mother has intelligence there is a possibility of teaching her by detailed and persistent instruction, but with an intellectually defective mother improvement is almost impossible. Intelligence can be estimated in various ways, but after an investigation of many tests the Raven progressive matrices were chosen as being most suitable for assessing intelligence in people who may have very little general education but may nevertheless be reasonably intelligent. It will be seen from the tables that the Raven test makes use of five-grades. Some of the testing was carried out by specially selected health visitors and some by myself. The selected health visitors were first tested and then instructed.

Comment on Table II

The problem families (89) were classified according to the type of neglect found in the children. By far the most were in Group I, "general neglect"; there were a number of families in which the children suffered from persistent pediculosis capitis and in which the general neglect was less obvious than the pediculosis (Group II). When the general neglect was also very marked they were placed in Group III. The feeding of all these children was usually unsatisfactory, but when this was obviously bad and the children also suffered from pediculosis the families were placed in Group IV. The average age of the school-children in problem and control groups was similar (it is recorded in detail in Table III).

The educational position of all the school-children is shown. This was obtained by reports from the head teachers. The percentage of those retarded two or more years has been also calculated. Objection might be made to the use of the educational attainment as an index of intelligence, but means were not available for carrying out tests such as the Binet-Simon on the 409 school-children. It will be observed that those in the problem families were very considerably retarded. In all problem groups a proportion of the children were retarded sufficiently to bring some of them within the mentally defective classification. Of the 223 children 55 (24.6%) were retarded three or four years, and if the children of only two years' retardation are also included, almost 50% of the school-children from the problem families were retarded. The corresponding figure for the control children was 9%.

This retardation was highest (65%) in the children suffering from pediculosis and an inadequate diet (Group IV), and lowest (37%) in the children who suffered only from persistent pediculosis (Group II). It is interesting to note that the only children described by the head teacher as "advanced one year" came from the group with the highest percentage of retarded children. These children have had school meals, but so have some of the other children in families known to have had an inadequate diet.

The infant mortality rate in the problem families was double the rate in the control families. In the problem families the highest infant mortality rate occurred in the "general neglect" group. The numbers in Group IV were insufficient for a reliable rate to be calculated.

TABLE II.—Classification according to Type of Neglect

Type of Neglect found in the Children	Number of Families	Number of Children				Educational Position of Children										Mother's Intelligence						Infant Deaths 1 Year	Child Deaths 1 Year	Total Births	Infant Mortality Rate
		Pre-school	School	Left School	Total	Advanced (Years)		Normal	Retarded (Years)				Percentage of School Children 12 Years or Over	Mentally Superior	Above Average	Average	Below Average	Intellectually Defective	Refused Test						
						2	1		1	2	3	4													
General neglect (Group I)	46	74	103	31	203			25	22	27	14	15	54.0			15	18	12	1	17	3	223	74.55		
Persistent pediculosis (Group II)	22	16	57	17	90			20	16	9	9	3	37.0										95	44.67	
Persistent pediculosis and general neglect (Group III)	13	12	40	10	62			12	9	12	5	2	45.5		1		1	3	4				65	88.82	
Persistent pediculosis and inadequate diet (Group IV)	8	8	23	2	33			3	3	2	8	5	2	65.0				4	4		1	3	37	*	
Total problem	89	110	223	60	393		3	60	49	56	33	22	49.7		2	23	37	26	1	26	10	429	60.6		
Total control	89	132	186	35	353	2	11	117	39	15	2		9.1	3	16	38	32			11	3	367	50.0		

* Numbers insufficient for rate to be calculated

TABLE III.—Classification according to the Intelligence of the Mothers

Intelligence of Mother		No of Families	Number of Children				Average Age of School-children	Educational Position of Children								Total Infant Deaths	Child Deaths over 1 Year	Total Births	Infant Mortality Rate	
			Pre-school	School	Left School	Total		Ad- vanced (Years)		Normal	Retarded (Years)				Percentage of School-children Retarded 2 Years or Over					
								2	1		1	2	3	4						
Mentally superior	Problem Control	3	5	6	4	15	9 years 7 mths	—	2	3	—	1	—	—	16.6	—	—	15	—	
		Above average	Problem Control	2	3	5	2	10	10 years 2 mths	—	—	1	2	1	—	1	49.0	—	—	10
Average	Problem Control			16	21	21	9	51	10 years 2 mths	1	1	15	3	1	—	—	4.7	—	2	53
		Below average	Problem Control	23	26	64	15	105	9 years 10 mths	—	—	20	11	18	9	6	51.5	4	4	113	35.4
Intellectually defective	Problem Control			34	59	86	15	160	9 years 2 mths	1	3	6	20	5	1	—	6.9	4	1	165	24.2
		Refused test	Problem Control	37	52	84	25	161	10 years 2 mths	—	—	29	17	21	9	8	45.2	11	3	175	62.9
Total	Problem Control			32	47	73	7	127	9 years 5 mths	—	—	5	43	16	8	1	12.3	7	—	134	52.2
			Problem Control	26	29	65	16	110	9 years 10 mths	—	—	3	10	18	15	12	7	52.3	11	3	124	88.7
	Problem Control			1	—	5	2	7	9 years 10 mths	—	—	—	1	1	3	—	—	—	—	7
			Problem Control	89	110	223	60	393	10 years 9 years 5 mths	2	3	60	49	56	33	22	49.7	26	10	429	60.6
	Problem Control			89	132	186	35	353	—	—	—	117	39	15	2	—	9.1	11	3	367	50.0

Comment on Table III

In this table the problem families were classified according to the intelligence of the mothers, whether problem or control. It will be noticed that no control mothers were found to be "intellectually defective" and no problem mothers were found to be "mentally superior" and only two "above average". When these three groups have been excluded, a number of control and problem families whose mothers were in the "average" and "below average" groups can be compared.

For instance, in the families with mothers of "average" intelligence just over 50% of children were retarded two or more years in the problem families, but under 7% of children in the control families. In the families with mothers of "below average" intelligence 45% of the children from problem families were retarded two or more years, while only 12.3% of children from the control families were retarded. The average age of the school-children in the problem and control families is shown, and it will be observed that the ages make the groups reasonably comparable.

The infant mortality rates for the various groups bring out the importance of maternal intelligence. In the problem group where the mothers were intellectually defective the rate was as high as 88.7, and this decreased as the intelligence of the mothers improved. In the control group a similar relation can be observed, although, as would be expected, the infant mortality rate is lower than in the problem families where the intelligence groups are comparable.

Other Observations

A table was constructed showing the cause of infant deaths classified in groups according to the mothers' intelligence. This is not published, as it was felt that the numbers were insufficient

for any reliable conclusions to be made. The number of abortions, stillbirths, and cases of icterus neonatorum have also been recorded, and further observations are being made to correlate these findings with the Rh factor. Experimental intensive domestic instruction is being given by trained domestic science workers to some of the problem families in the "average" and "below average" groups, the effect of this will be observed at a later date.

Summary

The number of problem families and their children have been recorded in a survey area.

The intelligence of the mothers was ascertained, and only 29.2% were found to be intellectually defective and consequently educable.

The most serious detectable change in the children (even when the mothers were of average intelligence) was a very considerable retardation in school, amounting to mental deficiency in some of the children.

The infant mortality rate was shown to be directly related to the intelligence of the mothers. In problem families of the lowest intelligence it was as high as 88.7.

I should like to record my appreciation of the work carried out by the health visitors. The merit of their usual routine work is insufficiently known and valued. In this inquiry their duties were temporarily increased, but they showed great willingness and an understanding of the objects of the survey.

The Minister of Health has sent a mission to study public health administration, particularly hospitals and health centres, in Sweden and Denmark. The leader of the mission is Capt. J. Snow, and the other members are Dr. J. A. Charles, deputy chief medical officer of the Ministry, Mr. S. F. Wilkinson, a principal assistant secretary, and Major D. Bruce, the Minister's Parliamentary Private Secretary.

SPONTANEOUS HAEMOTHORAX

BY

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AND

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The recognition of the presence of fluid within the pleural sac offers little difficulty as a rule, but the nature of the fluid as determined by thoracentesis may on occasion prove surprising. Such an instance occurred in the case reported here when, in the absence of a history of trauma, the fluid withdrawn appeared to consist of pure blood.

Case Report

The patient, a man aged 44, a civil servant, was in good health until Aug. 19, 1944. On that date, while riding in a tramcar, he was suddenly seized with pain of knife-like severity in the middle zone of the left side of the chest. Breathlessness developed simultaneously. He was weak and collapsed, and had to be assisted home. The pain remained for several days, gradually decreasing in severity, but the dyspnoea persisted.

He was admitted to hospital eight days after the onset. The general condition and colour were good, but he looked anxious and his respirations were increased, although cyanosis was not evident. He was orthopnoeic, and the adoption of the prone position increased the respiratory distress. The mobility of the left side of the chest was markedly restricted and there was extensive dullness to percussion, reaching as high as the third rib; over this area the vocal resonance and vocal fremitus were reduced and respiratory murmur was absent at the base and greatly reduced at the higher levels of the zone of dullness. The heart was displaced to the right, but a Grocco's triangle was not demonstrable. Examination of the other systems revealed no abnormal features. The B.P. was 120/70. A skiagram taken on Aug. 28 showed evidence of a left-sided pleural effusion; no air was present in the pleural cavity. On Aug. 31 an exploratory puncture of the chest was performed and 10 c.cm. of what appeared to be pure blood was obtained. The haemoglobin content of this sanguineous fluid was found to be 65% (Sahli). The patient's progress was satisfactory, and serial examinations revealed signs of absorption of the fluid. A further x-ray examination of the chest on Sept. 13 showed a diminution in the size of the effusion, which was now seen to extend into the interlobar fissure. Thirty-three ounces (938 c.cm.) of blood-stained fluid was withdrawn on Sept. 20 and a further 16 oz. (454 c.cm.) on the 23rd.

The patient was discharged from hospital on Oct. 11. At that date a dull percussion note could be obtained only at the lowermost zone of the left chest, while the air entry seemed unimpaired. The radiological findings were then those of a residual opacity in the left costo-phrenic angle, which was considered to represent pleural thickening. The patient felt very well and was free of symptoms. During his stay in hospital the pulse and respiration rates and the temperature were raised, but the latter never reached above 100° F. Within three weeks they had settled to normal levels. Examination of the fluid originally withdrawn from the chest showed very numerous red cells and also endothelial, polymorph, and mononuclear cells; bacteriological culture was negative and no tubercle bacilli were found.

A month after his discharge from hospital the patient reported for re-examination, and the only abnormal sign in the chest was a slight impairment of the percussion note at the left lung base. Physical examination on July 27, 1945, revealed no evidence of abnormality in the chest, and a skiagram showed that the left lung field was now clear, only very slight pleural thickening being noted in the costo-phrenic angle.

Discussion

Blood in the pleural cavity may be associated with trauma, neoplasm, infarction of the lung, tuberculosis, severe fevers, chronic nephritis, cirrhosis of the liver, and blood dyscrasias. Among other causes are rupture of an aneurysm of the thoracic aorta or other thoracic vessel, scurvy, caries of a rib, multiple telangiectasis of the pleura, and injury to a blood vessel in paracentesis, thoracoplasty, or other surgical procedure such as division of pleural adhesions. Chandler (1937) also refers to the very rare condition of recurrent and even bilateral haemorrhage of unexplained aetiology known as pachypleuritis haemorrhagica. In the absence of an obvious cause haemorrhage into the pleural cavity is a rare event. The incidence of the so-called spontaneous variety, as judged from the literature,

is very low, although this undoubtedly is an underestimation, since not all examples are reported. Frey (1935) was able to discover only 10 cases. Hartzell (1942) compiled a list of 40, the series including only those who had been personally examined and in whom tuberculosis could be excluded satisfactorily as a cause; he records three additional cases of his own. A striking feature has been the constancy of the age and sex incidence. All the subjects have been men, with the exception of one of the three cases reported by Hopkins (1937). The age of the patient was mentioned in 41 of the 43 cases, and in all but 5 it fell between 20 and 40 years. The examples cited by Davidson and Simpson (1940) and by Lea (1942) were both males 26 years of age, and the case of Almeyda (1943) a man aged 41. There does not appear to be a predilection for either side of the chest.

While spontaneous haemorrhage does not owe its origin to an inflammatory process, the blood acts as an irritant to the serous membrane and a reactionary pleural exudate results. The pleural effusion thus evoked dilutes the blood and adds to the volume of intrapleural fluid. The studies of Sellors (1945) show that in six cases operated upon within a few hours of the injury producing the traumatic haemorrhage, the haemoglobin level was 30 to 40% below that of the circulating blood. Further dilution of the haemorrhagic pleural fluid occurs, so that in some instances the haemoglobin content may be below 20% only four days after the injury. However, there appears to be much variation in the velocity of the fall of the haemoglobin values in different subjects. That the colour alone may give a false impression of its blood content is emphasized by Sellors (1945), since 5 to 10% haemoglobin content may yield an appearance of heavily blood-stained fluid.

Haemorrhage must be distinguished from haemorrhagic pleural effusion and due consideration be paid to the lapse of time between the examination of the fluid and the onset of the condition. Obviously haemoglobin estimation is necessary. It is a well-established fact that blood maintains its fluid state while in the pleural cavity. Clotting does occur as in bleeding from other sites, but the haematoma is rapidly defibrinated by the agitation produced by cardiac and respiratory movements. Eosinophilia is often found in the intrapleural blood, which is of dark colour. The eosinophil cells have been considered to represent neutrophils which have engulfed haemoglobin, but this explanation has been denied by Grabfield (1921).

Tearing of a pleural adhesion in patients receiving therapeutic pneumothorax may result in haemorrhage, but Korol (1936) points out the rarity of haemorrhage in pulmonary tuberculosis considering the great frequency of large haemorrhages and of spontaneous pneumothorax in tuberculosis. He attributes this to the fact that the perforation involves the periphery of the lung, where the blood vessels are small, and to the poor vascularity of the tuberculous or emphysematous tissue which is the seat of the perforation. However, Mazzei and Pardal (1934) showed that subpleural bullae may be richly vascularized. They demonstrated a layer of newly formed vessels with abundant anastomoses which could give rise to large intrapleural haemorrhage. If this be the case, then it is all the more surprising that spontaneous pneumothorax is so rarely attended by the presence of any quantity of blood in the pleural cavity.

The commonest cause of spontaneous pneumothorax is the rupture of a valve vesicle situated on or near the pleural surface. The vesicle may be a manifestation of healed tuberculosis or of localized emphysema. Communication with neighbouring bronchioles by a valve-like mechanism allows the entry of air but hinders its exit, and thus the bulla increases in size and may finally rupture. When rupture does occur bleeding might be anticipated as a concomitant incident, and perhaps its absence depends on the immediate pulmonary collapse, which brings about a retraction of the injured blood vessels as well as slowing of the circulation through the lung. Korol (1936) points out the efficacy of artificial pneumothorax in the treatment of haemoptysis and considers that it is the latter factors which operate. Careful inspection of the skiagram of a case of spontaneous pneumothorax will often reveal a small amount of pleural fluid in the costo-phrenic angle.

It becomes apparent that some additional possible mechanisms must be sought to explain the origin of spontaneous haemorrhage.

thorax. The view of most contributors to this subject is that a spontaneous pneumothorax is the initial event. As the intrapleural pressure rises any pleural adhesions which exist will become stretched and may ultimately rupture, so producing a spontaneous haemopneumothorax. The collapsing lung tears the adhesion which contains blood vessels and the escaping blood accumulates in the pleural cavity. Leopold and Lieberman (1935) at necropsy found pleural adhesions in almost 50% of all individuals above the age of 20, even after eliminating all cases with a history of acute or chronic pulmonary disease, in many cases these adhesions contain large blood vessels which carry an arterial pressure six times that of the pulmonary circuit. Examples are on record which clearly demonstrate a pneumothorax preceding the haemorrhage, Rist and Worms (1940) report a case in which signs of dry pneumothorax were followed 12 hours later by extravasation of blood. The second of the three examples observed by Hartzell (1942) was a youth of 17 years of age who developed a dry spontaneous pneumothorax. He was discharged from hospital with x-ray evidence of full lung re-expansion, but was readmitted nine months later on account of a spontaneous haemopneumothorax on the same side.

While the occurrence of spontaneous pneumothorax with subsequent tearing of an adhesion may be an adequate account of the course of events in some examples, a difficulty still presents itself in the understanding of why considering the very common incidence of pleural adhesions and the not infrequent pneumothorax whether spontaneous or induced, haemothorax is not more common. The resultant of the opposing forces of the intrapleural pressure and the elasticity or toughness of the adhesion will determine the issue. Should the former influence be ascendant, severance of the adhesion will ensure the degree of haemorrhage varying with the vascularity of the adhesion and the haemostatic effects of the contracting tissues and intra pleural pressure.

Almeida (1943) considers that spontaneous haemopneumothorax and spontaneous haemothorax are in all respects identical. This conclusion merits further attention. The absence of air has been attributed to the lapse of time before adequate investigation, but the interval may not be of sufficient duration to allow of complete absorption of the air, nor has the rate of absorption been studied under these circumstances. Later and Rodis (1933) published the x-ray films of a case of spontaneous haemopneumothorax in which the pneumothorax was demonstrable only with the patient lying on the sound side. The amount of air need not be great, for if enclosed in a small confined space it may exert a high pressure and so produce rupture of an adhesion with subsequent bleeding. As a tentative alternative explanation of the absence of pneumothorax in haemothorax we suggest the possibility of spontaneous rupture of an adhesion. Adhesions vary greatly in their calibre and a sudden muscular movement may rupture one of very small diameter. Should the rupture take place close to the parietal pleura bleeding will result, but no air will enter the space provided the layer overlying the lung remains intact, if the break in continuity occurs in a portion containing lung tissue then both air and blood will accumulate. Post-mortem examinations in most instances fail to reveal the source of bleeding, and it is not possible to determine whether the bleeding is parietal or pulmonary in origin. We put forward the view that the haemorrhage may originate either from spontaneous rupture of an adhesion or as a sequel to a pneumothorax. The bleeding secondary to a pneumothorax may come from the vessels in the ruptured vesicle or from an adhesion torn by the pressure of the intrapleural air. If such a contention prove valid then a distinction must be drawn between spontaneous haemothorax and spontaneous haemopneumothorax.

The cardinal symptoms of idiopathic haemothorax or haemopneumothorax are pain and breathlessness. Usually the patient previously has been in good health. The pain may be preceded by some exertion altering the intrapleural pressure, such as yawning, coughing, sneezing, or straining or it may occur while the individual is at rest. Of particular importance in some instances is the location of the pain in the abdomen, and this has led on several occasions to the erroneous diagnosis of an acute abdominal emergency, especially when other symptoms of gastro-intestinal upset—nausea, vomiting and diarrhoea—are present. The somewhat varied order of the appearance and

progress of the pain and dyspnoea may theoretically be accounted for by a consideration of the possible sequences of events which may ensue. Should a spontaneous pneumothorax be the initial incident, acute pain will be experienced. Depending on the amount of air liberated into the pleural cavity, the degree of pulmonary collapse, and the rapidity with which these processes occur, dyspnoea may appear simultaneously with the pain or some time later, and its severity be measured by the encroachment upon the respiratory reserve and the cardiac embarrassment occasioned by the mediastinal displacement. If bleeding from the ruptured vesicle takes place at the same time then dyspnoea will steadily increase to a fatal outcome or until the haemorrhage and the escape of air are controlled by artificial or natural means. The pneumothorax, if at first unaccompanied by haemorrhage, may be of insufficient degree to give rise to marked breathlessness, and pain may be the principal presenting symptom, then there may be a temporary improvement in the severity of the pain lasting for several hours to several days, only for a recurrence of the pain to ensue, but accompanied now by pronounced dyspnoea, signifying that this exacerbation represents the rupture of a pleural adhesion.

These three stages—pain (with or without dyspnoea, according to the size of the pneumothorax), temporary improvement, and recurrence of pain and dyspnoea with signs of internal haemorrhage—have been well marked in most of the recorded cases of spontaneous haemopneumothorax. When an adhesion ruptures spontaneously close to the parietal pleura and without any severance of the visceral pleural surface of the lung pain appears at once, with dyspnoea steadily increasing to its height depending on the rapidity of the outpouring of blood from the ruptured vessels of the adhesion. This course of events closely resembles that succeeding the rupture and simultaneous bleeding of a pleural vesicle, the distinguishing feature being the presence of air in the pleural sac on the latter occasion. A breach in the continuity of the surface of the visceral pleura during the spontaneous rupture of an adhesion will yield a syndrome indistinguishable from the haemopneumothorax of a ruptured bleeding bulla.

Examination of the peripheral blood may reveal an anaemia commensurate with the degree of internal bleeding. Fischer's (1922) case shows how severe the latter may be four and a half litres of blood being recovered from the pleural cavity.

The clinical course in most cases which survive the period of shock and sudden mediastinal displacement is that of slow and steady improvement. Jones and Gilbert (1936), in an analysis of 13 cases which eventually recovered found that the average duration of the disease was 59 days, with the shortest period 10 days and the longest 98 days. Hartzell's (1942) review of 43 cases shows a fatal termination in approximately 1 in 3 cases. Of 11 cases in which the available data were satisfactory, 5 died within 24 hours, 4 within a week and 2 at a still longer interval. Little information is available with regard to the incidence of second attacks, but the ultimate prognosis of recovery of respiratory efficiency appears to be satisfactory if adequate treatment is adopted. The patient reported by Milhorat (1937) enjoyed excellent health and freedom from all symptoms suggestive of pulmonary disease six and a half years after a spontaneous haemopneumothorax.

Summary

A case of spontaneous haemothorax is presented.

The possible mode of origin, the clinical features, and its relation to spontaneous haemopneumothorax are discussed.

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Medical Memoranda

Fatal Aortic-Oesophageal Fistula from a Swallowed Piece of Bone

The following case of aortic-oesophageal fistula arising from perforation of the oesophagus and aorta by a piece of bone may be of interest owing to the rarity of the condition.

CASE HISTORY

A young Somali adult was admitted to a casualty clearing station for treatment of a small tropical ulcer. The ulcer was given local treatment; the patient had no other complaints. At about 5 p.m. on Oct. 7 he had a normal meal of meat and vegetables. At midnight he complained of nausea and a slight deep-substernal discomfort, and a short time later brought up about a cupful of blood-stained vomit. At about 5 a.m. the next day he suddenly vomited 5 oz. (140 c.cm.) of bright-red blood containing several clots, in which was found a flat piece of bone. Apart from a slight rise in pulse his general condition was good and there seemed no cause for alarm. The piece of vomited bone had the appearance of a cortical portion of some long bone. It was flat and polygonal in shape, and measured 3 cm. in its greatest length and 1.5 cm. in its greatest breadth. The edges and corners were sharp, and one of the long edges was serrated like a saw. A diagnosis of laceration of the oesophagus was made.

Treatment and Progress.—Morphine 1/3 gr. (22 mg.) was given and other first-aid measures for haemorrhage were begun. His general condition improved rapidly; but a blood count at 9 a.m., showed haemoglobin 40% (Sahli) and 1,830,000 red blood corpuscles per c.mm. No oesophagoscope was available. At 12 noon he suddenly vomited about 20 oz. (560 c.cm.) of bright-red blood; much of it was clotted. He was collapsed, with all the signs and symptoms of severe haemorrhage. First-aid shock treatment was given and an intravenous drip of 500 c.cm. of serum was started, followed by 1,000 c.cm. of glucose-saline and later 500 c.cm. of matched blood. His general condition improved somewhat. In the hope of being able to plug the oesophagus from the stomach a laparotomy was performed. The stomach was found to be full of blood clot. There was no lesion of the stomach. A stream of blood was seen pouring from the oesophageal opening. No lesion of the oesophagus could be felt digitally. Closure was performed, and the patient died.

Post-mortem Examination.—The body was that of a well-built, well-nourished male, and, apart from marked pallor of the mucous membranes and a small ulcer on the right shin, there was no evidence of external disease or injury. The pharynx showed no abnormality. On opening the oesophagus it was found to contain a large quantity of blood. On the antero-lateral wall on the left side, 9.5 cm. from the commencement of the oesophagus, there was an area 2 cm. long by 1.5 cm. broad which suggested that a cut had been made by a blunt knife. The mucosa was cut fairly cleanly over this area, but the muscle layers had a slightly shaggy appearance. On passing a probe into the centre of the cut it was found to emerge in the arch of the aorta 1 cm. below the origin of the left subclavian artery. The opening into the aorta was a small irregularly shaped hole about 1 mm. long, and had some blood clot lying at its edges. There was also a cut in the posterior wall of the oesophagus about 9 cm. from the origin of that organ. This cut area was 2 cm. long by 1 cm. broad. Again the muscle coat had been severed, but the wall was not perforated.

No other abnormality of the oesophagus was found. The remainder of the alimentary system showed no abnormality; and no pathological changes apart from the perforation of the aorta could be discovered in the heart or great vessels or any other organs.

The literature of the subject has been reviewed by Bank. R. S., *J. Amer. med. Ass.*, 1943, 122, 1011.

We are indebted to D.M.S., East Africa Command, for permission to publish this article

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Dr. Willard C. Rappleye, president of the Josiah Macy Jr. Foundation, New York, announces that more than five million copies of over four hundred leading medical and scientific articles have been published by the Foundation's war reprint service during the last three years for medical officers of the armed Forces of the United States and so far as possible Canada, England, New Zealand, Australia, the U.S.S.R., and China. The reprint service is now discontinued. It has been an effort to bring new and important developments in the science and practice of medicine to medical officers who were largely cut off from the sources of medical information during the war. In the choice of these articles the Foundation has had the active co-operation of the Committee on Pathology of the National Research Council and of the National Committee for Mental Hygiene.

Reviews

MOVEMENT OF EXTRAVASCULAR FLUID IN THE LUNGS

Pulmonary Edema and Inflammation. An Analysis of Processes Involved in the Formation and Removal of Pulmonary Transudates and Exudates. By Cecil K. Drinker, M.D., D.Sc. Harvard University Monograph in Medicine and Public Health. No. 7. (Pp. 106; illustrated. \$2.50 or 14s.). Massachusetts: Harvard University Press; London: Oxford University Press, 1945.

An outcome of recent work, employing isotopes, on the distribution of ions throughout the body and of estimations of the volumes of the fluid compartments of the organism by a variety of methods has been the appreciation of the rapidity with which transport and distribution of substances is effected across the various membrane barriers.

In this short monograph, which contains the substance of the Nathalie Gray Bernard lectures, Prof. Drinker deals with the movement of extravascular fluid in the lungs. He regards the formation and circulation of lymph in the lungs, and the production and removal of alveolar transudates and pleural effusions, as parts of one large problem. The factors affecting fluid exchange, while similar to those operating in other tissues, are modified by the mechanical conditions under which the lungs work. The minute anatomy of the lungs is first reviewed, and then follows a description of the experimental methods by which the lymph from the lungs can be collected. The salient differences, often disregarded, between the systemic and the pulmonary capillaries are examined particularly with reference to the pressure relationships of the blood vessels, air passages, and lung tissue. The factors which may disturb the normal balance between the rate of tissue fluid formation and lymph drainage are discussed and, by reference to his own experimental work, the influence of anoxia on capillary permeability is stressed. From observations, both clinical and experimental, it is concluded that limitation of lung movement, slight respiratory obstruction, or anoxia produced in any way, may give rise to a degree of pulmonary oedema which, while insufficient to be revealed by ordinary clinical examination, may encroach upon the pulmonary reserve, prevent the free exchange of pulmonary gases, and provide conditions suitable for the spread of infectious inflammation. In a concluding chapter present methods of artificial respiration are reviewed, not only for their effect on ventilation but also for the changes likely to be produced in the lungs by the particular method employed.

Although the problems raised are not new and the consideration given to them is necessarily rather superficial, yet the approach to them is stimulating, as may be anticipated when the way is by the author's own investigations, and the majority of them are of fundamental importance to the physician, the anaesthetist, and the thoracic surgeon.

HISTORY OF SCIENCE

Science Past and Present. By F. Sherwood Taylor, Ph.D. (Pp. 270; illustrated. 10s. 6d.) London: Heinemann, 1945.

Dr. Sherwood Taylor has had the excellent idea of putting together a history of science which is also a "source book." Each of his eighteen chapters—beginning with man's first efforts to make flints, and ending (inevitably) with the atomic bomb—is followed by a series of quotations from contemporary writers which, in their cinematographic effect, give a livelier impression of the knowledge and outlook of successive generations of inquirers than can be obtained from much more ambitious histories. His chapter on "The Revival of Observation"—the sixteenth century—provides a good illustration of the method. The main text compresses into a matter of eight pages a general sketch of the Renaissance and a sufficient survey of the science of the period to establish the point that astronomy and anatomy were the only branches in which outstanding advance was being made. Then we come to the quotations: Copernicus's explanation of how he "began to think about the mobility of the earth"; Vesalius's demonstration in a sow of "the connexion of the voice with the recurrent nerves" ("This animal is chosen because it can be relied on to squeal continuously and so provide the voice which is the subject of the experiment"); a typical prescription, from Fumanelli.

compounded of filtered lizards, marjoram, and wormwood; Edward Wright's story of "an ancient mariner (yet living I think) who having undertaken the charge of conducting a ship from England to St. Michael's (the easternmost of the Azores) and after long seeking not able to find it, for shame and sorrow cast himself overboard"; and, finally, the elaborate directions of Robert Recorde in 1542 on how to multiply "seven times eight," given that "five times five" is the limit of tables that one can be expected to know. In the same short chapter there are ten illustrations, all aptly chosen, from original sources. Primarily written for sixth-form and university students, this is a book which few can afford to despise.

A MEDICAL TRACT

Birtricht. By Tustaa Cluver (Pr 165 8s. 6d.) Johannesburg Central News Agency, Ltd. 1945.

This is a mixture of something like a fairy story with ardent propaganda for a whole time salaried medical service. The author is an enthusiastic advocate of prevention rather than cure, and like most such, his interest is in the mass rather than in the individual whose eccentricities, likes and dislikes, are of small account in comparison. It is probably fair to infer that the author is the eminent Director of the South African Institute for Medical Research, whose views are therefore worthy of respect.

The fairy-story element is provided by a running account, first of what the world was like in the days of our very remote ancestors, and then by the experiences of a "Dr. Fortescue," a general practitioner who arrives at a strong belief in the necessity for a State Medical Service and discusses the matter with his patients and his colleagues. Man's birthright is his right to be healthy, happy, and contented, and to live to a much greater age than at present seems possible. This can be achieved only by planning, and the author believes that Russia is doing this now. Dr Cluver says that, though the medical profession has its ideals, these "can never be realized until disease treatment ceases to be profitable. The profession as a whole is not making the contribution to the health of the community commensurate with its numbers; it is far too much concerned with treatment and too little with prevention." The present low average of physical health is attributed to the evils of civilization—starchy foods, too much clothing, lack of ventilation, economic insecurity; and on these points much of what the author has to say is interesting and sometimes very sound. There are many passages which the reviewer found provocative, and one at least that seemed quite out of place in a book which must have been intended to be persuasive. There is a long argument about a salaried medical service, conducted with great spirit during an operation which ends in the death of the patient owing to the mismanagement of the anaesthetist, who, of course, is arguing in favour of private practice, while the surgeon takes the other side. The jury brings in a verdict of accidental death, but it was probably not aware of the absorbing controversial activities of the two doctors concerned.

The account of his visit to Russia in 1939, and the effect it had on the doctor, is well told. It conveyed to one reader the impression of a man all too willing to be confirmed in ideals previously formed, and now, he thought, put into practice. At first the doctor was rather depressed by the drabness and shabbiness of the man and woman in the street and by the marked lack of enthusiasm shown by those concerned in running the hotel at which he stayed in Moscow. However, it was explained to him that waiters are generally chosen for the job because they have proved useless for other more useful occupations. But as soon as he got into the institutions dealing with the masses he was enchanted. He admits that he encountered much dirt and overcrowding (not in the institutions) and saw much evidence of the results of early malnourishment, but, he goes on to say, "the health plan as I saw it approaches perfection," and he shows very clearly that in many directions the Russians have made immense progress, particularly in maternity and child welfare, in industrial medicine, and in the reduction of prostitution and venereal diseases. Dealing with the medical profession, he says that in the selection of students preference is given to manual workers, which accounts for the lack of preliminary general education which he noted. Students are paid salaries and allowances during their

curriculum. When a doctor qualifies he must go where he is sent, but there is little reluctance (which anyhow would not be tolerated) about going to remote areas, because the salaries are higher there and the cost of living less. An "experienced doctor" would be paid the equivalent of £40 a month; which is deemed good pay, as it is "as much as is earned by the most skilled worker," such as the miner. Traces of the "old Adam" appear when we are told that in rare cases higher salaries can be earned, even as much as £160 a month. This is achieved by giving a doctor four *whole-time* appointments. The author comments frequently on the great disproportion between men and women doctors: the women seem to be in a great majority. Russia discourages domiciliary attendances, and the author admits that it is "quite impossible to attain to the close personal relationship implicit in private practice." But as most of the people have never experienced this they don't mind, and Dr. Cluver obviously thinks it of little consequence when it is compared with the benefits the Russian system has conferred on the mass. A non-Russian patient might have other views.

Space does not allow of reference to many other interesting points noted by an acute if biased observer. The author's idealism appears occasionally to overcome his sense of proportion. Optimism runs riot through the story. "In the not too distant future we shall have cured the last case of infectious disease of any kind." "Clinical diagnosis has become supererogatory. The drugs available are so general in their action that it is no longer necessary to label the disease which is about to develop." "The doctor of the future will have the job of keeping lots of healthy old men and women in their contentedly happy state." We can envy Dr. Cluver his optimism even if some of us are not able to share it.

Notes on Books

The Ministry of War Transport has issued from Berkeley Square House, London, W.1, two revised memoranda on *Malaria among Merchant Seamen*, which supersede earlier editions. The first and longer, officially described as Notice No M 195, gives suggestions for the prevention, diagnosis, and treatment by ship surgeons of malaria on ships. It describes general and medical precautions, clinical manifestations of malaria, diagnosis and prognosis, general management of a case, and specific treatment of an acute attack. One appendix is on the technique of parenteral administration of antimalarial drugs, and another on toxicity of mepracine and pamaquin. The second and shorter memorandum, Notice No M 178, is primarily intended for the use of masters of vessels that do not carry surgeons, and the instructions are confined to such measures of prevention and treatment as can be carried out by the layman.

The Junior Club Handbook: a Guide to the Organization of Clubs for the Under 14's is published at 3s. 6d. by the Religious Education Press, Wallington. During the war, owing to the absence of parents on war work and the temporary decay of scout and guide activities due to lack of leaders, the leisure of school-children was poorly provided for and organized. Probably this was one of the major causes for the increase in juvenile delinquency in recent years. Attempts have been made to form clubs for these school-children by many well-intentioned individuals and organizations, but they have been by no means uniformly successful. In 1943 a committee was formed and made a survey of three representative boroughs, and was dissatisfied with what it found. Learning from the mistakes it discovered, the majority of its members have contributed articles dealing with their respective spheres of interest to make up the present guide to the formation of junior clubs. Play, the use of the arts, outdoor activities, and religion are discussed seriatim in the first part, and details of games, dancing, and handicrafts are supplied in the second. A useful bibliography and list of addresses is appended, but it is regrettable to find no mention of child guidance, which has an important contribution to make towards the understanding and upbringing of normal as well as abnormal children. On the whole this little book provides useful suggestions for all who take a practical interest in our citizens of the future.

Dr. MARIE-LOUISE VERRIER'S *Biologie de la Vision* (Paris: Librairie Armand Colin; 42 francs) is essentially an account of the comparative physiology of the eye. It also gives a considerable amount of incidental comparative anatomy. As a concise elementary exposition it leaves little to be desired. The excessive stress on French work is rather unfortunate.

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SPRUE

It is not unusual for anthropologists to lament that so little information was gathered about the structure and customs of primitive communities when the white races first penetrated into Africa and the Pacific. We must sometimes wonder, therefore, whether scientists of the future may not look back on the war-stricken decades of the first half of the twentieth century as the golden opportunity for nutritional research. The answer is almost certainly No. The poorly nourished are likely to be with us for many years to come, and, though war subjects mankind to strange and testing circumstances, it does so under conditions which are not devised for dispassionate observation or control. In this war the experiment has been made of sending huge armies of men with the latest equipment of technology into India, South-East Asia, and the Pacific. The scope of the attack was without parallel in the history of warfare, and its success was largely due to applied science. The amount of new knowledge gained in the field has nevertheless been relatively small, owing to the basic difficulty under which both military medicine and tropical medicine labour—that is, to bring together the clinical material and the facilities for investigation, and to reconcile the urgent tempo of war with the measured pace of research. Moreover, while war accelerates the application of science, it probably retards the development of fundamental knowledge.

One of the problems of military medicine in India has been sprue, of which Keele and Bound give an account in the opening pages of this week's *Journal*. It is important not so much for the total number of cases as because of the long duration of invalidity and the obscurity of the pathology. The interest of these war cases is that the patients have been seen at a stage before the development of anaemia and complications. They have, in fact, been seen so early that they raise the question as to the essential features on which a diagnosis of sprue should be based. Keele and Bound found that isolated samples of stools from their patients might contain a normal percentage of fat; but analysis of single specimens is of little value, as Frazer and his colleagues pointed out at a recent meeting of the Gastro-Enterological Society. The only way to determine the presence of steatorrhoea is to carry out an actual fat balance, in which the patient is given a measured intake of fat over a period of days, and the amount not absorbed is estimated by collection and analysis of all the faeces passed. We should be unwilling to abandon steatorrhoea as the cardinal symptom of sprue without the evidence of such experiments.

The designation "sprue" was given to the illness because of the *aphthae tropicae* with which the patient's mouth is sprinkled, while the synonym "psilosis" refers to the bald tongue. There can be no doubt that sore mouth and catarrhal inflammation of the entire alimentary tract formed the basis of the classical description of sprue. There are, however, other tropical diseases in which sore mouth, diarrhoea, and wasting occur, such as pellagra, kwashiorkor or malignant malnutrition, and ariboflavinosis. The distinction between sprue in the white troops and marasmus in the coloured troops in the Burma campaign is so fine that one would doubt whether it could really be drawn by clinical means. If we are to make further advances in the understanding of nutritional disease we must discover objective criteria for classification, comparable with the bacteriological and serological criteria of infectious diseases. These may be found by the isolation of aetiological factors and the recognition of specific disturbances of form and function. The tendency in recent years, therefore, has been to rely rather more on the laboratory data than on the clinical signs, and steatorrhoea has been the criterion by which sprue has been separated from similar conditions such as pellagra and nutritional macrocytic anaemia in cases of doubt. It may be that steatorrhoea will prove to have as many different origins as stomatitis and diarrhoea, and to be a phase and not a primary symptom of the illness we call sprue. Nevertheless, for the moment it would seem profitable to regard steatorrhoea as an essential element in diagnosis and research on sprue.

If sprue is so difficult to define it is not surprising that its aetiology remains a puzzle. Sprue occurs in America, Asia, and Australia, but apparently not in Africa. It sometimes appears in epidemic form, and may be so localized as to give rise to the idea of "sprue houses." It affects the more prosperous section of the community. There is a pronounced seasonal variation in incidence. All this is difficult to harmonize with the conception of a nutritional deficiency, but efforts to discover a specific infective agent have failed. In a review of the aetiology of sprue A. W. D. Leishman¹ suggests that micro-organisms may be playing a different part from that with which we are familiar in the infectious diseases. It has been known for some time that though pellagra is associated with deficiency of nicotinic acid it predominantly affects the maize-eating people of the world. It is now believed that a maize diet is unfavourable to the absorption of nicotinic acid, whereas biological proteins and tryptophane are favourable. The action in both directions is believed to be brought about by the changes in the intestinal flora which result from the different diets. In sprue Leishman suggests that a change in the intestinal flora consequent on residence in the Tropics depresses the absorption of nutritional principles which are concerned with the assimilation of fat. This is an interesting speculation, which suggests that the conception of intestinal toxæmia may be revived in a new guise, but it will be impossible to prove or disprove it until we know more about the absorption of fat. A further problem raised by these war experiences is why sprue is

on the whole curable, while the idiopathic steatorrhea seen in this country tends to persist throughout life. The conclusion we would draw is that advances in the prevention and treatment of sprue must wait on basic physiological studies. The new hypothesis of fat absorption advanced by Frazer⁷ and his colleagues promises to be very fruitful, and it may well be that the problems of sprue will be solved in the laboratories of Western Europe and the U.S.A. rather than in the countries where the disease is prevalent.

INFECTIOUS DISEASES IN THE LENT TERM

The trend of infectious diseases during the war years has shown no very marked deviations from the average, though the returns for the last two years suggest that infectious diseases in general were less prevalent than in the earlier war years. Only two diseases—diphtheria and dysentery—have undergone a notable change in incidence and their trends have been in opposite directions. The notifications of diphtheria numbered 25,059 in 1945; this was a record low level, being only half of the number recorded in the early war years. Dysentery has steadily and rapidly increased during the war, and the 16,533 notifications in 1945 were six times greater than the total for 1940. Most infectious diseases have a distinct seasonal rise, with a heightened incidence in the winter months and often with a maximum during the first quarter of the year. The most outstanding disease for its regularity of appearance and shape of the epidemic curve is influenza. The annual trend of influenza since the pandemic of 1918-19 has been to increase slowly in the late autumn, with a more rapid rise in late December or early January to a maximum in the early weeks of the year. In recent years the peak of the mortality of the great towns has varied from the fourth to the eighth week. The only exception to the customary influenza pattern occurred in the winter of 1943-4, when influenza began to rise about two months earlier than usual and the mortality in the great towns reached a maximum during the 49th week of 1943. An outbreak of influenza has usually spent its force by the end of the first quarter, but in years of unusual severity the epidemic may last well into the second quarter. During the large epidemic of 1929 the deaths in the great towns reached a maximum of 2,183 in the ninth week, but it was not until the week ending May 11 that fewer than 100 deaths were recorded weekly. The deaths from influenza in the last weeks of 1945 were above the average, but it does not necessarily follow that the present outbreak will exceed those of recent years, though it does seem a likely occurrence.

The common infectious diseases of childhood are more prevalent in the winter; but for scarlet fever, whooping-cough, and diphtheria there is no very definite maximum: the incidence oscillates around a high winter level. The notifications in the first quarter are higher than in the preceding fourth quarter for whooping-cough, while the reverse is true of diphtheria. In the first quarter of 1945 the incidence of diphtheria fell instead of remaining almost

at the level of the preceding quarter, as would have been expected from the experience of the preceding years. Any hopes that a large continuous fall in the incidence of diphtheria had been achieved were disappointed later in the year, when the figure reverted to the level of 1944. If the present trend of diphtheria goes on we must expect a considerable increase in notifications during the Lent term compared with last year, though the number of cases should be below the 9,005 recorded in the first quarter of 1944. Measles has been a notifiable disease only since the war began, and during this period it has exhibited a biennial periodicity with maxima in the first quarters of 1941, 1943, and 1945, the largest weekly totals occurring in the 1st, 8th, and 12th weeks. In the coming quarter we may expect measles to rise, and judging from the past six years the incidence will continue to rise until a maximum is reached in the spring of 1947. As in 1914 the outbreak of war, with the consequent massing of great numbers of men, was followed by a large outbreak of cerebrospinal fever. Before 1939 the incidence rose in winter to about twice the summer level, but without any definite peak. Since 1939 a rise to a pronounced maximum in the first quarter of the year has been a feature of the incidence of cerebrospinal fever, the peak incidence appearing from the 6th to 12th week. In each succeeding annual wave the number of cases has declined: the successive maxima were 617, 406, 281, 121, 101, 94. Cerebrospinal fever seems to have become temporarily stabilized at about twice the pre-war level, and the coming spring will probably show figures of the order of those of the past two years, since the autumn trends of these years are similar.

Acute pneumonia displays somewhat the same trend as the influenza mortality of the great towns. The winter rise of pneumonia starts earlier than the rise in influenza mortality, and although, generally, the number of cases recorded in the first quarter is much greater than the number in the preceding fourth quarter there is no sharp rise to a maximum in the first quarter; rather the incidence tends to remain at a high level for some weeks. The only recent exception to the general trend of pneumonia occurred in 1943-4, when the maximum was reached in the 49th week, this coincided with the maximum of the influenza outbreak, which was exceptional for time of occurrence. Since in recent weeks acute pneumonia has been at a higher level than in the corresponding period of last year the notifications in the forthcoming quarter will probably be more numerous than in the first quarter of 1945. Dysentery displays no seasonal trend, and this might be expected because of the localized area of outbreak; but the disease has shown a large and continuous rise throughout the war: 4,681 cases of dysentery were notified in the first quarter of 1945, and compared with some pre-war years the notifications have multiplied over twelve times. Of the non-notifiable infectious diseases rubella, which may sometimes in a closed community exhibit powers of spread equal to influenza, appears in the first and second quarters in epidemic form, and attack rates of over 90% among the susceptibles in the population (i.e., those not previously attacked) have been recorded. It would seem from field investigations that chicken-pox has not a well-marked seasonal rise and that it emerges

in a closed community of boys and girls more frequently than any other infectious disease, though numerically it is not the most important. The work of many epidemiologists has established that the Lent term has the largest prevalence of nasopharyngeal infections. Both in this country and in America a maximum incidence has been found at about the end of the first month of the quarter.

JUVENILE DELINQUENCY AND ITS REMEDY

The recent debate in the House of Commons shows that the problem of juvenile delinquency arouses great concern but not much constructive thought. Mr. F. W. Skinnard, M.P., who is an expert on the maladjusted child, has put the problem into perspective in an article which stands out as one of the most sensible written on this subject for a long time.¹ His chief point, and one that ought never to be forgotten when thinking about juvenile delinquency, is its fundamental difference from adult crime. If the child charged with an indictable offence is the embryo of the habitual adult offender, and if juvenile delinquency is constantly increasing, then the adult convict population should be growing. In fact, as Mr. Skinnard points out, serious adult crime is decreasing; the vast majority of adult criminals have no police record as children, and a very small percentage of children brought before the courts ever appear again. That juvenile delinquency has increased seems to be generally accepted, but the amount of its increase is largely a matter of statistical recording. After the passage of every Act concerning delinquency the recorded figures shoot up. Sir William Clarke Hall declared that the number of child offenders in any locality can at any time be multiplied merely by exceptional police activity. The principal cause of child delinquency is the failure of the community to give children something sensible to do. The child will not allow his valuable instincts and talents to rust, even if the only uses to which he can put them are illegitimate. He is not content, as grown-ups are, with repetitive work and canned amusements. The community has remained strangely passive to the vital need of providing a creative outlet for youth. Its interest is manifested mainly in administrative and permissive measures sweetened by grants in aid; there is no comprehensive plan. It is concerned with the activities of adolescents only when they break the law. Mr. Skinnard sketches from practical experience the lines which reform should follow. First, he says, all the work of the school should tend outwardly towards the community at large, so that there is a conscious integration. Secondly, the school should aim at attracting inwards the interest and active attention of the adult population. The whole curriculum should aim at turning out young citizens with a real concern for the well-being of their district. He narrates how the work of drawing up a simple social and economic survey of the locality transformed a group of young delinquents into a keen self-governing body, and also produced an amazing reaction in the world around it. Previously hostile parents gave valuable help; adult classes were formed; local firms contributed equipment and demanded intelligent "leavers" to train for executive posts. Petty crime became nearly extinct. Mr. Skinnard concludes that if the youth of the world are taken into full partnership and given tasks worthy of their courage and matched with their ability they will help to build the only true democracy, based on a unity of spirit in a diversity of minds.

ARSENIC IN TOBACCO SMOKE

In 1927 Remington¹ drew attention to the fact that tobacco smoke was an unsuspected source of arsenic in the human environment, and made some experiments which showed that about half of this arsenic was volatilized when the tobacco was smoked. Further observations were made in 1934 by Gross and Nelson,² who found that between 15% and 40% went into the smoke while the rest remained in the ash and cigarette-ends. Last year Thomas and Collier,³ of Salt Lake City, carried out smoking experiments with cigarettes, cigars, and pipe tobacco, and made determinations of the arsenic content of the puffed smoke, the unpuffed smoke, the ash, and the cigarette- and cigar-ends; they controlled the experiment both by estimating the arsenic content of small portions of the cigarette smoke and by analysis of whole cigarettes from the same packet. These observations revealed that different brands of tobacco and also individual cigarettes and cigars of a given brand varied widely in arsenic content: one packet, for instance, gave values ranging from 35.4 to 61.4 parts per million of arsenious oxide, while another gave values between 61.4 and 114.0 p.p.m. The smoke from these cigarettes contained between 11% and 23% of the arsenic, while the rest was distributed between the ash and the ends. The concentration of arsenious oxide per cubic metre of the puffed smoke ranged from 0.2 to 3.0 mg. for cigars (which, however, contained less arsenic than the cigarettes or smoking tobacco), 1.7 to 5.7 mg. for pipe tobacco, and 3.3 to 10.5 mg. for cigarettes.

These observations are of interest because of their possible relation to carcinoma of the lung. Last year the Chief Inspector of Factories⁴ stated in his annual report that three similar cases of pulmonary carcinoma occurring in arsenical sheep-dip workers had been notified since 1939. He also drew attention to the high incidence of carcinoma of the lung in arsenic workers, and stated that in conjunction with the Medical Research Council investigations were being carried out on this problem. Although the matter is not finally settled, there is strong evidence that exposure to arsenic dust predisposes to carcinoma of the respiratory tract. Much attention has been paid to the carcinoma of lung which occurs in miners in the Schneeberg mines in Czechoslovakia. The dust produced in the drilling of the hard rock is radio-active, and the neoplastic change has been generally attributed to this; the dust, however, also contains 0.45% of arsenic, which may play some part in the aetiology of the disease. The nickel and copper ores from the Sudbury mines in Canada also contain arsenic which may account for the carcinoma which sometimes develops in the upper respiratory tract of workers who handle this material.

Most observers agree that there has been a general increase in the incidence of carcinoma of the lung during the past two decades, though it has been suggested that the increase is not real but the result largely of more accurate diagnosis and a longer-lived population. During the same period there has been an enormous increase in the consumption of tobacco. Now that tobacco smoke is known to contain a substance having carcinogenic properties when introduced into the respiratory tract, the question immediately arises whether the two increases are in any way related. There is at least a case for full investigation.

¹ *J. Amer. chem. Soc.*, 1927, 49, 1410.

² *Amer. J. publ. Hlth.*, 1934, 24, 36.

³ *J. Industr. Hyg.*, 1945, 27, 201.

⁴ Annual Report of the Chief Inspector of Factories for the year 1943. Ministry of Labour and National Service. Cmd. 6563. H.M.S.O., 1944.

JITTERY LEGS

Pain, aching, discomfort, or dysaesthesiae of a burning, tingling, "pins and needles" character are all symptoms which may affect the feet and legs with such severity or persistence as to drive the victim to seek medical advice. In such circumstances differential diagnosis may be difficult, especially if there is a lack of objective abnormality on examination. Largely by exclusion, the search narrows to a scrutiny of the peripheral nerves, the crural blood vessels, and the muscles, with such possibilities in mind as sensory neuritis, an early thrombo-angitis, or a non-articular rheumatism. But as a rule a wholly satisfactory explanation of the symptoms does not emerge. K. A. Ekblom¹ has described recently a syndrome which corresponds with the more vague and elusive of these clinical phenomena. The complete picture, as he draws it, comprises peculiar and characteristic paraesthesiae in the lower legs, especially at night; weakness or clumsiness of the legs while walking, and a sensation of cold in the legs or feet. Objective signs are not to be found. Ekblom regards this disorder as "unpleasant, of long duration, and rather common." At the time of writing his paper the author had studied 8 cases, but by the time of correcting the proof-sheets the series had grown to 30. By the following year his material comprised 34 severe and 120 mild cases, and was incorporated within a short monograph.²

The symptoms may be examined in greater detail. The paraesthesiae ("dysaesthesiae" is a better term) are not easy for the patient to describe accurately. They are located deep in the leg, in the calf or shin; rarely in the feet; occasionally in the thighs. It is a crawling sensation, "irritating and enervating." All agree that it is something very unpleasant. Although often described in terms of "nervousness" the victims disclaim any association with feelings of an anxiety. The dysaesthesiae mostly come on at night, an hour or so after getting into bed. They prevent sleep. Since the sensations are relieved by moving the legs, the patient is compelled continually to change his position, and to kick, turn, and fidget in bed, or even to dangle the legs over the edge. Some indeed have to walk about the house. The dysaesthesiae may continue until the early hours of the morning. Two of Ekblom's patients used to pass the night reading or sewing. This state of affairs may continue night after night for years, even decades. During the day the legs are usually comfortable, though sometimes the dysaesthesiae will appear towards the evening when the legs are still—as in the cinema. The weakness of the legs is a less constant feature, and it consists of a vague feeling of heaviness or tiredness, especially after a long walk. It may cause the patient to stumble; it may seem as though the legs were going to give way; in one of the author's series they actually did crumple up on many occasions. Coldness of the feet and legs is the third symptom, though not always present. No constant abnormal signs can be demonstrated. Weakness and ataxia are absent, and reflexes and sensation are normal. Objective coldness of the legs, or discoloration, cannot be found. Pulsation in the dorsalis pedis arteries is normal. Oscillometric examination was done in one case and proved normal. The blood pressure was raised in some, but not in all. One woman had varicose veins in her legs. The Wassermann reaction was negative in all cases in which this test was done. A familial occurrence is not rare. Severe cases were commoner in females, and there was an association in some cases with pregnancy.

A search of the literature brought to light a condition described in 1861 by T. Wittmaack³ under the term "anxietas tibiærum"—"a singular but an appropriate name,

for it is really as though a restless spirit had flown into the legs of the patients. They change the position of the limbs every moment." R. Bing⁴ also mentioned this affection in 1913—"a dull feeling, difficult to define, in the shin bones" . . . "my legs become panic-stricken." F. G. Allison⁵ has recently written of a condition he called "leg jitters" which reads very like Ekblom's syndrome.

For the complete syndrome (anxietas tibiærum, weakness, and coldness of the legs) Ekblom suggested the term "asthenia crurum paraesthetica," or "irritable legs." Later he preferred the term "restless legs." In his later paper he also described a painful variety he called "asthenia crurum dolorosa." This picture is less clear-cut and less commonly encountered. He draws an analogy between the paraesthetic variety and the so-called acroparaesthesia of the hands so common in middle-aged women, but nevertheless believes that the two are distinct. He also refers, in discussing differential diagnosis, to the *acromélgie nocturne* of J. Tinsell⁶ (syn. *causalgia nocturna spontanea des vieillards*); or *pseudo-erythromelalgia* of W. Craig and B. Horton⁷. Here there is a burning sensation in the feet which occurs at night and which causes the patient—usually an elderly man—to toss and turn, or expose the feet to the cold night air, or to tramp the bedroom. This syndrome, too, is a thing apart. It is suggested by the author that the condition of "restless legs" is due to a functional disorder of the peripheral circulation, but it is not clear what he has in mind in his use of the term "functional."

In 23 out of the 29 cases rapid and striking improvement followed the use of benzylhydrazoline hydrochloride in the dosage of one tablet of 0.025 g by mouth thrice daily; or the oral administration of carbaminoylcholine chloride—4 tablets of 0.002 g a day. One case responded to injections of acetylcholine. Allison found benefit from chewing a tabella of nitroglycerin gr 1/100 (0.65 mg).

It is probable that this condition is by no means uncommon but that it rarely reaches the attention of a medical practitioner and scarcely ever receives a mention in the literature. Its close association with disturbed sleep raises the question as to which is causal—i.e., whether an organic vasomotor affection of the legs interferes with sleep, or whether, on the other hand, a condition of psychogenic insomnia brings in its train various symptoms as somatic expressions of tension, irritability, anxiety, or fatigue. The association with states of anxiety and overwork certainly needs closer scrutiny. From a mere physical approach there is some suggestive evidence of an association with states of recurrent fibrositis on the one hand, and with migraine on the other. As regards treatment, it is noteworthy that sedatives of the barbiturate class are helpful, while even more efficacious is the nocturnal administration of aspirin gr 10–15 (0.65–1 g). Relief is also obtained from the wearing of heavy wool night-stockings.

The Air Ministry announces that Air Vice-Marshal A. Grant has been appointed Director-General of R.A.F. Medical Services from March 1, in succession to Air Marshal Sir Harold Whittingham, who relinquishes the post on Feb 28.

¹ *Lehrbuch der Nervenkrankheiten*, Berlin, 1913, p. 522.

² *Canad. med. Ass. J.*, 1943, 48, 36.

³ *Le système nerveux végétatif*, Paris, 1937, p. 628.

⁴ *Surg. clin. N. Amer.*, 1938, 18, 899.

The Council of the British Institute of Radiology has made the 1945 Roentgen Award jointly to Mr. W. J. Meredith, of the Christie Hospital and Holt Radium Institute, Manchester, and Mr. G. J. Neary, of Mount Vernon Hospital and the Radium Institute, Northwood, Middlesex, for a paper done in collaboration and for other papers contributed by them separately to the *British Journal of Radiology*.

¹ *Acta med. scand.*, 1944, 118, 197.

² *Ibid.*, 1945, Suppl. 158.

³ *Pathologie u. Therapie der Sensibilitäts-Neurosen*, Leipzig, 1861, p. 459.

WITH THE PARTISANS IN ALBANIA

BY

Major J. G. DUMOULIN, R.A.M.C.

Albania, small and most backward country in Europe, is now free of Fascist tyranny. Sixty per cent. of its 1,250,000 inhabitants live in feudal communities in mountainous areas capable of independent existence when isolated in winter months. Doctors are few, and folk-lore handed down from father to son is the chief guide to medical treatment.

Cupping was the most popular general treatment of all ills. Sometimes this was combined with bleeding, when many small incisions were made over the area before the cups were applied; a sick person with as many as twenty red or bronze circular patches on back and chest was a common sight. Racki, a distillate of fermented grapes possessed by every household, was poured on sores, rubbed into the skin, or drunk as a cure for sick man and beast. One of the more insanitary but popular forms of treatment, more especially for chest conditions, was to apply to the body in the form of a jacket the warm skin of a newly killed goat or sheep on top of which were worn four or five layers of clothing. The sick man would be so left for several weeks. It was pitiful to see whitlows three weeks old, which had received no treatment except the daily application of wet leek leaves. An original idea was provided by a keen guerilla fighter whose friend received a through-and-through wound of the chest. He found his "pull-through" with a piece of "four-by-two" handy, if unorthodox, for use for first-aid treatment. The practices of heating stones and hanging them round the neck in a bag, of incising the lower lip for diphtheria, and even of charming away pains are just examples of the backwardness of these people of the mountains.

The Italians during their four years of occupation built some modern hospitals in the bigger towns, which had good equipment if they escaped from the ruthless pillaging and destruction carried out by the Germans as they left the country. During recent years most of the 150 doctors in the country had lived in the towns occupied by German garrisons. These men were Albanians and Italians who received their medical training in Italy, France, or Greece: while some were learned, many were not well versed in modern forms of treatment. Their methods include the popular view that injections have a greater curative power than pills, while cardiotonics, haemostatics, and calcium gluconate loom high in their list of essential drugs. Italian nuns, who as trained sisters staff the largest hospitals, have done excellent work.

Common Diseases

Of the prevalent diseases, malaria, rife in the coastal regions, is the commonest. Here an Albanian without an enlarged spleen is the exception. All three forms are found, and often a mixture of parasites is present in the blood of infected persons. The Rockefeller Institute made a determined effort to control the disease, and the Italians also tried, but the war stopped their activities, so that it has become more widespread of recent years. The incidence of typhoid and tuberculosis indicates the need for organizing a public health service and improving the low nutritional standard, for these two diseases claim a high toll of the population yearly. Syphilis, commonly of the congenital type, is prevalent, and massive untreated gummas are to be seen. Neurosyphilis is rare, probably owing to the coexistence of malaria. Louse-borne typhus is endemic, the odd case being found in most towns. Outbreaks have occurred recently with a low mortality rate—in one town a single death out of eighty cases—but there is always the possibility of a massive epidemic in a louse-ridden population. The doctors, well aware of this, are organizing disinfection centres in the larger towns.

In the winter of 1943-4 frostbite among the guerilla fighters was not uncommon, our worst case requiring bilateral amputation just below the knee-joint, for which a carpenter's saw well soaked in disinfectant had to be used. Of great interest to me was the apparent high resistance and courage of these men: for example, we had no deaths in ten patients with compound fracture of the femur, who probably had been carried on an improvised stretcher for several days or with stinking suppurating wounds reached the surgical centre riding on a mule. This, in view of the general malnutrition, is amazing: practically no vitamin C is taken in the winter diet of the mountain villager, and yet clinical nutritional deficiency appears to be rare. Of the diseases associated with the Tropics, bacillary dysentery is seen in the summer, but amoebic dysentery is uncommon. Cases of trachoma and kala-azar are evident.

War has stopped the activities of what public health services there were functioning in the towns. Tirana, the capital, alone had a good midwifery service, but in the smaller towns an ambulance and nurses' training service used to exist under the guidance of the local Red Cross.

Achievements of British Doctors

Mention may be made of the type and scope of work I undertook. There is no doubt that some valuable work has been done by British doctors working in the enemy-occupied countries of the Balkans, and their limited efforts have been much appreciated. Their job has consisted in assisting the guerilla forces to establish a form of medical service in the mountains, forming first-aid and hospital units, giving advice as well as doing the surgery and ordering medical stores.

But many factors limited the scope of these activities. It was essential to run only small units which could be packed up and loaded on mules at an hour's notice, for mobility was very important. In the early days there was no evacuation, so that to establish lines of evacuation meant the herding together of casualties in a centre too big to move and probably the goal of a German drive, which invariably took the form of an encircling movement. At such times, when fighting would be at its heaviest, little more could be done than glorified first aid; then we would split up into small parties and lie low until the Germans returned to the more congenial life in the towns. Having managed to hide the bulk of our equipment, we would then start to collect and treat the now grossly purulent wounds which had been sustained a week or more earlier. Under such conditions it was usually impossible to operate on urgent head, chest, and abdominal wounds, and it was surprising to have two patients with abdominal through-and-through injuries make a complete recovery in a few days; they would most certainly have undergone laparotomy had conditions been more favourable.

The tremendous benefit which followed the making of landing strips for aircraft and the running-in of ships to small coastal bays under cover of darkness changed the whole outlook for the wounded and raised the morale of the partisans more than any other factor; and credit must be given to the bravery of those concerned in carrying out these hazardous operations. At no small cost the Albanians have driven the Fascist occupiers from their country. Now they look to the great task of rebuilding their impoverished country. Like so many countries in Europe to-day, Albania is undergoing the after-pains of liberation, but there are people who have the foresight and knowledge upon which to build a sound health service in a country that has been backward for so long.

THE INVESTIGATION OF NUTRITION
ATTEMPT TO STANDARDIZE METHODS

A year ago the English Group of the Nutrition Society set up an advisory committee for the co-ordination of dietary surveys in liberated territories. It was felt that the presence in this country of scientists from many lands at a time when interest in nutrition was aroused offered an opportunity for standardizing methods of investigation.

Accordingly it was decided to form three panels to draw up reports respectively on laboratory methods, clinical methods, and methods of survey of food consumption. The Laboratory Panel had Prof. L. Fridericia, of the University of Copenhagen, as its chairman; the Clinical Panel, Dr. H. M. Sinclair, of the Oxford Nutrition Survey; and the Surveys Panel, Dr. E. Bransby, of the Ministry of Health. The members were drawn from the League of Nations Health Organization, U.N.R.R.A., the Army Medical Directorate, the British Paediatric Association, and other bodies, and included experts from the United States and other countries. Prof. J. R. Marrack, director of the Bureau of Nutrition Surveys, was a member of all three panels, and evidently did much of the co-ordinating work.

The reports of two of the panels are now available; special difficulties have arisen in connexion with the report of the Clinical Methods Panel, which will appear later.* The two reports already available—one dealing with laboratory methods, and the other with dietary survey technique—must be the most comprehensive ever prepared in their respective fields.

Diversity of Laboratory Standards

The object of the Laboratory Panel is to ensure that the results of laboratory examinations on the state of health and nutrition of different groups of people, or of the same groups at different times, are expressed in figures which have the same meaning throughout the world. Unfortunately, owing to the difference in methods used, in the assumptions on which calcu-

* Copies of the reports will be supplied to persons undertaking surveys of nutrition, on application to the Nutrition Society, Bureau of Nutrition Surveys (Prof. J. R. Marrack, Director), London Hospital, E.1.

lations are based, in the standards adopted, and in personal factors, and to errors in instruments and different ways of expressing results, this uniformity is far from being obtained. An example is given of estimations of haemoglobin, which may be based on a variety of chemical and physical properties of haemoglobin itself and its derivatives. Results may be expressed in terms of oxygen capacity, iron content, weight of haemoglobin (and in calculating the weight the factors used may differ), or percentage of a conventional normal, and the conventional normal may range from 118 to 172 g. per 100 ml. The panel has therefore made a number of recommendations with a view to securing rapidity and simplicity in the methods used in surveys, standardization of apparatus, and expression of results in absolute units.

After some general recommendations concerning the proper taking of samples of blood the report enters upon a technical discussion of the estimation of haemoglobin. When a colorimeter of the photo-electric, photometric or Duboscq type can be used the alkaline-haematin or the pyridine-haemochromogen method is recommended; when the colorimeter cannot be used then methods based on the estimation of the specific gravity of whole blood—namely, the copper sulphate method or the Linderstrom-Lang gradient—may be applied, or, if simpler types of colorimeter be used, the Sica or Haldane methods may serve. All methods should be based on ultimate standardization against the oxygen capacity of normal blood estimated by van Slyke's method, or the iron content of haemoglobin or of washed red cells of normal blood, or the absorption spectrum of the haemoglobin determined spectro-photometrically. If the Haldane, Sica, or similar methods in current use are employed the apparatus should be standardized against oxygen capacity, iron content, or absorption spectrum, but if such standardization is not possible, an approximate, indirect standardization may be obtained by the alkaline-haematin or pyridine-chromogen method, or, if this also is impossible a rough check can be made by the copper-sulphate method or Linderstrom-Lang gradient.

It is also urged that all results should be expressed in terms of grammes of haemoglobin per 100 ml. of blood. It is recognized that many investigators will continue to use the methods with which they are familiar and those for which they have apparatus, and that some surveys in which such methods are used have already begun. The Sica method of using reduced haemoglobin is specially recommended because it does not involve the accurate measurement of a small volume of blood. The Haldane method, again, has the advantage that the necessary apparatus, standardized by the National Physical Laboratory, can be obtained.

Haemoglobin Concentrations

The report includes a table giving the results of a large number of investigations of haemoglobin concentration by different workers in all parts of the world during the last twenty-five years. Among selected groups of men (students and others), all the 70 means, with 9 exceptions (3 below and 6 above), are found to lie between 14.70 and 16.25 g. of haemoglobin per 100 ml., and among the selected groups of women all the 50 means, with 8 exceptions (4 below and 4 above), lie between 12.9 and 14.15. In the unselected groups—wider sections of the population—the mean values are, on the whole, lower. Attention is drawn to observations which show that, when trustworthy methods are used, the haemoglobin level is not lower in England than in other parts of the world. The results of the British studies on children are remarkably consistent. There is evidence of a reduction during the period of the war when the food supply was least satisfactory. A large number of investigations have been made on the changes in the concentrations of haemoglobin in the blood in pregnancy, but the methods used in most of these have not been standardized.

It is pointed out that a low concentration of haemoglobin gives no indication of the cause or appropriate treatment of the anaemia. More can be learned if the erythrocytes also are counted or the cell volume measured, or both. Measurements of cell volume, although relatively few have been made, are the simplest and most trustworthy. Certain methods are also recommended for estimations of proteins in plasma or serum. These include exact and less exact estimations, and, if a dif-

ferential estimation is not needed, specific gravity methods, which are extremely quick and convenient. The urinary saturation test for vitamin-C status and the relation between its results and the ascorbic acid in the diet and in plasma is described. Elaborate equipment and special chemicals are required for the biochemical evaluation of the nutritional status of the B vitamins, so that these procedures are not easily applicable for workers in the field.

The report is brought to an end with a bibliography of about 300 references. Altogether this report, though designed to meet a passing situation, is a piece of authoritative and co-ordinated work worthy of permanent covers.

Technique of Dietary Surveys

The Dietary Surveys Panel set itself to put forward methods whereby a quick appraisal of the food situation may be made. Some of the methods recommended, such as the log-book family survey, are of general applicability, but other questionnaire methods are suitable only for the specific conditions for which they were designed. Some might suppose that ration allowances give a sufficient indication of food conditions in a community, but it is necessary to bear in mind that foods rationed in one country may not be rationed in another, that rations on paper are not always available or equally distributed, and that the "black market" cuts right across any such simple method of assessment. The extent to which black-market transactions exist will be the measure of the extent to which the nutritional situation is worsened, at least as concerns the poorer urban families. Dietary surveys under the abnormal conditions prevailing on the Continent are, of course, difficult to organize, but the more abnormal the conditions the greater the need for the surveys.

The report mentions three classes of persons concerning whom information should be obtained. (1) the "vulnerable" with special nutritional needs (infants, pre-school and school children, and nursing and expectant mothers); (2) special classes of workers essential for the reconstruction of their locality or country; and (3) any grade or category known to be badly off. The panel proposes that four different types of dietary survey be made by families, by individuals, by particular foodstuffs consumed, and by consumption in institutions and works canteens. Two family investigation techniques are suggested—one very simple and suitable for unsettled conditions and the other more elaborate, for use when conditions become more or less stabilized. The selection of samples of the population, rural and urban, the proper size of a representative sample and the presentation of results are discussed. The presentation of results comes under two heads—the actual per capita consumption of various foods—and the percentage which the nutrient intakes represent of the requirements.

The collection and analysis of such information is for the assistance of the national authorities and those responsible for the distribution of relief, so that they may have a reliable indication of the food conditions within the locality surveyed. Women students of dietetics or social workers are said to be better investigators than men, but the work also calls for the co-operation of the families investigated. The selected housewives are asked to make immediate entries on record forms of each parcel of food which comes into the house; the measurements of the food must be accurate, to the nearest gramme or decalitre, and the number and type of meals eaten out of the house by each member of the family must be set down. Again, the housewife, whilst co-operative, must not be unduly survey-conscious, or the result may be biased. It is a great deal to expect of the harassed working woman, but some of the heroines who have survived the shopping queue and the meagre larder will rise to this occasion.

Situation in European Countries

A valuable addendum to this report is a series of tables showing the nutrient values which should be applied to the indigenous European food supplies and also to the types of relief food likely to be imported. They have been prepared by a working party of experts, of which Sir Jack Drummond was one. The inquiry has covered 16 European countries. The tables give the values in calories and in proteins, fats, and carbohydrates for 70 different food commodities, with com-

ments on the position in different European countries. In Belgium, Czechoslovakia, and also in Holland for priority classes, milk is now standardized to 2.5% fat content; in Denmark the average fat content is 3.8%. In many European countries such beef as is available comes from very lean dairy cows and has about the same food value as horse-flesh. The group found that most of the wheat flour consumed in each country is around 85% extraction—in Belgium it is 90%, and in France 95%—and that to apply this rate to all the supplies for each country would involve no serious error. Considerable study has been given to the values for potatoes, and a somewhat higher value in carbohydrates (14.6 per 100 g. of food as purchased) has been adopted than the starch figure in the Medical Research Council's report. Under wartime conditions cereals and potatoes should provide more than 50% of the calories of the diet, but a diet with more than 60% of calories in this form is unattractive to the urban worker. The total fat in the diet, including the "invisible" fat of meat, milk, cheese, and other foods, should provide 20% of the total calories. A diet containing less than 10% of "visible" fat—butter, margarine, lard, and oils—again tends to be unattractive by Western European standards. Not less than 10% of the total calories should be in sugar in the case of populations accustomed to considerable amounts of it. The proportion of total calories derived from meat, fish, and dairy produce should be not less than 12%.

The investigators add that in making the appraisal of the nutritional position as reflected by the food supply information for each country, it is assumed that distribution will be based on priority provision for expectant and nursing mothers and for children, and on an equitable distribution of the balance of foods among the other groups of the population. Any other assumption makes it difficult to reach an appraisal.

The immense work represented in these reports is worthy of all commendation and is a testimony to the standard to which the science of nutrition has been raised, largely as a result of war experience. But the study of scientific minimums, while right and necessary, must never be allowed to obscure the supreme need, which is to get food, surplus to requirements if possible, to hungry populations with all speed.

THE CAMPAIGN AGAINST CANCER

The annual general meeting of the British Empire Cancer Campaign was held on Dec. 19 under the chairmanship of Lord Hailsham. The Duke of Gloucester, president of the Campaign, sent a message from Canberra testifying to his continued interest. He also paid a tribute, as did Lord Hailsham and others, to the services of Capt. E. J. C. Chapman, who has been general secretary since the start of the Campaign in 1924, and is retiring. Two informal conferences had been held, under the chairmanship of Lord Horder, at which the Royal Society and other bodies were represented, to discuss the application of recent knowledge in the field of atomic energy to the treatment of cancer. Representatives of the Campaign, as well as others who attended the conferences, had been appointed to the research committee set up by the Government on the medical and biological application of nuclear physics.

In moving the adoption of the annual report Dr. Malcolm Donaldson said that one unfounded criticism of the Campaign was that it took no notice of suggestions from non-medical people. The chance of getting any help from those who had no knowledge of the subject was small, but in fact the Campaign had an information committee which considered every suggestion submitted. Another criticism was that the Campaign did not sufficiently concentrate its efforts. Before any concentration was possible an immense amount of individual work had to be done, but through the Clinical Cancer Research Committee the time was approaching when it would be possible to concentrate their efforts, and one of the first targets might well be the problem of alleviation of pain in the later stages of the disease.

Reports from Many Centres

The annual report is a collection of records of work from cancer research laboratories in all parts of the kingdom, individual research workers, and branches of the Campaign in the

Dominions. The Middlesex Hospital Research Laboratories describe the endeavour to complete the synthesis of compounds in the stilboestrol series, but no substance of greater activity than stilboestrol itself has yet been found. Intensive research is being carried out on the metabolism of synthetic oestrogens, especially in relation to treatment of carcinoma of the prostate and of the breast. So far the application to inoperable carcinoma of the breast has led to no conclusive results. Some experiments on mice are reported from the Cancer Research Department of the London Hospital, from which it appears that the purine compounds adenylic and guanylic acid exert an inhibitory action on tumour growth; but here again further observations over a large number of mice are required before conclusions can be drawn on the specific action of the individual nucleotides on the growth of sarcomas.

A study of the pathology of operation specimens of cancer of the colon, made at St. Mark's Hospital, has shown that in that region of the bowel growths of a low order of malignancy are commoner than in other regions. The histology of the primary tumour, the extent of venous spread, and the incidence of lymphatic metastases, all point to the conclusion that cancer of the colon must be regarded as a relatively favourable field for surgical treatment, though the prospects of surgery, as in any form of cancer, depend also upon several other factors. A survey at the same hospital of cancer of the recto-sigmoid region has shown that about half the patients who survived a combined excision of the rectum were alive after five years. Those who have the best prospect of survival are patients in whom there is no local spread beyond the rectal muscle, no detectable venous spread, and no lymphatic metastases; the five-year survival rate for such cases is 82%.

Reports of work from the Royal Cancer Hospital show that a very high incidence of cancer may not be accompanied by any decrease in the incubation period. Thus the mean age at death from cancer of the scrotum is at present almost the same in chimney sweeps as in the general population (about 59 years), although the liability to the disease among sweeps is enormously greater (543 as against 4.1 deaths per million per annum). Similarly, in the case of occupational cancer of the lung, the high incidence among chromate workers in Germany was not found to be accompanied by any lowering of the mean age (60 years) at death from this form of cancer in the general population.

Radiological Investigations

At the Cambridge University Research Centre of the Campaign some detailed cytological studies have been made, by means of serial biopsies, of the effect of x and gamma rays on human malignant tumours. In carcinoma of the cervix anaplastic growths most often fail to respond to irradiation techniques. These tumours contain cells which do not differentiate as a result of the radiation given, survive exposures to heavy doses, and subsequently divide, causing a recrudescence of the tumour. Modified irradiation techniques are being investigated at Mount Vernon. One new method of application is in intracavity radium treatment of the cervix. A radium source of 70 mg. is used in the body of the uterus and two sources of 140 mg. each in the vagina; massive platinum screening makes possible a threefold increase in the minimum γ -ray dose delivered to tumour tissue.

A study of the treatment of uterine cancer by radium has been continued at the Marie Curie Hospital. Of 1,410 cases of cancer of the uterine cervix treated over five years ago, 36.9% were found to be alive. Excluding deaths due to intercurrent diseases and cases not traced, the net five-year survival rate was 38%. Radium alone appears to remain the method of choice until a combined radium and x-ray technique can be found which will deliver an adequate radiation to the tumour without increasing intestinal morbidity.

Carcinogenic Agents

Much work in many quarters is being continued on carcinogenic agents, in particular benzpyrene. One finding, from the Mount Vernon laboratories, is that a significantly greater number of tumours arise in the skin of mice pre-painted with croton oil and painted once with benzpyrene when the painting is done at midnight than when it is done at midday. The correlation with diurnal variations in mitotic activity points to the conclu-

sion that the specific action of the benzpyrene is upon the dividing cells. At Newcastle-upon-Tyne, in the cancer research laboratory of the Royal Victoria Infirmary, an extensive study has been made of the relationship between the solvent used for the injection of benzpyrene solutions into mice, the rate of excretion of this hydrocarbon, and the incidence of cancer resulting. The anticancer effect of mouse fat and brain lipids as solvents has been traced to their phosphatid content. Removal of phosphatides removes the anticancer activity. At Leeds confirmation has been obtained of a claim made in the United States that urethane, repeatedly administered, causes pulmonary tumours in mice.

Cancer of Pharynx and Larynx

The Clinical Cancer Research Committee, under the chairmanship of Lord Horder, presents each year a detailed statistical analysis of a large number of cases of cancer in a particular region. The information is obtained with the co-operation of London hospitals. This year about 500 cases of cancer of the pharynx and larynx have been analysed from every point of view—age distribution, occupation, first symptoms, type of growth, methods of treatment, five-year results, and other angles. Males predominated over females in a ratio of ten or more to one, except in the case of the oropharynx, where the numbers were nearly equal, and in the posterioroid region with a ratio of three females to one male. Only 19 of the 384 pharynx cases survived five years. Of 124 larynx cases, 26 survived for that time. Laryngofissure in the early cases gave a survival rate of 91% of the normal expectation of life over a five-year period. One part of the investigation concerned the effect of tobacco and alcohol, but the large proportion of cancer subjects concerning whom there was no information on these points prevent any conclusions from being drawn. Of 307 male patients, 232 were said to smoke in moderation, 64 to excess, and 11 were non-smokers, and of 291 whose history in respect of alcohol was known, 227 took it in moderation, 27 to excess, and 37 were total abstainers.

One industrial precaution mentioned in the report by investigators from the Middlesex Hospital Research Laboratories concerns persons exposed to risk in luminous-dial factories. An account of the measurement of radon contained in the air of many such factories is given. It is inevitable that the air in such factories should contain some radon, but it can be kept down to a concentration of about 10^{-10} curie per litre, and that is very unlikely to be detrimental to health.

Once more the report of the Campaign has the great advantage of Mr. J. P. Lockhart-Mummery's editorship. It is not easy to present with any sequence work which is proceeding in many centres and often overlapping. The funds of the Campaign are steadily increasing—there was an excess of income over expenditure for the year ending July 31 last of over £50,000—in preparation for the increased "drive" in cancer research which is likely to follow the war.

COMMONWEALTH FUND FELLOWSHIPS

The Commonwealth Fund of New York, a philanthropic foundation existing since 1918, has established for British subjects a number of Fellowships tenable in the United States. The Fellowships were interrupted in 1941 by the war, but it is hoped to make a limited number of appointments in 1946. For these the following are eligible: Male candidates of British descent who are domiciled in the United Kingdom of Great Britain and Northern Ireland, and are graduates of recognized universities therein. Candidates must be over 23 and must not have attained the age of 35 on Sept. 1 of the year of award. These Fellowships are also open to candidates of British descent from the British Dominions distant from the United States, who have studied but not necessarily graduated at a university in the United Kingdom, and are graduates of a recognized university in a British Dominion or Colony, and who fulfil the conditions regarding age prescribed above. Such candidates need not show a permanent domicile in the United Kingdom, but must be available for interview in London in May.

Principles of Selection and Conditions of Tenure

The Committee of Award is prepared to consider applications from candidates who have shown marked ability during their university career, and who desire to extend their studies in an American university or other establishment. Special consideration will be given to the

experience acquired during war service. Experience in research and in postgraduate study, though a valuable, is in no sense a necessary qualification, nor is the Fellow bound to engage in original work, but evidence of proficiency in some recognized branch of university learning must be submitted and an approved course of study undertaken. The committee must be satisfied that the candidate is likely to profit by the Fellowship, and while primary consideration is given to intellectual ability, initiative, and actual or potential achievement, account is also taken of character, personality, and health. Other things being equal preference for awards will be given to men holding posts from which they can secure leave of absence, or to men who have definite vocational plans for a career. Candidates may state in order of preference the American university or other establishment at which they wish to study.

The committee hopes to announce early in May the names of candidates selected for interview, and to publish the awards before the end of that month. Arrangements will be made for medical examination of the candidates to be interviewed, and all expenses connected with the medical examination and interview will be borne by the Commonwealth Fund. The committee will consider only those who are prepared to give an undertaking that they will not accept another appointment until the expiration of the Fellowship, and that they will then return to some part of the British Empire and reside there for not less than two years, unless they are permitted to remain in the United States for reasons acceptable to the Fund. No one is eligible if he has already studied or worked in any educational or research institution in the United States for one or more academic years.

There is no fixed stipend, but the emolument attaching to each Fellowship, estimated at a minimum of approximately \$3,500 for twelve months, is calculated to cover the full expenses of residence, study, and travel in the United States during the year. Each Fellowship includes provision for: (a) an equipment allowance of \$100 and the cost of travel from the Fellow's home to the place of his assignment and return; (b) tuition, research expense, etc.; (c) a minimum of \$175 a month, paid quarterly, for living expenses for twelve months from the date of sailing (an advance of \$50 on the first quarterly payment is made); (d) an allowance of \$100 for travel during the Christmas holidays, if approved by the Fund; (e) an allowance of \$500 for travel in the United States at the end of the academic year, or at other times if approved by the Fund.

Tenure of a Fellowship involves an absence from Great Britain of twelve months, including a period of travel in the United States. Except for grave reasons, which must be stated in the application, Fellows will be expected to reach the United States not later than September of the year of award, or in the case of Fellows assigned to the University of California, in August. Though the standard tenure is twelve months, awards of an additional university year of nine months may be made, on application, to especially outstanding men who have valid reasons for such extensions, and whose applications are strongly supported. Certain conditions as regards recent vaccination are demanded by American universities, and candidates must be willing to comply with these conditions.

A Commonwealth Fund Fellowship is not tenable with a fellowship or scholarship from any other foundation established for a similar purpose. Candidates may, however, be applicants also for fellowships offered by such foundations, provided they do not accept more than one appointment. Speaking generally, no limitation is imposed on the subject of study to be undertaken during the tenure of the Fellowship. In the particular case of candidates in medicine, however, while research in the medical sciences, or in clinical medicine or surgery, is regarded as within the scheme, routine clinical work is excluded. Fellows are not required to follow either a degree or other ordinarily prescribed course in an American university; they are asked to submit their own programmes of work, but these will require the approval both of the Committee of Award and of the American institution. They may be permitted to change their scheme of work, or the institution at which they are studying, or to receive leave of absence, but only for reasons satisfactory to the Directors of the Commonwealth Fund. Although Fellows may be married, no provision is made for taking wives and children to the United States, and a Fellow may not marry during the tenure of his Fellowship.

All applications must be submitted on the prescribed form, and must be approved by the authorities of the college or university of which the candidate is, or has been, a member. They must reach Mr. Richard H. Simpson, Secretary, Commonwealth Fund Fellowships, 35, Portman Square, London, W.1, by Feb. 28, 1946, at latest. Further information can be obtained from the secretary, who will also supply application forms, and, so far as is possible, catalogues, bulletins, courses of study, etc., issued by various American universities.

Quinine may now be used for the induction of labour. In announcing this the Ministry of Health states that while the supply position of cinchona products still calls for strict economy it has improved sufficiently in the case of quinine for the Ministry of Supply to agree to this limited use.

NEW YEAR MEDICAL HONOURS

We have received from the Air Ministry the names of the following members of the Medical Branch of the R.A.F., included in the New Year Honours List but additional to those published last week at page 60.

C.B.E. (Military Division)

Air Commodore (Acting Air Vice-Marshal) KENNETH BIGGS, M.C., M.R.C.S., R.A.F.

Air Commodore (Acting Air Vice-Marshal) DUNCAN McLAREN, M.B., Ch.B., R.A.F.

Acting Air Commodore FREDERICK JOHN MURPHY, M.B., B.Ch., R.A.F.

Group Capt. VINCENT RUSSELL SMITH, M.R.C.S., R.A.F.

Acting Air Commodore WILLIAM JOHN GREAVES WALKER, M.R.C.S., R.A.F.

O.B.E. (Military Division)

Group Capt. JOHN FREDERICK BROMLEY, M.B., Ch.B., R.A.F.V.R.

Group Capt. ALBERT FREDERICK COOK, L.R.C.P.&S.I., R.A.F.

Squad. Ldr. LEONARD DUNCAN ALBERT HUSSEY, M.R.C.S., R.A.F.V.R.

Acting Squad. Ldr. WILLIAM LEONARD JAMES, M.R.C.S., R.A.F.V.R.

M.B.E. (Military Division)

Acting Squad. Ldr. WILLIAM OLIPHANT BAIRD, M.R.C.S., R.A.F.V.R.

Acting Squad. Ldr. FRANCIS JOHN HALLINAN, M.B., B.Ch., R.A.F.V.R.

Fl. Lieut. KENNETH MICHAEL HAY, M.B., B.Chir., R.A.F.V.R.

Fl. Lieut. ALEXANDER FINLAYSON LANG, M.B., Ch.B., R.A.F.V.R.

Squad Ldr. KENNETH ARTHUR WARING LAW, M.B., B.S., A.A.F.

A.F.C.

Wing Cmdr. JAMES RINTOUL CELLARS, M.B., Ch.B., R.A.F.

Mentioned in Dispatches

Group. Capt. V. S. Ewing, F. W. P. Dixon, M.B.E., and H. C. S. Pimblett, R.A.F.; Wing Cmdrs. H. E. Bellringer, H. F. Harvey, L. P. McCullagh, J. C. Taylor, E. B. Harvey, F. V. MacLaine, and A. Muir, R.A.F.; Wing Cmdrs. R. E. W. Fisher, R. C. Jackson, and H. P. R. Smith, A.F.C., R.A.F.O.; Wing Cmdrs. K. G. Bergin, T. A. W. Edwards, J. B. Methven, and J. V. Quinn, R.A.F.V.R.; Wing Cmdr. E. O. Walker, A.A.F.; Squad. Ldr. R. MacPherson, R.A.F.; Squad. Ldrs. B. A. J. Arthur, J. C. McC. Browne, F. R. Buckler, E. O. Evans, B. J. Frankenberg, M. O. J. Gibson, C. W. R. Rayne-Davis, E. P. S. Snell, J. Watson, P. A. Carrie, W. P. Greening, H. Halson, A. Hargreaves, G. G. Hartill, G. O. Horne, I. C. B. Pearce, E. E. Philipp, D. C. Russell, J. H. Spence, and T. F. Stewart, R.A.F.V.R.; Squad. Ldr. T. G. Davies, A.A.F.; Squad. Ldr. M. McLellan, R.A.F.O.; Squad. Ldr. Janet MacL. MacKay, R.A.F.; Fl. Lieuts. N. N. Blaxland, E. S. Brawn, H. D. Freeth, S. Gruber, M. J. Howlett, G. E. McFall, and R. M. S. Matthews, R.A.F.V.R.; Fl. Lieut. Caroline E. Nicholson, R.A.F.

Part II of the New Year Honours was published on Jan. 9, and included the names of the following members of the medical profession:

O.B.E. (Civil Division)

SAUL ADLER, M.B., Ch.B., M.R.C.P. Professor of Parasitology, Hadassah University, Palestine. For services to the Forces.

PERCY REGINALD BOLUS, M.B. Director of Medical Services, Ministry of Pensions.

JOHN LAIRD MCKENZIE BROWN, M.R.C.S. Medical Officer for Civil Defence, Metropolitan Essex.

WILFRID SAMUEL HAMILTON CAMPBELL, M.B., Ch.B., D.P.H. County Medical Officer, Lincolnshire (Lindsey) County Council. For services to civil defence.

DOUGLAS HENRY COLLINS, M.D. Medical Superintendent, Wharfedale Emergency Hospital, Sheffield.

MARY AYLWIN COTTON, M.B., B.S. Principal, Foreign Office. Recently employed in the Ministry of Economic Warfare.

ALEXANDER MILLAR MEER GRIERSON, M.D., D.P.H. Senior Assistant Medical Officer, Manchester. For services to civil defence.

LESLIE GEORGE HOUSDEN, M.D. Chairman, Mothercraft Training subcommittee, National Association of Maternity and Child Welfare Centres.

JOHN JETREY, M.D., F.R.C.S.Ed. Hospital Officer, Aberdeen, Department of Health for Scotland.

JAMES JOHNSTONE, M.B., Ch.B., D.P.H. Medical Superintendent, Haddington Hospital, Lanarkshire. For services to civil defence.

MAJOR ALEXANDER CAMPBELL WHITE KNOX, M.C., M.B., B.Ch. Assistant Commissioner, No. 1 District, St. John Ambulance Brigade.

IAN HYSLOP MCCLURE, M.B., Ch.B., F.R.C.S.Ed. Consultant Surgeon, County of Orkney. For services to civil defence.

WYLIE MCKISSOCK, M.S., F.R.C.S. Surgeon-in-charge, Neurosurgical Centre, Atkinson Morley Emergency Hospital, Wimbledon.

HENRY JOHN NIGHTINGALE, M.S., F.R.C.S. Senior Surgeon, Royal South Hants and Southampton Hospital, Emergency Medical Service.

WILLIAM POWELL PHILLIPS, M.R.C.S., D.P.H. Deputy Medical Officer of Health, Cardiff. For services to civil defence.

THOMAS POOLE, L.R.C.P.&S.Ed., L.R.F.P.S. Lately Medical Officer-in-charge, Military Prison and Detention Barracks, Riddrie, Glasgow.

SYDNEY CLIFFORD PRITCHARD, M.D. Medical Officer-in-charge, Hornsey Central Hospital, Emergency Medical Service.

STEPHEN JOHN SCURLOCK, M.C., M.D., M.S. Medical Superintendent, Ministry of Pensions.

IAN SCOTT SMILLIE, M.B., F.R.C.S.Ed., F.R.F.P.S. Orthopaedic Surgeon, Scottish Emergency Medical Service.

BYRCE MCCALL SMITH, M.B., Ch.B. Medical Superintendent, Victoria Infirmary, Glasgow. For services to civil defence.

THOMAS EDWIN PRYCE-TANNATT, M.B., B.S., D.P.H. Inspector of Salmon and Fresh Water Fisheries, Ministry of Agriculture and Fisheries.

GEOFFREY SYDNEY TODD, M.B., Ch.M., F.R.C.P. Medical Superintendent, King Edward VII Sanatorium. For services to civil defence.

BEATRICE ETHEL TURNER, M.B., B.S.Lond., F.R.C.S.Ed., F.R.C.O.G. Consultant, Obstetrician, Shardeloc's Emergency Maternity Hospital, Bucks.

JOHN THEODORE WHITELEY, M.B., Ch.B. Assistant Commissioner, Essex, St. John Ambulance Brigade.

M.B.E. (Civil Division)

Capt. CHARLES ANDRÉ BATHFIELD, G.M., M.R.C.S. Station Medical Officer, Air Transport Auxiliary.

WILLIAM FUNSTON BRYSON, M.B., B.Ch. Secretary, Enniskillen Hospitality Committee.

GLADYS ANYAN DANBY, L.M.S.S.A. County Superintendent, Somerset, St. John Ambulance Brigade.

MARGARET HOLLIDAY, F.R.C.S.I. Resident Medical Officer, Maternity Hospital for the Wives of Officers, Fulmer Chase, Buckinghamshire.

JOHN INGRAM, M.B., C.M. Medical Practitioner, Camp Reception Station, St. Agnes, Southern Command, War Office.

PHILIP INWALD, M.B., B.S. Medical Officer-in-charge, Civil Defence Mobile First Aid Unit, Islington.

EMMA MARY JOHNSTONE, L.R.C.P.&S.Ed., L.R.F.P.S. Lately Medical Officer-in-charge of Mobile Civil Defence Aid Post, Westminster.

ETHEL WINIFRED LEE, M.B., Ch.B. County Borough Organizer, Hastings, Women's Voluntary Services. For services to civil defence.

JOHN WILLIAM PARKS, M.D. Assistant Medical Officer, General Post Office.

ORDER OF ST. JOHN OF JERUSALEM

The *London Gazette* has announced the following promotions in and appointments to, the Venerable Order of the Hospital of St. John of Jerusalem:

As Knights: Lieut.-Gen. Sir James B. Hance, K.C.I.E., O.B.E., K.H.S. I.M.S., Col. W. E. R. Vickers, D.S.O., V.D., W. W. White, V.D., and J. R. Donaldson, and Dr. J. N. Morris, C.M.G. *As Commanders (Brothers):* Major-Gen. R. H. Candy, C.I.E., K.H.S., I.M.S., Major W. N. West-Watson, Messrs. A. G. Timbrell Fisher, M.C., and J. H. G. Robertson, C.B.E., V.D., and Drs. E. Hoerman, K. F. Lund, J. W. P. Harkness, C.M.G., O.B.E., and T. W. Meagher. *As Officers (Brothers):* Surg. Cmdrs. H. K. Corkill, O.B.E., R.N.Z.N., and W. A. Hopkins, O.B.E., Col. W. E. R. Dimond, C.I.E., O.B.E., I.M.S., Lieut.-Cols. S. Hunt, and E. H. Wood, and Lieut.-Col. P. A. Dargan, I.M.S., Majors S. H. Calnek, R.C.A.M.C., and J. F. Hamilton, Messrs. R. D. McKellar-Hall and C. G. Morice and Drs. O. T. J. C. de H. Clayre, C. R. Palmer, W. H. Pallett, J. P. Lowe, W. Murray, C. R. Corfield, E. R. Weaver-Adams, J. P. Prell, T. B. Gilchrist, A. Jueti, D. D. McCowan, H. W. Ward, J. R. Hanna, W. B. Fox, H. E. Moore, B. T. Parsons-Smith, W. E. Rutledge, E. H. M. Luke, E. R. Sibby, K. C. McGibbon, A. Rioux, W. W. Read, and H. J. Shone. *As Officer (Sister):* Dr. Hilda M. Davis. *As Serving Brothers:* Majors F. A. B. Sheppard, O.B.E., I.M.S., and G. Brown, and Drs. F. W. Furniss, W. Duncan, H. G. Watson, H. T. Chapman, S. B. Sutton, P. G. Commons, D. D. Coutts, E. W. Battle, T. H. Forrest, D.S.O., J. S. Cooper, N. G. H. Salmon, R. A. Dench, M.C., R. S. Renion, M.C., R. W. Pearson, M.C., E. Palmer, H. C. Williams, E. S. Johnson, M.C., J. A. Hislop, H. M. Jacobs, S. G. H. Gasson, B. J. Dudley, J. U. Page, J. B. Liggins, M. H. Box, A. B. Webster, J. K. Manson, G. E. Valentine, F. McLagen, A. M. Gillespie, O.B.E., and D. Lennox. *As Associate Serving Brothers:* Rai Sahib Dr. H. Prasad, Rao Sahab Dr. K. N. Nair, and Rai Sahib Dr. B. R. Kisaar. Mr. I. Blain, and Drs. S. M. Bangurnah, M.M. Bronstein, G. K. Ghosh, N. P. Chakraverty, A. K. Handekar, M. G. Kini, M.C., K. G. Ramabadrana, and B. B. Rai. *As Serving Sisters:* Drs. Lucie Van Dam, Olivia N. Walker, and Beatrice M. Joly. *As Associate Serving Sisters:* Drs. Rose Baranov and Hilde Ginsberg.

Reports of Societies

HUMAN GAMMA-GLOBULIN

A meeting of the Fever Group of the Society of Medical Officers of Health was held on Nov. 30, 1945, with Dr. M. MITTMAN in the chair.

Mr. B. R. RECORD, Ph.D. (Lister Institute), who opened the discussion, said that the realization that the various antibodies present in immune serum were associated with the globulin part of the serum, and indeed for the most part with a particular kind of globulin, had stimulated research into methods of separating human plasma into its component parts. The ultra-centrifuge and the electrophoresis apparatus had proved of the greatest value in this work. In the ultra-centrifuge, human plasma showed, broadly speaking, only two sedimenting boundaries, corresponding to a fast-sedimenting component, globulin, and a slower-sedimenting component, the albumin. In the electrophoresis apparatus, on the other hand, at blood pH the serum globulin appeared as at least three distinct components, designated α -, β -, and γ -globulin, in descending order of mobility. These different globulins had essentially the same molecular size and shape, and therefore sedimented as a single boundary in the ultra-centrifuge, but they had different ionizable groups, and therefore different rates of migration in an electric field. For this reason electrophoresis had become a most valuable analytical method in studies on the fractionation of plasma protein. Electrophoresis had not so far been developed for the separation of plasma components on a large scale. During the war Cohn and his co-workers had made an extensive study of the alcohol fractionation of human plasma, and this method was used in America for the large-scale preparation of various components of human plasma. Most of the antibody activity had been found to be associated with the γ -globulin fraction, which had been used clinically in the prophylaxis and treatment of measles.

Clinical Trials

Dr. W. GUNN (L.C.C.) said that the development of the clinical use of the various components of human plasma protein followed naturally Cohn's fundamental researches on their separation by high-speed centrifugalization and electrophoresis, and subsequent analysis of their biochemical and immunological characters. The main component, albumin, comprising 50 to 60% of the protein, was shown to have a very high osmotic activity. It was used on a considerable scale in a 25% solution to combat shock among American Service casualties. The globulin fraction originally designated Fraction II, now generally referred to as γ -globulin, represented about 11% of the total protein, and contained all the immune substances in the circulating blood. Though the amino-acid constitution of this fraction differed appreciably from that of α - and β -globulins, attempts to identify and isolate pure antibody, and to correlate its immunological properties with its chemical constitution, had hitherto failed.

Gamma-globulin was prepared in a specially buffered solution having a protein content of 16.5 \pm 1.5% in 5-cm. ampoules, each representing approximately 125 c.cm. of the parent plasma (from a pool obtained from several thousand donors). It was relatively stable compared with unaltered human serum and could be heated at 57° C. for four hours without loss of potency; this destroyed the agent of homologous serum jaundice. Samples of Cohn's original Fraction II, and several batches of γ -globulin prepared by different American manufacturers, were made available by the courtesy of the American Red Cross for clinical trial in this country.

Preliminary tests revealed that, volume for volume, γ -globulin was approximately twice as potent against measles as an average pooled convalescent serum. In the trials the recommended American dosage of 0.1 c.cm. per lb. (454 g.) body weight was followed; this was found sufficient for protection at ages under 1 year and over 5 years, but in the most susceptible age group, 1 to 5 years, protection failed in 10 to 15%. In nearly all there was moderate to pronounced attenuation, except in respect of one particular batch. The majority of the inoculations were given to home and hospital, or nursery, measles contacts in and around London, and in Glasgow, where the trials, carried out

under the supervision of Dr. T. Anderson at Knightswood Fever Hospital, gave substantially the same results. Some degree of success had been claimed for it by American workers in the prevention of infectious jaundice. The speaker referred to a small uncontrolled series of whooping-cough and chicken-pox cases successfully protected, and suggested that its use might be extended to the control of all the ordinary infectious diseases. In the treatment of measles its action had been found less certain, but more clear-cut results might be expected from the intravenous administration of the latest preparation, which Cohn had recently claimed to be free from risk.

Comparison with Convalescent Serum

Dr. NORMAN D. BEGG (L.C.C.) described a comparative test between γ -globulin and a dried, reconstituted, batch of convalescent measles serum. As modification of attack and not prevention was the aim, dosage had been pitched low. He summarized the experience of five outbreaks of measles in whooping-cough wards. Of 22 susceptible contacts injected with 2.5 c.cm. of the convalescent measles serum, 12 developed measles and only 4 of these were very sharply attenuated; 24 contacts of comparable ages from the same outbreaks injected with 1.2 c.cm. of γ -globulin produced 8 cases of measles, of which 6 were very much modified. The result of this limited experience indicated that γ -globulin had a measles antibody content at least twice that of convalescent measles serum, but further experience was necessary to fix dosage more precisely, and to decide on the importance of adjusting dosage to body weight at various ages.

For the prevention of measles in exposed contacts he had tried the American recommendation of 0.1 c.cm. per lb. body weight, with results which indicated that, with adequate preliminary field-testing of individual batches, γ -globulin would give high protection rates in this dosage. The results of treating established measles had been disappointing. One case in particular given 15 c.cm. of γ -globulin intramuscularly when the first Koplik's spots were visible, and 5½ hours before the skin eruption appeared, had later developed an entirely unmodified attack of measles.

Treatment of Poliomyelitis

Dr. W. H. KELLEHER (L.C.C.) said that the value of an α serum in the treatment of poliomyelitis was doubtful. He had abandoned the use of convalescent poliomyelitis serum for this purpose but decided to treat a series of cases with γ -globulin. The results in 10 cases of poliomyelitis, given an average dose of 34 c.cm., were entirely negative. Inconclusive results had been obtained in treating two cases of acute toxic polyneuritis and no improvement resulted from the use of γ -globulin in one case of acute myelitis. He had noted a failure to develop paralysis in poliomyelitis contacts with definite cerebrospinal-fluid changes who had been injected with γ -globulin, but this was a naturally occurring phenomenon and probably without significance. In reply to a question he said that he had not given γ -globulin intrathecally, and that there were physiological reasons against antibody reaching the anterior horn cells by that route.

Dr. H. J. PARISH (Beckenham) thought that the apparent complete failure of γ -globulin in the treatment of measles indicated that its antibody content might not be so high as was thought, and he suggested that it would be worth while preparing γ -globulin from convalescent measles serum in an attempt to produce a therapeutic measles serum.

Changes in the industrial service provided by the Royal Society for the Prevention of Accidents are to have effect in April. This is due to the ending of the arrangements made with the Ministry of Labour and National Service in 1940, by which a free wartime basic service of accident-prevention material was supplied to several thousand firms engaged on war work. Under the new arrangement the industrial side of the society will revert to a membership basis, though it will continue to work in the closest touch with the Government. Service will be provided on a co-operative, non-profit-making basis. A new membership scheme will replace the earlier one in operation up to 1940. As support from industry is increased, services will be extended and improved according to a definite plan which has been worked out during the past eighteen months. Notice of the change has been given to industrial undertakings in a circular issued from Terminal House, 52, Grosvenor Gardens, London, S.W.1.

Correspondence

Nutrition in Vienna

SIR,—The current ration scale in Vienna is designed to provide 1,550 calories for the lowest group of "normal consumers," 1,750 for "employees," 2,250 for workers, and 3,000 for heavy workers. The children's scale ranges from 1,000 to 1,550 calories. These rations represent an average diet per head of the population providing 1,931 calories daily. Perhaps I did not make it clear before that the tentative figure of 1,600 calories, which I ventured to print in my article published in the *Journal* of Dec. 15, 1945 (p. 839), as an estimate of the minimum energy intake which might be hoped to maintain the lowest ration group, would involve for the whole population a *per capita* consumption of almost exactly the 2,000 calories which you yourself in your leading article (p. 852) consider it reasonable to take as the "rock bottom" . . . minimum requirement needed to prevent disease and unrest."

The responsibility of anyone with a claim to knowledge of nutrition whose duty it is to try to influence food policy in Austria is a heavy one. How hard it is, therefore, to give nutritional advice as to what really is a minimum need when the scientific facts are themselves difficult to interpret, and when to include a "margin of safety" for one community and thus assess what one hopes is the physiological minimum too high, might well involve others who have equal claims on the same inadequate food supply in nutritional disaster.—I am, etc.,

Allied Commission for Austria, Vienna.

MAGNUS PYKE.

Tropical Medicine in the United Kingdom

SIR,—In view of the interest recently aroused in the present status of the teaching of tropical medicine in London and also in the United Kingdom (Dr. A. R. D. Adams and others (Dec. 22, p. 895) and Dr. G. Macdonald (Jan. 5, p. 26)) some statement about the facilities for the treatment of sufferers from tropical diseases in London may not be out of place.

In this respect it is unfortunate that the compilers of the otherwise excellent Goodenough report did not avail themselves of the advice of a single authority on tropical medicine in making their recommendations, and thus were led to conclusions which are generally unacceptable in this respect, though their concrete proposals for establishing links and outposts of the Tropical School in the Empire and of seconding special students to overseas hospitals is a policy I have constantly advocated.

I have been connected with the London School of Tropical Medicine for a great many years and on the staff of the Hospital for Tropical Diseases now for a quarter of a century. During this period I have been responsible to some extent for the clinical part of the teaching course, which has entailed the provision of suitable patients for clinical instruction of large postgraduate classes in tropical medicine. The Hospital for Tropical Diseases in Endsleigh Gardens, which had to be abandoned at the commencement of the war, suffered from the lack of popular and Governmental support. In the first place it could not be asserted that the building, which had been improvised, was exactly suitable for its purpose. While other countries—such as Holland, Belgium, Italy, and Germany—without such vital interests at stake all possessed well-equipped modern hospitals, this, the metropolis of the great and opulent British Empire, had to be content with a makeshift structure. It was, therefore, with something akin to a sense of shame that one had to conduct distinguished foreign visitors round a building which they had travelled far to see as the Mecca of tropical medicine and the monument to Sir Patrick Manson, the father of tropical medicine.

Nevertheless, inadequate as it may have been in equipment and appearance during the twenty years of its existence, it provided adequate clinical material for both teaching and research. This can be assessed by the number of scientific communications which emanated from members of the staff, and by the fact that some of them were of sufficient merit to gain their author the Fellowship of the Royal Society. The clinical observations also provided enough material for inclusion in successive editions of Manson's *Tropical Diseases*, which serves as the textbook for students not only in this country but also in the English-speaking world. Clinical demonstrations held twice weekly

were always well attended and often included other members of the profession in addition to the tropical class. In my own case most of the clinical conditions demonstrated were derived from my own practice, as this was for me by far the most fruitful field, when for several years little suitable material was forthcoming from other sources. It has therefore been abundantly proved that satisfactory clinical instruction can be given in London on the major tropical diseases, and this forms the groundwork for the general course in tropical medicine. Without the clinical aspect teaching in this subject becomes merely an academic "tinkling cymbal."

The members of the Colonial and other Government Services in India and elsewhere have to be catered for, in addition to the numerous commercial companies in Africa and other parts of the Tropics, seamen, ex-Service men, and many others.

In spite of the destruction during the recent dark years London is still regarded as the headquarters of medicine in the British Empire. Thither all critical and difficult cases have been dispatched for treatment, "blitzes," bombs, and submarines notwithstanding. Only those who have been responsible for the disposal of these unfortunates during the last six years can realize the difficulties that have had to be faced in the absence of some central institution where they could be cared for by those most competent to treat them. Had it not been for the services of the Albert Dock and Dreadnought Hospitals of the Seamen's Hospital Society this task would have been impossible. The practice of tropical medicine has become as important a specialty as orthopaedics, paediatrics, ophthalmology, or any other branch of medicine. It therefore deserves a suitable hospital worthy of the British Empire and of its immense tropical possessions. Tropical medicine has well merited support from the British Parliament and people. Achievements in this field have been of outstanding originality, both in days of peace and war, and many of the important discoveries have been made by British workers, who have done much for the security and prosperity of British possessions overseas.

This is the essence of the present problem. A start to remedy this defect has been made by the provision of a small hospital equipped by the Seamen's Hospital Society and supported by the Colonial Office which will shortly be opened in Devonshire Street. It is to be regarded merely as forming a nucleus from which important developments may be expected in the near future. I sincerely hope that this venture will be afforded that measure of support which it so richly deserves.—I am, etc.,

PHILIP MANSON-BAHR.

London, W.1.

Senior Physician, Hospital for Tropical Diseases;
Consultant to the Colonial Office and Crown
Agents for the Colonies.

SIR,—In his presidential address to the Royal Society of Tropical Medicine (*Journal*, Dec. 1, 1945, p. 774) Dr. C. M. Wenyon raised a matter of the greatest importance. That the facilities for the treatment of tropical diseases in this country are inadequate admits of no doubt whatever. As regards research, the importance is so obvious that it is self-evident; and although great progress has been made tropical medicine still offers an unrivalled and fruitful field for the research worker.

The need for training and research in the subject has a special claim on this country. In an Empire in which hundreds of thousands of square miles have already been rendered comparatively healthy and safe for Europeans, but which can only be so maintained by the work of men who have been specially trained, research and training should be an Imperial responsibility; and in view of future needs it is no exaggeration to say that the matter brooks no delay. There will be many doctors who in the course of their war service have "picked up" a knowledge of tropical disease which they did not possess before they joined up. But "picking up" an acquaintance is quite a different thing from the sound knowledge that comes from systematic training in it and its ancillary subjects of entomology, helminthology, protozoology, and bacteriology.

Usually the men who have trained in the subject have been those entering the Colonial Service or missionary field, or officers of H.M. Forces who desire instruction because of possible service overseas, or who wish to specialize. There is another aspect which needs consideration. In spite of all that the public has had the opportunity of reading in the press, it

is doubtful whether the enormous development of air transport in connexion with the war is generally realized. Already preparations are being made in almost every country to cope with the large volume of air travel which is confidently expected and will certainly occur, and this may have repercussions on the clinical horizon of this country. A comparison of incubation periods and speed of travel helps one to realize the chance of meeting with diseases in this country which may be common-places to the tropical practitioner but obscure and puzzling to his British colleagues; yet the immediate recognition of such diseases may have a most important bearing upon the public health. The quarantine period of cholera, for example, is five days—ample time for an infected person to reach this country from the East.

In my experience the average medical student is inclined to give rather perfunctory attention to diseases of warm climates, "because we don't get them here." It is perhaps natural that he should concentrate on the diseases which commonly occur within the clinical horizon of his own country. But the time is at hand when doctors must be prepared to recognize diseases which are liable to importation, and more serious instruction in diseases of warm climates should be included in the ordinary medical curriculum. At present there are many pieces missing from the great jig-saw puzzle that goes to make up the whole of medicine. The end of a war which has been waged not only against the enemy but against tropical disease is a fitting moment for putting the treatment and teaching of the subject on a foundation befitting the needs of the Empire.—I am, etc.,

Brockwood, Surrey

H. M. STANLEY TURNER.

Leprosy Control in India

SIR,—In the *Journal* of Oct. 6, 1945 (p. 466), reference is made to the proposed improvements to the present highly inadequate methods of leprosy control in India. The necessity for this is obvious to most doctors at present serving in the Far East. During a recent leave I visited the Purulia leper colony in Bihar, Eastern India, and I was able to see for myself the tragic shortcomings of present arrangements.

The Purulia leprosarium is a large hospital run by an inter-denominational set of missionaries, and is supported by voluntary contributions in the U.K. and elsewhere. It caters for between two and three hundred patients, who are warded according to the degree of the disease. Those with cutaneous leprosy, bullae and depigmented anaesthetic areas are ambulant and occupy a small set of bashes in the middle of the hospital, those with early gangrene and leprotic neuritis are given their own wards; and the final "arrests with deformity" when fitted with ingenious orthopaedic devices occupy their own section of the hospital. Naturally there is considerable overlap of these cases. Some distance from the hospital there is a nursery for apparently healthy children. These children have at least one parent in the colony. For all these people there is only one resident doctor, assisted by a Bihari compounder. He carries out all the routine treatment and surgery and valiantly attempts research with such equipment at his disposal. His job is an unenviable one. His facilities for research are limited, to say the least.

Leprosy is said to be a contagious disease, yet there appears to be very little authoritative control of the contagion. In almost every bazaar in India and Burma leprosy beggars ply their trade. Were the activities of these people restricted it is reasonable to suppose that the disease would decrease in incidence. Furthermore, more equipment should be made available to the research workers in the isolated hospitals. These measures together with suitable "popularization" by means of propaganda should undoubtedly help in controlling further what must surely be the most ravaging disease on earth.—I am, etc.,

D. ROSENBERG,
Major, R.A.M.C.

S.E.A.C.

Stethoscope versus X Rays

SIR,—I think that Dr. R. C. Hutchinson (Jan. 5, p. 31) has missed the most important point I tried to bring out in the discussion on stethoscope v. x rays at the Royal Society of Medicine. To put the matter quite simply, the fact is that, while detectable physical signs may or may not mean that there is active disease in the respiratory tract, the reverse is not true.

It is the case that with any early disease at its most treatable stage—and this does not apply to tuberculosis alone—there may be no abnormal signs of any sort, and it is in this type of case that x-ray examination is vital. The five senses in which Dr. Hutchinson would apparently prefer to place his faith are unfortunately not reliable in the recognition of early disease. The student is usually taught that physical signs mean disease, but the reverse is not impressed on him. It would not be possible to claim that the standard of early diagnosis is high, and I see no prospect of improvement until the value of routine chest radiology is recognized.

Nobody would deny that physical examination has its place, but the time has come when physical examination and radiology must be brought together and teaching must be based upon the intelligent combination of all methods of examination.—I am, etc.,

London, W.1.

JAMES MAXWELL.

SIR,—I read with interest the letter of Dr. R. Grenville-Mathers (Dec. 29, p. 941), but he did not mention any particular cause for his having written. I am a fairly assiduous reader of the *Journal*, but confess that I often give a miss to "Reports of Societies." Hence it was that Dr. R. C. Hutchinson's timely letter in the current issue (Jan. 5, p. 31), calling attention to the debate at the Royal Society of Medicine on "stethoscope versus x rays," took me by surprise: indeed it makes one rub one's eyes in astonishment.

When a member of this learned Society speaks of the stethoscope as useful "to find out whether a wrong name had been placed on the x-ray film or the wrong side of the body indicated," and then goes on to remark that the stethoscope "still lingered in the imagination of the patient; and medical men, even those who specialized in chest diseases, when they themselves had chest trouble wanted the colleague examining them to listen to the chest," and "it was difficult to avoid going through the gesture—it was not much more than that—of trying to hear vague mysterious sounds," one wonders how far he voices the opinion of the medical profession. Another doctor, as Dr. Hutchinson points out, expressed the same contempt in the extraordinary remark "Clinicians, however, should continue to use the stethoscope, because patients expect to see it." When statements like these are made one may be excused for coming to the conclusion that these individuals, even though they are members of a learned society such as the Royal Society of Medicine, have never attained real proficiency in the art of auscultation. I maintain that the recognition of post-tussive crepitations at one apex in a patient seen perhaps for the first time is as valuable a sign of pulmonary tubercle as the discovery of a shadow in an x-ray film. Why should anyone speak of them as "vague mysterious sounds" any more than one would speak of x-ray signs as "vague mysterious shadows," which, indeed, they sometimes are?

If this is to become the teaching of medical students, and clinical physical signs are to be discarded as worthless, then I feel sure that the criticism by another member at the meeting that "mass x rays had been positively dangerous in condemning sound persons to invalidism"—a belief which I have maintained before, in the course of an animated correspondence in the *Journal* on mass radiography—will be only too well confirmed. Possibly these devotees of the x ray will go one step further and declare that sputum examinations are superfluous: there is good evidence that this greatest essential of all is frequently neglected. In the correspondence during very recent years on mass radiography many radiologists of highest standing have raised a warning voice on the danger of relying on x-ray evidence alone, and also on the need for not only an expert radiologist, but also a first-class x-ray apparatus (a very expensive matter) for the diagnosis of the finer appearances on x-ray films of the thorax. But they are like voices crying in the wilderness.—I am, etc.,

Southborough, Tunbridge Wells.

E. WEATHERHEAD.

Physical Therapy in Mental Disorder

SIR,—Every right-minded psychiatrist deplores the indiscriminate use of electric convulsion therapy and prefrontal leucotomy, especially when they are employed as an escape from appropriate psychotherapy. But two facts must be borne in mind. (1) Mental disorder is not all psychogenic, nor is it

trained. Furthermore, midwives, tuberculosis nurses, Queen's nurses, and those holding health visitor's certificates have been forbidden to take industrial posts except in special circumstances. Dr. Aynsley may rest assured that the Minister of Labour in his survey did not leave State-registered nurses in industry unless he was satisfied that their skill and training were fully utilized, or that for various reasons they could not be usefully employed elsewhere.

Those with knowledge of the infinite variety of serious and potentially serious trauma and of the other health hazards in industry agree that the services of trained nurses during the war have been of the greatest possible value to our industries; we should be foolish indeed if we shut our eyes to this in view of the strenuous industrial effort required of us in the future.—I am, etc.,

London, W.16.

W. BLOOD,
Chairman, Association of Industrial
Medical Officers.

Purpuric Type of Textile Contact Dermatitis

SIR,—In the discussion on D.D.T. (Dec. 29, p. 933) I was interested to read Lieut.-Col. F. F. Hellier's remarks concerning the purpuric type of textile contact dermatitis apparently associated with the wearing of shirts impregnated with D.D.T. His statement—"The striking fact was that this extraordinary rash was something new to the B.L.A., it did not appear elsewhere, and the B.L.A. was the one Force which had gone out with impregnated shirts"—is not quite accurate, as I myself encountered many cases exactly similar occurring in soldiers serving in the C.M.F. Like Lieut.-Col. Hellier, I also suspected that the eruption was due to the impregnation of shirts with D.D.T. I discovered, however, that some of these patients had not been wearing shirts which had been impregnated, but that it never occurred in men wearing khaki drill shirts and was practically always seen in men wearing the woollen shirt with collar attached—i.e., the American olive-drab. Patch tests to the textile were positive, but negative to D.D.T. powder, while all other tests, such as the capillary resistance and blood examinations, were negative.

I have been informed by Dr. T. E. Anderson that in Scotland he saw similar cases in soldiers, and only last week a merchant seaman reported with a very similar eruption, apparently due to a new pair of blue dungarees. In his case there seemed no possibility of contact with D.D.T. in any form.—I am, etc.,

Edinburgh.

G. A. GRANT PETERKIN, M.B., F.R.C.P.Ed.

Spinal Analgesia

SIR,—It is very surprising that Mr. W. A. Fairclough (Dec. 8, 1945, p. 801) has been able to find ten cases of external rectus paresis following 2,021 spinal analgesics in a period of eighteen months. His figures certainly give an erroneous impression of the frequency of this particular complication, and I think it unlikely that the injection of the analgesic agent alone can have been responsible.

My experience of spinals extends for fifteen years. I have given all injections myself, and the convalescence of all patients has been under my personal supervision. I saw three cases of external rectus paresis in the first three years, when a variety of solutions were used—"stovaine," "spinothane," and 1/1,500 "nupercaine." One of the cases followed the injection of "nupercaine" and all cleared up rapidly. Since then I have used 1/1,500 "nupercaine" exclusively with increasingly rigorous attention to the preparation of syringes and needles. No external rectus paresis has occurred in a total of over 3,700 injections given during twelve years, and the complications suggesting meningeal irritation have been few.

Reports of catastrophes that have followed spinal analgesia seem to indicate that concentrated solutions are more likely to cause trouble. I think, however, that meticulous attention to the physical cleanliness of the apparatus is nearly as important as the selection of the solution if failures and complications are to be avoided. Absolute asepsis is, of course, assumed.

The enthusiasm inspired by the admirable operating conditions which spinal analgesics create must be tempered with a full appreciation of the very serious risk that attends their use in unsuitable cases. The risk is connected with the fall in blood

pressure which occurs in every case (not necessarily in proportion to the dose used or the area of analgesia produced), and the extreme variations in the capacity of patients to withstand it. Many cases of hyperpiesia, renal insufficiency, and late peritonitis or obstruction with marked distension react very badly; and the use of spinal analgesics in such cases will provide deaths on the table. Elderly patients with arteriosclerosis are likely to develop cerebral thromboses, either on the table or within 24 hours of the operation.

I think that the doses advised by Mr. McNeill Love (Dec. 22, p. 897) are rather small. They will work, no doubt, in most cases, but an irritating number of partial failures may occur which can be avoided by larger injections without increased risk. I give 17 to 18 c.cm. for all upper abdominal operations, and up to 20 c.cm. if the back is unusually long. A reliable dose for the lower abdomen is 14 c.cm., and smaller amounts may be used for the legs and perineum. On four occasions satisfactory analgesia failed to develop after injections of 14 to 18 c.cm., which presumably went into the epidural space. After waiting about twenty minutes the injection was repeated in each case with completely satisfactory results. One patient received 36 c.cm. and two others 32 c.cm. at one sitting, so I am inclined to discount the absorption of procaine as an element in collapse or complications.—I am, etc.,

County Hospital, Castiel, Co. Tipperary.

C. R. BOLAND.

Choice of Anaesthesia

SIR,—As regards choice of anaesthesia in abdominal surgery, apart from considerations of type of patient and operative requirements, this can be broadly classified according to the state of the patient, as follows: (a) fit for spinal, general, or local anaesthesia; (b) fit for general or local anaesthesia; (c) fit for local anaesthesia.

If the operative procedure merits its use, the surgeon should be given the choice of spinal analgesia. However, I think it quite wrong to try to persuade a surgeon, who has no enthusiasm for it, to accept spinal analgesia when an alternative technique can be equally well employed. (The surgeon's peace of mind during the operation is quite as important as, if not more important than, that of the anaesthetist.) On the other hand, when the surgeon states a preference for spinal analgesia he should be prepared, if necessary, to adapt his technique to suit the special requirements of the situation—e.g., gentle handling of the bowel and guarded conversation. Although the necessity for the latter is not present when a light, first-plane, general anaesthesia is induced, this may not always be desirable or practicable. The choice of the particular spinal analgesic to be employed, provided the surgical needs are satisfied, should rest with the anaesthetist. In the event of the surgeon demanding a particular analgesic agent which the anaesthetist conscientiously feels is contraindicated, then the surgeon should be prepared to administer it himself, and to accept all responsibility for any untoward event connected with its use.

Almost invariably in practice one finds that the surgeon is only too willing to leave anaesthetic matters to the anaesthetist, so that he may be free to give all his attention to the operation. Where there is proper team-work and understanding between the surgeon and his anaesthetist, the choice of the anaesthetic can usually be arrived at in a manner satisfactory to both parties, and this must redound to the advantage of the most important person concerned—namely, the patient.—I am, etc.,

KENNETH C. GRIGOR,
Anaesthetist, Southern General Hospital.

Glasgow.

Shock and Open Ether

SIR,—After reading Dr. Arthur Mills's letter on shock and open ether (Dec. 29, p. 938) I spent a leisure hour breathing through a Coxeter-Mushin closed-circuit machine with a basal oxygen flow of 500 c.cm. My pulse varied between 72 and 68 and my respirations between 16 and 14. My B.P. was not taken. I experienced slight discomfort towards the end due to the pressure of the face-mask, but otherwise no untoward effects during or after the inhalation. This is not surprising, as anaesthetists experienced with shocked cases assure us that the technique affording the best results is the closed-circuit using N₂O and O₂ with a high percentage of the latter and adding minimal quantities of cyclopropane if required. If the

breathing becomes unduly shallow the CO₂ absorbed can be partially or completely cut out of the circuit for a while. Furthermore, the technique for shocked cases should be adaptable to special requirements such as endotracheal administration and controlled respiration, and this is not possible with open ether.

If, however, ether and air is to be the first choice, is not the Oxford vaporizer the most accurate and most controllable means of administering it? The air can be enriched with oxygen through the special tap provided, and if the correct size of face-piece is chosen and correctly applied there is a gas-tight joint with no danger of hypoxia and with both eyes readily accessible for inspection and, if deemed necessary, for palpation. Few, however, are the anaesthetists who elicit the corneal reflex these days, and even fewer are the ophthalmologists who would give the practice their blessing.

With regard to the use of ether, there appear to be two sharply divided schools of thought among most anaesthetists and some surgeons. In the one ether is condemned and never used, while in the other it is the agent of choice. It may be helpful if both sides aired their views in the light of experience and up-to-date knowledge, and an authoritative and unbiased pronouncement made—I am, etc.

W. N. ROLLASON,
F.L.C.S., R.A.F.V.R.

Haverfordwest

Frequency of Micturition after Injection of Haemorrhoids

SIR.—Dr. Kenneth Hazell's case of haematuria following an injection of haemorrhoids (Dec. 15, 1945, p. 864) calls to mind several patients that I have seen who developed disturbances of micturition after the same procedure. I can recall three such cases. They all complained of the onset of frequency of micturition within a few hours of the injection, in one case the symptom began within fifteen minutes of this treatment of piles; in another there was terminal haematuria and dysuria as well as frequency. I regarded all these instances as evidence of the connexion, through either the venous or lymphatic system between the lowest segment of the alimentary canal and the neck of the bladder. It is possible that Dr. Hazell's case is explicable along similar lines.

Probably a reversed process is demonstrated in the frequent incidence of piles in patients suffering from bladder-neck changes even without obstruction, or with different forms of posterior urethritis. I have seen many cases in which haemorrhoids have followed the above-mentioned urinary-tract conditions—I am, etc.

London, W 1

H. P. WINSBURY-WHITE

Varicose Ulceration

SIR.—I am glad to have seen so many letters in your correspondence columns lately on this subject. Apart from the few people who have specialized in varicose veins and ulceration, this subject has been sadly neglected by the average run of the medical profession.

I see on an average 50 cases of ulceration per week—cases sent to my clinic by other doctors. I have been appalled by the number of years that each individual patient has suffered from his ulcer before I see him. These patients have attempted under medical supervision to get their ulcers healed merely by the application of ointment and a silly piece of bandage just around the ulcer.

Unless the pathology of these ulcers is understood cure will never result. The primary causation of these ulcers is gravitational, and the only treatment that will effect the healing of the ulcer is to rid the limb of its congestion. It is therefore essential to study each limb individually, and, if necessary, to get rid of any causative or concomitant veins, either by appropriate injection or, in a few instances, by ligation of the internal saphenous vein where it enters into the deep femoral vein, together with the ligaturing of the five branches of the internal saphenous vein in that neighbourhood. In long-standing cases the injection or the ligation, or both treatments combined, will not, however, get rid of the brawny, oedematous swelling. This can be effected either by the unnecessary and absurd treatment of putting the patient to bed for three months or by tight bandaging with "elastoplast." I am aware that there are a few cases which will not tolerate "elastoplast" next to the skin but this difficulty is overcome as stated below.

My own technique in every case of ulceration is to apply "jelocat" to the ulcer base—occasionally in addition a sulphoanamide powder; on top of that the whole leg from the knee to below the knee is enveloped in "ichthoplast," then a pad of sponge-rubber with well-pared edges is applied over the ulcer and sometimes even several pads lying built-up over the ulcer. Then more "ichthoplast" is applied and finally "elastoplast" is applied with a back strap so as to prevent the lateral subsequent turns of "elastoplast" from cutting into the leg. Moreover, this "elastoplast" is applied from above downwards to prevent the rucking up of the "elastoplast," the sticking which would occur if it were applied from below upwards. Incidentally, this dodge was taught to me by my friend Mr. D. J. O'Sullivan Wright.

The usual story in these cases is to get an ulcer which has been existing for six years healed in two or three months, the bandages being changed on an average once a month. Once the ulcer is healed up, however, there arises the question of after-care of the ulcerous leg. Even when all possible has been done for the vein by injection and/or ligation as above described it is necessary that the patient should keep the leg supported for many months ahead, or even for the rest of his life, either by the daily application by the patient of an "elastoplast" bandage with a pad over the old ulcer site, exerting pressure, or in less serious cases by wearing an elastic stocking. I always tell patients also that standing is bad and walking is good, and to put their legs up in the evenings at home whenever possible on the sofa rather than have them dangling down—I am, etc.

Liverpool

STUART MCALISLAND

SIR.—With reference to previous correspondence on this subject, I feel that Dr. R. K. Brooks and other G.P.s who do likewise should be commended and encouraged to print their methods of treatment and experiences, as in this way the standard of general practice can be raised by helpful and accurate criticism from experts. On the contrary, there are some who see in such letters an occasion to divide and conquer and in this case in a manner which is only too true and valid that it is courteous. If consultants and others engaged in special practice were to engage in general practice or vice versa, from time to time many would learn a great deal worth knowing, apart from tolerance.

The subject can be summarized as follows. The treatment of varicose ulcers is primarily the treatment of an area of nutritional gangrene and secondarily the treatment of the accompanying varicose veins. The predisposing cause is lack of venous drainage and thus lack of adequate blood supply, existing cause usually a blow causing an abrasion and permitting entrance of bacteria, these latter proceed to destroy the devitalized area until better nourished tissue is reached.

Treatment (a) To increase the nutrition of the part affected by promoting venous drainage (b) to apply non-injurious bacteriostatics, for, as every medical schoolboy knows, sepsis is a potent barrier to repair. Venous drainage is promoted by: (1) elevating the limb (2) supporting the limb with elastic bandage or stockings etc.; (3) improving or removing the varicose veins to the full extent of the defective system concerned provided the deep venous system—supported as it is by muscles fascia etc.—is patent and healthy.

The method or methods adopted will depend upon the age, condition, and circumstances of the patient, but it is useless injecting veins in an ambulatory patient with a positive Trendelenburg sign—that is, a saphenous vein which fills from above when the patient assumes the erect position. In such cases the saphenous must be ligated and a portion excised at its entrance to the femoral vein. Furthermore, never inject a varicose vein in the region of the knee-joint. Finally, the elastic stocking is a valuable measure against recurrence of a healed ulcer and in treatment of varicose veins generally.—I am, etc.,

London, W 1

JOHN F. JENKINS.

SIR.—In the treatment of varicose ulcers there are three conditions to which attention must be paid: (1) venous stasis, (2) lymphatic stasis; (3) infection. All three must be treated before lasting cure can be obtained.

I have treated several thousand cases in the past fifteen years, and so far I have not failed to heal an ulcer, at least tem-

porarily. Some, alas! return years after with an ulceration in the old scar, generally from an injury, and these are the most difficult of all to cure. I still use the injection method for varicose veins, using Maingot's "twin" injection of lithocaine with quinine and urethane for large veins. With proper technique this gives excellent and lasting results. One injection at the saphenous opening will usually sclerose the whole of the internal saphenous vein as far as the ankle. For smaller veins I use "etalate."

For lymphatic stasis one must employ a bandage. But it is dangerous to apply an adhesive bandage directly to an ulcerated leg, for allergic dermatitis is sure to occur sooner or later and this may spread to the whole body. I apply an "ichthopaste" bandage from the foot to the knee. This must be very smoothly applied, letting the bandage run in the direction of its longitudinal fibres, and taking a half-turn when it is desired to bring it down the leg again. This is covered with a crêpe bandage, equally smoothly applied. The bandages are changed once a week or even once a fortnight, but the crêpe may be taken off for washing and a clean one applied by the patient if there is much discharge. As to local applications to the ulcer, I find that paints, lotions, and watery pastes are superior to ointments; of the paints I use 10% aqueous solution of brilliant green largely, but I also use triple dye and crystal violet in varying strengths. Sulphanilamide powder and sulphomerthiolate powder are useful if the ulcer is very dirty, but, as Dr. R. K. Brooks observes (p. 816), they cause an increase in the discharge and must be used with caution.

Finally, I believe that there is no cut-and-dried line of treatment which can be relied upon to cure every case. Each must be treated on its merits, or demerits, and only long experience can decide when a change of treatment is necessary. But if the above fundamental principles be followed, success will always be attained.—I am, etc.,

London, S.W.7.

R. SIMPSON HARVEY.

* * This correspondence is now closed.—ED., B.M.J.

Questionnaires, Past and Future

SIR,—I welcome the splendid suggestion contained in the excellent letter from Dr. R. Ritchie (Jan. 5, p. 33). I hope and urge that the matter of a fresh and unambiguous questionnaire, on the lines suggested by him, be taken up at once, with one additional and all-important question—namely, "Will you pledge support for the Negotiating Committee to stand firm on its 'Basic Principles'?" I have no doubt that if this is done the answers will show a vast majority of medical men to be strongly against the sort of service implied by the recent remarks of the Minister of Health.

The arrangements could easily and speedily be carried out by the secretaries of Divisions and the Central Medical War Committee. If it is to be done, it must be done at once, so that the profession can make a clear-cut decision and give its representatives a strong lead. This is needed because of the conclusions that can rightly be drawn from the remarks of the Minister. By implication our patients are to have a "free service given by directed doctors, whose compensation will be for public work only, though their private practices will, in fact, be stolen. And they will be tied to a service with a pittance of a pension, which they must either accept and go in, or reject and stay out. Their patients will be forced by high taxation, high rates, high cost of living, and payments for the cost of the new service, to accept it under financial duress, and few will be able to afford to stand out. This is the first move in the direction of nationalized medicine that will lead eventually but inevitably to the servile state. If we are united on our basic principles we can not only withstand the onslaught but produce a far better service for the people. Now is the time: let us wake up and stand up and fight for the freedom of our patients and our own integrity and just dues.—I am, etc.,

Camden, Road 22

S. F. LOGAN DAHNE.

SIR.—The excellent letter from Dr. Robert Ritchie is most timely and one can only hope may meet with the support it deserves and stimulate the practising profession to take effective action.

The course of events preceding the return of a new Ministry was sufficiently depressing and disheartening. What has happened since has filled us with despair. Most of us who struggled to take some active and effective part in the discussions and formulation of recommendations by the Negotiating Committee were sufficiently sickened by the policy of appeasement which permeated and undermined all attempts to present a united and determined front. At best "recommendations" and "suggestions" were put forward with a nauseating humility and deference for the consideration of the Minister of Health. At least this much was accomplished. Since the advent of the present Government the whole of even this little that had been done has collapsed like a pricked balloon. There are now no signs of any organized attempt to project and uphold what we know to be not only in the best interests of the public and profession but also matters vital to the very existence of our individual selves as the "working class" of the profession. The dictatorial pronouncements of the Minister of Health go unchallenged. Our apathy and ineptitude are in line with the same qualities displayed by the Opposition at Westminster. We have no programme or, if we have any, we seem to have no energy to put it into effect. It would seem that we have been beaten to the ropes and have thrown up the sponge. All and any dictatorial measures the present Government may think fit to introduce will go by default. We shall shortly be presented with a *fait accompli*, a very favourite method of dictators, and we shall be left to bemoan our Munich.

Dr. Ritchie very ably points out that there is no longer any doubt as to the Government's programme and intentions, and the time is now more than ripe for the profession to take a firm stand on fundamental principles and to answer "Yes" or "No" without fear or favour. Why this chicken-hearted fear of the emphatic "No"? Let us follow the example of New Zealand and refuse absolutely to co-operate unless our minimum demands are met. The result there was that the Government had to withdraw and think again. The questionnaire suggested by Dr. Ritchie would bring us out of the fog of irrelevant detail which has hitherto choked any attempt to arrive at an emphatic statement of minimum demands or fundamental policy into the sunlight where at least we shall know where we are, as well as making it clear to the present Ministry that we refuse to be trifled with. Even if we are ultimately defeated (I do not think so), at least we shall have regained something of our self-respect.—I am, etc.,

Oxford.

J. FRANKLAND WEST.

Domiciliary Midwifery and the Family Doctor

SIR,—Unless some such scheme to fuse the traditional functions of the family doctor and maternity hospitals, as suggested in the interesting letter by Mr. Arthur E. Brown (Jan. 5, p. 30), is speedily put into operation in this country, the further participation of the family doctor in midwifery will soon come to an end.

The trend towards institutional midwifery is now established and permanent; because the medical attendant realizes that no confinement can be trusted to be normal until it is safely over, and therefore appreciates conducting all cases under first-class conditions; the patient, in addition to the relief from domestic worries, realizes that an expert team and constant trained attendance are necessary for carrying out modern methods of analgesia and successful care of an abnormal case.

General-practitioner hospitals have been suggested in connexion with the new hospital service. Midwifery is surely a field in which they could be used to advantage under conditions described by Mr. Brown. Most patients would prefer to be attended by the man they know and who knows them, and who has attended them during the antenatal period; but, for lack of any alternative, more and more cases are being absorbed into large maternity hospitals, where they are not attended by a doctor. The general practitioner is thereby robbed of his midwifery, the very bed-rock of family practice, and is soon to be classed as incompetent to practise obstetrics in the new era. The pace of this will increase as further development of maternity hospitals closed to the general practitioner is planned, on a large scale, for rural and urban areas.—I am, etc.,

Warrington.

R. GUEST GORNALL, M.D.

Venereology

SIR,—I read with interest Lieut.-Col. Henry Richards's letter (Sept. 22, p. 414) denouncing the use of the word "venereologist," and I read Brig. T. E. Osmond's reply (Oct. 20, p. 556) with sympathy. As the latter says, many medical terms in common use are hybrids and mean something different from what would appear if their component parts were analysed. The unclassical word "antibody" has been made a classical example by the scorn of Quiller-Couch. It is a hybrid and does not refer to a substance which opposes or does harm to the body. It is, however, useful, and it has, moreover, remained. As a hybrid myself, being an obstetrician and a gynaecologist, I feel more than a little sympathy for other hybrids, even if they have not become members of a Royal College. Harmless and necessary, like Shylock's cat, are various hybrid vegetables and flowers, mules, and the English race. The recent attempt to erase the last from the face of the earth should give pause to all who would attack such hardy creatures or eliminate such words.

As for its inaccurate meaning, venereology, is no worse than "gonorrhoea," the purulent discharge of which does not proceed from the gonads, but which, as a word, is quite respectable and has remained unchallenged. If "venery" means the arts of love we cannot doubt that during the *pax Romana* they were not always respectable. In the many mansions which the temple of Venus contained there must surely have been one for those who suffered from their venery. Surely, therefore, a man may study any of the various manifestations of venery and be rightly accounted a venereologist.

The English language has never endured for long the lack of a useful word. It has stolen and changed without shame and, be it added, without detriment. It can do no harm, however, to explore the possibilities of a change, provided they are for the better—that is, not hybrids and not inaccurate. "Specialist in venereal disease" certainly could not be mistaken for an expert practitioner in the arts of love *par excellence* but the purists, whom we have to satisfy, might think he specialized in contracting rather than in curing these diseases. "Officer with a special knowledge of the diagnosis and treatment of venereal disease" is perhaps a little cumbersome and comes not trippingly off the tongue. Shall we have a synthetic word like "Nazi," "Seac," "Ensa," or "Unnra"? From "Medical officer with special knowledge of venereal disease" we have "Moskoviend." I doubt if this would leap into favour, and the less knowledgeable, who probably form the bulk of a "moskoviend's" clientele, might think a "moskoviend" was a Russian with something to sell. "Pox doctor" has been tried and found wanting, and, further, is inaccurate, as such medical officers do not necessarily teach. For India "pox wallah" could supplant the inaccuracy of "doctor," but one would have to mind one's "p's" and "b's" to avoid offence to the business community who are unfortunately often referred to as "box wallahs." It is unfortunate that the Greeks had no god who suffered as we mortals do. Perhaps Priapus, son of Aphrodite, did but kept the matter quiet. Lacking information and the means now of obtaining it, could he not be "deemed" to have had all possible venereal diseases—*honoris causa*, as it were? We could then call venereologists priapologists, leaving those who object to the former term to apologize for any confusion which might arise among those who regard priapism as Priapus's most distinctive feature. Until this or a better term is established I must confess that I shall use venereologist. I do not mind its being a hybrid, and venery nowadays is more of a misfortune than an art—I am, etc.,

G. BENJON THOMAS,

Major, I.M.S.

Professor of Midwifery, Madras Medical College

"Chronic Ear Disease"

SIR,—In their note on penicillin in chronic ear disease Surg. Cmdr. R. L. Kennedy and Surg. Lieut. J. W. Boland (Jan. 5, p. 13) seem to have classed together in one group the following separate ear diseases: (1) otitis externa with an intact tympanic membrane; (2) otitis externa in an ear with a dry perforation of the tympanic membrane; (3) otitis externa associated with suppurative middle-ear disease; (4) suppurative middle-ear disease. Their record would be of more value if each of these diseases had been described separately, and in the

cases with perforations of the tympanic membranes I should like to know the site and size of each perforation. I should think that aurists will be astonished at this innovation, or perhaps retrogression, of classifying so many separate pathological entities as "chronic ear disease."—I am, etc.,

G. GIBBS

C. DE W. GIBBS

Paracentesis and Myringotomy

SIR,—I read with full appreciation Mr. T. B. Jobson's observations (Jan. 5, p. 21) on the terms "myringotomy" and "paracentesis." Being rather inconstant on accuracy, I have for years impressed upon house-surgeons, and others, that the correct term for the operation designed to drain the middle ear is "myringotomy," the less satisfactory alternative being "paracentesis tympani" but not "paracentesis" alone. Mr. Jobson's interesting account of the derivations of the words will, I hope, help to correct an irritating slackness in terminology.—I am, etc.,

B. BRIMHAM

W. OGLEBY REID

SIR,—The question of what to call the small operation of puncturing the drum of the ear with a bent hypodermic needle on a syringe is, as Mr. T. B. Jobson says, most interesting. May I discuss one or two points in it?

The word myringotomy (cutting the drum), says the author, appears first in 1863 and again in 1875. Myringa is, he says, "a modern Latin word," meaning a membrane. To me its appearance and sound suggest very strongly its Greek descent. Compare syringa, used as a name for the lilac genus. This is derived from the Greek word *syrix*, meaning a tube or syringe, and it is applied to lilac on account of the shape of the flowers. Syringitis (inflammation of the Eustachian tube) is derived from the same word. I have a medical vocabulary by Dr. Fowler, published 1875 which gives the word myringitis but not myringotomy. It gives the derivation of the word myringa as a barbarism for *membrana tympani*. It would not, I agree, be right to call the operation myringotomy, as it is not a cutting of the drum.

I am suggested that the operation should be called "paracentesis," a piercing through, a word some 2,000 years old or more. The verb *parakenteo* (*para*=through and *kenteo*=I pierce) meant in those times "I tap for urine." The *para* does not give the idea of piercing completely, or right through, so I suggest that the Greek word *di-* would be better, giving us *diacentesis* as the needle passes completely through the drum. I suggest the name for the operation should be *syngomyringodi-centesis*, or for busy otologists *S.M. di-centesis*. A syringe has a function—to eject or withdraw fluid—so that the name I venture to propound tells us what is done and how.—I am, etc.,

G. GIBBS

J. K. MULLIGAN

"Cord Round the Neck"

SIR,—May I try to lay another small tree in the forest of obstetric superstition? During the past few months I have heard of four cases of stillborn babies in which the death at birth has been attributed to the "cord being round its neck." In all my years of obstetrics I have complacently accepted this explanation, but is it wholly, or even partly, true? It is certainly a facile excuse and one meekly accepted by the bereaved parents.

Presumably the foetus dies from asphyxia because the cord is so tight around its neck that it cannot breathe. This explanation is completely untenable for two reasons. First, the constriction can be removed before the baby even attempts to breathe, and, secondly, the rings of the full-term trachea are harder than the cord, and so it must be the cord which is compressed, not the airway. This brings me to the other explanation generally given—that the foetus dies because the placental blood is prevented from arriving through a compressed or stretched cord. It does not become stretched because the uterus and placenta descend with the foetus. What compresses it? Not its own coiling, for were that so the foetus must have died long before; not its passage through the pelvis, for it is protected by the head. To say that it is pressed on by the chin in flexion is to stretch credulity too far.

I can understand intra-uterine amputations caused by a loop of cord or even intra-uterine death (DeLee gives a picture of one), but I cannot see why the coiling of the cord round the

foetal neck should cause stillbirth. Although the argument is unscientific, all of us have delivered many live babies with one or more loops of cord round the neck. I personally have never had a stillbirth from this cause. In the four cases I have mentioned one infant died undoubtedly from toxæmia, one from an attempt to turn a breech under deep anaesthesia, and the histories of the others were incomplete. I do suggest, therefore, that we might review our ideas on this subject, and the diagnosis of "cord round the neck" should be regarded with grave obstetric doubt.—I am, etc..

London, W.1.

MORTIMER REDDINGTON.

Case of Adder Bite

SIR,—I was interested to read some correspondence in your columns a little while ago about adder bites. It seemed that the number of recorded cases was small, and it may therefore be of some interest to give a short account of a case that occurred recently in the Isle of Wight.

On Oct. 5, 1945, a warm sunny day, a man was picking up chest-nuts in Parkhurst Forest, when at about 1.35 p.m. he was bitten by a snake, which was clearly identified as being a large adder. The incident occurred near a factory where there is a division of the St. John Ambulance Brigade, and within a few minutes—certainly not longer than ten minutes—he was receiving attention from members of the Saro (I.W.) No. 2 Ambulance Division. The bite was on the first finger of the right hand in the region of the first phalangeal joint. A 1-inch (2.5 cm.) bandage was applied to the base of the finger as a constriction and the wound sucked. The patient was placed in a recumbent position and encouraged to keep calm. By this time slight swelling had taken place. A hot solution of potassium permanganate was applied and bleeding induced by gentle squeezing. About ten minutes after treatment a heavy sweat appeared on the patient's brow, and a dose of sal volatile was given, after which his condition improved.

No doctor was available, so the patient was taken by car to St. Mary's Hospital, Newport, the constriction on the finger having been released and reapplied before the commencement of the journey. On reaching the hospital the patient appeared quite calm, only complaining of pain at the seat of the injury. When the hospital sister examined the finger on arrival, about 25 minutes after commencement of treatment, the swelling had travelled approximately 2 in. (5 cm.) upwards. The patient was put to bed with applications of hot potassium permanganate, and later had an injection of 10 c.cm. "sérum antivénimeux" (Institut Pasteur de Paris).

The following day a large blister appeared on the top of the finger and was incised. On Oct. 10 the patient's condition was satisfactory, and he was due for discharge the next day. On Oct. 11, however, he complained of intense irritation of most parts of the body, with swelling of the face and vomiting. He was discharged on Oct. 13. After discharge he complained of "lack of feeling and sensation" from the site of the wound to the top of the finger. On Nov. 27 this was said to be gradually improving.

I am indebted to Divisional Superintendent W. E. Peach, S.J.A.B., for details of this report.—I am, etc.,

Wootton Bridge, I.O.W.

F. R. B. H. KENNEDY.

Obituary

Staffordshire in general and the Black Country in particular (writes A. B. D.) are poorer and emptier places by the passing of Dr. LOCKHART LOWE on Sept. 3. Doing his daily round and performing the common task until a week before his death, he became tired for the first time in his life and gracefully led out from the turmoil which had always surrounded him. Born on April 1, 1870, Lowe was a Birmingham man. He was educated at his father's private school in Handsworth and had his medical training at Mason's College. In 1894 he took the Conjoint diplomas and a house appointment at the Paddington Infirmary. He then returned to the Midlands to assist Dr. Jonathan Hobbs at Clent. Thence he came to Walsall as partner to Dr. Caddick. He retained the Darlaston branch of the practice, and lived and worked there until his death. It is given to few general practitioners to serve the public for over fifty years, but this Lowe did, very ably and very pleasantly. His charm of manner and unflinching temperament endeared him to all his patients, commanded respect from the public and the esteem of his brother-practitioners. Though entirely unassuming and of retiring disposition he was a man of many parts. In his youth he had been a well-known Midland lacrosse

player. He played a very good game of tennis until he reached 70 years of age. He was a born musician and could play any orchestral instrument; as a pianist he was an infant prodigy, giving a recital in Birmingham Town Hall before reaching his teens. Among his friends he was a trusted adviser, and his wide experience was of great value in committee work, for which he had a flair. No B.M.A. meeting was complete without him, and he missed few. He was an original member of the Walsall Local Medical and Panel Committee. He was chairman of this committee and also of the Walsall and Lichfield Division several times. In July, 1929, he was elected to the Staffs County Panel Committee, of which he became honorary secretary in 1937. On many occasions he attended Panel Conferences in London as a county representative. In 1937 he also became a member of the Staffordshire Insurance Committee. In Darlaston he held many appointments, including those of police surgeon, social welfare medical officer, and factory appointments. He was intimately associated with the St. John Ambulance and Red Cross organizations. He was surgeon to the Walsall and District Corps, and an able lecturer and examiner to both movements. When war broke out he was immediately active in organizing Civil Defence services. In addition to local committee work he was M.O. and instructor to a first-aid post. As chairman of war charity committees he was largely responsible for collecting many thousands of pounds for the Red Cross and other charities. His wife, who had been a chronic sufferer, predeceased him by several years. Dr. Lowe leaves two married daughters. Walsall and Lichfield Division and the Staffordshire Branch of the B.M.A. bid farewell to a very dear elder brother.

Dr. ALICE JANET McLAREN, who died on Dec. 20 at Crail, Fifeshire, at the age of 85, was the first woman gynaecologist in Glasgow, and as joint founder and first medical superintendent of the Redlands Hospital for Women played a big part in the training and guidance of many medical women. A native of Edinburgh, Dr. McLaren had her training at the London School of Medicine for Women, and graduated M.B., with first-class honours in medicine, in 1890, taking the B.S. a year later, and the M.D. in 1893, after serving as resident house-physician at Leith General Hospital. She then became assistant to the surgeon of the Glasgow Lock Hospital, and later as one of the first two women to be appointed to the Board of Management she did much to effect reorganization and improvement of that institution. Later she was appointed assistant surgeon at the Glasgow Royal Samaritan Hospital, being the first woman to be elected to the visiting staff of a hospital in Glasgow. It was in 1903 that she took a leading part in founding the Glasgow Women's Private Hospital, now the Redlands Hospital for Women, and there she worked at first as gynaecological surgeon. Dr. Alice McLaren was also consulting gynaecologist to the Royal Mental Hospital and carried on during four decades a large private practice. When she retired from active work in 1932 a presentation was made to her in Queen Margaret College, Glasgow.

We regret to announce that Dr. WILLIAM HOWARD UNWIN died at Timaru, New Zealand, on Christmas Day in his 75th year. He was a student of Charing Cross Hospital, qualified in 1898, and took the F.R.C.S. diploma in 1901. At the Final M.B.Lond. examination he won the University scholarship and gold medal in obstetric medicine, and proceeded M.D. in 1903 after serving as house-surgeon at Charing Cross. During the war of 1914-18 Dr. Unwin was officer in charge of the surgical division of No. 2 N.Z. General Hospital at Walton-on-Thames. He held office as honorary secretary of the South Canterbury Division of the B.M.A. in 1922-4 and was elected president of the New Zealand Branch in 1944, having represented the Branch at the Centenary Meeting in London in 1932 and at the Plymouth Meeting in 1938.

Dr. EDWIN SWAINSON MILLER, surgeon captain, R.N. (retired), died at Brentwood, Essex, on Dec. 30, 1945, aged 76. He was the son of William Charles Miller, of Liverpool, and was educated at Shrewsbury School and at Liverpool University, whence he qualified as M.B., Ch.B. Vict. in 1893. After serving as house-surgeon at the Royal Infirmary, Liverpool, he entered the Medical Service of the Royal Navy, and retired in 1920 with the rank of surgeon captain. He then practised in Brentwood for a quarter of a century, and only finally relinquished this when his health began to fail last year. Dr. Miller married in 1915 Miss Helen Beatrice Liardet, who survives him with two sons, the elder of whom, Dr. P. J. Miller, is a member of his father's profession. Throughout his twenty-five years in Brentwood he was a member of the staff of the District Hospital. He joined the B.M.A. in 1897.

News has been received of the sudden death on Dec. 30 at Bhopal, India, of Lady BHORE, wife of Sir Joseph Bhore, K.C.S.I., K.C.I.E. Margaret Wilkie Stott, elder daughter of Joseph Stott, of West Newport, Fifeshire, was born at Dundee on June 20, 1884, and from the Fife Academy went to St. Andrews Medical College, Dundee, graduating M.B., B.Ch. St. Andrews in 1907. After a year as an assistant in general practice at Preston she went out to India as M.O. to the Berhampore Baptist Missionary Hospital. Her husband, whom she married in 1911, has been a distinguished member of the Indian Civil Service and held important Government offices before his appointment to the Governor-General's Executive Council. Lady Bhore won a Kaisari-Hind Medal and was awarded the O.B.E. in 1944.

By the death of Dr. J. PRICE WILLIAMS on Jan. 1 Swinton and Pendlebury has lost an outstanding personality. He was educated at Dentstone College and Manchester, and obtained the M.R.C.S. and L.R.C.P. in 1888, the M.B.Lond., with honours in forensic medicine, in 1889, the M.D.Lond. in 1892, and the B.Sc.Vict. in 1904. After working as assistant resident M.O. at Morsel Fever Hospital he became public vaccinator for Swinton and Pendlebury, and medical officer to the Post Office. He leaves a widow and two children: Dr. E. Williams, who practises at Barnsley, Yorks, and a daughter married to Col. R. Raymond, I.M.S., who lives in Australia. Dr. Price Williams gave up practice ten years ago to reside at Bramhall and Ambleside. He held various offices: chairman of Lanes Area 22 Local Medical Committee and later Area 22 representative on the Lanes Panel Committee. He was a member of the committee of the Salford Division of the British Medical Association, which he joined in 1900. During his 47 years as a general practitioner he endeared himself to his friends and patients and earned the regard and good will of his fellow-practitioners, who on his retirement presented him with a writing-desk to mark their appreciation and their esteem of him as a leader of the local medical profession. In his younger days he was a playing member of the Swinton Cricket Club, a good chess and billiards player, and fond of bridge, music, and the drama.

Dr. CHARLES HARRY EAST, who died in retirement on Dec. 22 at his home at Bagshot, Surrey, aged 84, studied for the medical profession at King's College, London. He took the L.S.A. in 1884, the M.R.C.S. in 1886, the M.B., B.S. of Durham University in 1887, and proceeded to the M.D. degree in 1890. At King's College Hospital he was house-surgeon to Lord Lister, and medical registrar and tutor, and was also assistant demonstrator of anatomy at King's College. Dr. East practised for a short period in Monmouthshire, and then settled at Great Malvern until his retirement in 1921.

The following well-known medical men have died abroad: Dr. F. JAYLE, an eminent Paris gynaecologist and former editor of *La Presse Médicale*; Dr. RAFAEL A. BULLRICH, a cardiologist of Buenos Aires, aged 67; and Dr. MARIANO ALURRALDE, professor of clinical neurology at the Buenos Aires faculty of medicine.

Universities and Colleges

UNIVERSITY OF EDINBURGH

Dr. Douglas Guthrie, lecturer on the History of Medicine, will deliver an introductory lecture in the Pollock Memorial Hall, Bristo Street, Edinburgh, on Tuesday, Jan. 22, at 5 p.m., on "The Search for a Philosophy of Medicine."

Sir Alexander Fleming, F.R.S., will deliver the Cameron Prize Lecture on "Penicillin—its Origin and Use" in the anatomy lecture theatre, University New Buildings, Teviot Place, Edinburgh, on Friday, Feb. 22, at 5 p.m. All students and graduates are invited to attend.

QUEEN'S UNIVERSITY, BELFAST

The following candidates have been approved at the examinations indicated:

M.B., B.Ch., B.A.O.—*R. D. N. Blair, *B. T. Crymble, *T. H. Flewett, *C. S. Lindsay, *C. B. McClintock, *J. O. R. Stewart, J. Beckett, L. C. Bell, H. J. Blackwood, J. F. Booth, E. R. Broadberry, C. Burns, H. MacD. Cameron, E. A. Casement, S. P. C. Casey, J. B. Cromie, Joan P. D'Arcy, A. W. Dickie, P. F. Donnelly, F. G. Dove, P. Farnan, W. J. Forsythe, Rosemary Fullerton, W. R. Gilmore, A. L. Griffith, D. J. W. Hume, G. V. Hinds, J. A. Howard, T. V. Humphreys, R. Jacobs, F. R. Johnson, S. Kay, S. H. S. Love, J. Lowry, Mary C. McClure, Florence McKinstry, T. A. I. McQuay, D. Maguire, J. N. Montgomery, W. E. Parkes, J. E. Pyper, J. I. Rolston, S. Sloan, Maude Stevenson, G. K. Thomas, N. D. Wright.

The Services

The honour of commandship of the Legion of Merit has been conferred upon Air Marshal Sir Harold Whittingham, K.C.B., K.B.E., LL.D., K.H.P., F.R.C.P., Director-General of Medical Services, R.A.F., by the President of the United States of America. Capt. S. P. Dutt, I.A.M.C., has been awarded the M.C. in recognition of gallant and distinguished services in the Middle East in 1942.

Surg. Cmdr. W. McO. Macgregor, O.B.E., V.D., and Temp. Surg. Lieut. T. E. Barwell and A. F. Ross, R.N.A.R., have been mentioned in dispatches.

Acting Surg. Lieut.-Cmdr. L. E. Prowse, R.C.N.A.R., has been awarded a commendation.

The following have been mentioned in dispatches in recognition of gallant and distinguished services in Italy: Lieut.-Col. (Acting Col.) C. A. McIntosh; Lieut.-Cols. W. H. P. Hill and J. S. McCannell, O.B.E.; Majors L. W. Bassett, T. G. Fyfe, and J. F. Nicholson; Capt. M. L. Harley, M. Lerner, M.C., R. M. Levine, H. G. Metcalfe, R. F. M. Meyers, W. A. Reed, and W. H. White; Lieut. E. Shaw, R.C.A.M.C.

The following have been mentioned in dispatches in recognition of gallant and distinguished services in Burma: Col. (Temp.) N. P. Breden, and W. J. Officer, O.B.E.; Col. (Acting) M. MacR. Paterson, O.B.E. (killed in action); Lieut.-Cols. (Temp.) D. G. Adamson, J. McK. Johnstone, W. G. MacDougall, A. J. Martin, O.B.E., D. J. O'Ryan, R. P. Smyth, O.B.E., J. A. Strong, M.B.E., and W. G. Sutcliffe; Lieut.-Col. (Acting) W. L. Putter; Majors (Temp.) T. Fitt, W. R. N. Friel, T. Griffiths, A. J. Moffett, H. G. Page, R. A. Philip, A. E. G. Ridgway, J. G. Scott, M.B.E., R. K. A. Van Someren, and R. Wigglesworth; Capt. D. M. P. Clarke, H. D. Cockburn, M.C., L. R. Dalton, W. Drummond, J. A. Farrell, P. E. Helme, M. H. Hughes, J. F. Mark, C. M. McGeoch, J. W. F. Richardson, M. F. Ronayne, I. H. Stewart, and A. H. Williams; Capt. (Temp.) J. A. McPherson; Capt. (Acting) P. R. Robinson, R.A.M.C. Col. (Acting) J. D. Grant, G. B. Jackson, and V. E. M. Lee; Lieut.-Cols. (Temp.) L. H. Carter, and M. B. Menon; Major (Temp.) A. C. Greene; Capt. B. Singh, C. T. Shah, E. B. Naug, M.C., B. J. Pereira, J. M. P. o, H. A. Press, B. Rowlett, and S. N. Sinha; I.M.S. Lieut.-Col. (Temp.) J. Reidy; Lieut.-Col. G. V. Chappell; Major (Temp.) A. E. R. Coombes; Capt. M. P. U. V. Raja, M. L. Panyan, M.B.E., and V. Rangaswami; Lieut. C. R. Narayan, P. Jagannatham, M. A. Jabbar, and S. S. Roy; Subadars K. Ram and Nanohal, Jamadars M. N. Khan and P. Singh, I.A.M.C.; Major (Temp.) J. A. Hides, R.C.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Officially reported killed in action at Singapore, Feb. 15, 1942—Capt. William Lee Donaldson, Medical Officer, S.S.V.F.

DEATHS IN THE SERVICES

Lieut.-Col. HERBERT EDWARD DRAKE-BROCKMAN died on Dec. 29 in Jersey, after a short illness, at the ripe age of 80. He was one of the distinguished Indian Medical Service officers of that name, and was born at Cawnpore on Feb. 14, 1865. He was educated at St. George's Hospital, passed the English Conjoint final examinations in 1887 and the F.R.C.S. in 1889. He entered the I.M.S. in 1883, and distinguished himself at Noddy by carrying off the Herbert exhibition and medals in tropical medicine and in hygiene. After completing his service on the military side he entered the political department, and held at different times the important posts of Residency Surgeon at Hyderabad, East Rajputana, Kashmir, and West Rajputana. When at Hyderabad he held the responsible positions of Director of the Medical Department and Sanitary Commissioner for H.H. the Nizam's Dominions, and principal of and lecturer on ophthalmic surgery in the Hyderabad Medical School. In all these positions he inspired the trust and confidence of the rulers of the States he served so faithfully. While in India he published a medico-topographical gazetteer of the Eastern Rajputana States, a work on the anthropometry of castes and tribes of the North-West Province and Oudh (now the United Provinces), and a report on a plague epidemic in the Hyderabad State, 1915. He also saw active service on the North-West Frontier with the Miranzai Expedition of 1891. After his retirement in 1920 Drake-Brockman became medical officer in charge of a tropical diseases clinic and oculist under the Ministry of Pensions at Southampton. He was a member of the Ophthalmological Society of Great Britain, that being his favourite subject. He joined the British Medical Association in 1889.

In an effort to increase the production of penicillin, for which the world-wide demand far exceeds the present manufacturing capacity, the U.S. Civilian Production Administration on Dec. 26 announced that it will give special priorities assistance to producers.

No. 52

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Dec. 29.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)*	(e)	(a)	(b)	(c)	(d)*	(e)
Cerebrospinal fever	38	1	25	2	3	38	6	24	1	1
Deaths	—	—	—	—	—	—	—	—	—	—
Diphtheria	514	30	165	130	19	446	16	136	191	15
Deaths	9	—	6	1	1	11	1	—	1	1
Dysentery	265	22	66	14	—	123	16	101	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute	2	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	54	8	1	—	—	65	23	2
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	55	8	8	59	—	44	1	12	26	3
Deaths	—	—	—	22	—	—	—	—	8	—
Measles	565	69	58	303	2	8,870	155	471	25	188
Deaths	—	—	2	—	—	14	—	1	—	—
Ophthalmia neonatorum	50	9	17	—	—	52	2	15	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	5	—	2	1 (B)	—	6	—	—	—	—
Deaths	—	—	(A1, B1)	—	—	—	—	—	—	—
Pneumonia, influenza (from influenza)	1,118	91	14	14	3	812	29	19	5	16
Deaths	72	9	5	—	2	35	1	2	—	—
Pneumonia, primary	—	—	276	55	—	—	—	359	46	9
Deaths	—	64	8	10	—	—	41	13	—	—
Polio-encephalitis, acute	1	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Polio-myelitis, acute	25	2	—	—	—	6	—	1	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	2	20	—	—	—	3	8	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia	94	4	7	3	—	99	8	14	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	1,376	126	252	43	30	1,512	37	218	38	49
Deaths	1	—	—	—	—	1	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	9	3	1	8	—	4	—	1	10	—
Deaths	2	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough	724	44	24	104	5	1,179	43	53	61	11
Deaths (0-1 year)	10	2	1	1	—	7	1	3	—	—
Infant mortality rate (per 1,000 live births)	407	51	51	37	17	389	35	81	32	30
Deaths (excluding stillbirths)	5,704	850	686	165	142	5,363	745	685	190	140
Annual death rate (per 1,000 persons living)	—	—	15.6	10.6	7.5	—	—	15.7	12.3	7.5
Live births	4,963	570	787	209	226	5,251	437	865	308	229
Annual rate per 1,000 persons living	—	—	15.7	13.5	7.5	—	—	17.6	20.0	7.5
Stillbirths	205	21	36	—	—	181	15	25	—	—
Rate per 1,000 total births (including stillbirths)	—	—	44	—	—	—	31	—	—	—

* Returns for infectious diseases for Eire include those for the previous week.
 * Measles and whooping-cough are not notifiable in Scotland, and the returns are for an approximate year only.
 * Includes primary form for England and Wales, London (administrative county), and Northern Ireland.
 * Includes puerperal fever for England and Wales and Eire.
 * On a basis of the 1931 census of population, birth and death rates for Northern Ireland are not available.

EPIDEMIOLOGICAL NOTES

Influenza and Winter Temperatures

Is it true, as has recently been suggested in the daily press, that an influenza epidemic may be avoided if we have a hard winter? This belief appears to be widespread, and it seemed worth while reviewing past experience to see whether there is in fact any justifiable foundation for such an opinion.

The usual trend of influenza mortality—a very slow rise in the late autumn with a more rapid increase in late December and early January—does suggest a seasonal factor. Although influenza has appeared in epidemic form throughout history, it is only in recent years that the disease has become an important annual cause of death in this country. During the decade 1880-9 the annual death rate was as low as 2 to 5 per million. After the epidemic of 1891-2 the incidence of influenza remained high, but between 1901 and 1917 the death rate never exceeded 293 per million; in nine of the seventeen years it was below 200. There was a further increase in the endemic level after the pandemic of 1918-19; in only six of the nineteen years from 1920 to 1938 was the death rate below 200 per million, and in four years it was more than 500. Any deduction concerning the relationship of hard winters to influenza epidemics must be based on the later period, in which the outbreaks are in sharper contrast than in the earlier periods. Since most deaths from influenza are registered in the first quarter of the year, this period determines the annual rate. The following table gives the deviation of temperature from the normal daily mean for October to February (normal values being based on the 35 years, 1891-1915) for the years when the crude death rate per million exceeded 400, and for the years when the death rate was less than 200.

Years of High Mortality

	1937	1933	1929	1927	1924	1922
Death rate per million	454	569	734	567	489	563

Mean Deviation of Temperature from Normal Daily Mean

	1936-7	1932-3	1928-9	1926-7	1923-4	1921-2
October	-0.8	-0.8	+1.6	-2.2	+0.5	+6.4
November	-0.1	+0.9	+2.8	-0.2	-4.9	-2.3
December	+1.6	+2.5	-1.0	-0.2	-1.1	+3.5
January	+1.6	-1.5	-3.1	+1.9	+1.8	+0.2
February	+2.3	+0.5	-6.2	+0.5	-1.4	+1.0

Years of Low Mortality

	1938	1936	1935	1934	1930	1928
Death rate per million	118	148	182	139	126	196

Mean Deviation of Temperature from Normal Daily Mean

	1937-8	1935-6	1934-5	1933-4	1929-30	1927-8
October	+1.0	-0.4	+1.1	+1.7	+0.6	+1.7
November	-1.0	+1.5	+0.6	-0.7	+0.9	-0.3
December	-2.8	-2.5	+5.9	-4.5	+2.8	-3.9
January	+2.6	-0.8	+0.6	+0.1	+3.9	+2.9
February	+1.3	-2.7	+2.9	-0.3	-2.1	+3.4

These figures afford no evidence that a hard winter prevents influenza epidemics. If a deviation of +1.5 or more is taken as a warm month, and -1.5 or less as a cold month, we find that each of the five months appear with equal frequency as warm months of high and of low mortality. January was warm in three of the low-mortality years and in three years when the influenza mortality was high. All the four cold Decembers were followed by a low mortality, but when November and January were cold on two occasions the mortality was high. The outbreaks of 1929 and 1930 provide an interesting contrast: the former was the largest death rate recorded since 1918-19 and the latter was the lowest but one. January and February of 1929 were noted for exceptional cold—it was the severest winter since the great frost of 1895. In January, 1930, the temperatures recorded at Greenwich were the highest since 1841. Despite the unusual severity of the winter in 1929 the deaths from influenza in the great towns continued to rise throughout the early part of the year, from 99 in the week ending Jan. 5 to a maximum of 2,183 deaths in the week ending March 2. The epidemic declined slowly, and it was not until the week ending May 11 that fewer than 100 deaths were

Dr. F. J. Russell Stoneham, D.A., has been appointed senior anaesthetist to the Birmingham Accident Hospital and Rehabilitation Centre.

Letters, Notes, and Answers

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ANY QUESTIONS?

Dermatitis Herpetiformis

Q.—What is the cause of dermatitis herpetiformis (Duhring's disease) or pemphigus pruriginosus? A man aged 50 has been confined to bed with this condition for the past nine months. Sedative lotions and ointments have been tried with varying success, as have arsenic and iron internally, calcium and adrenaline injections, sulpha drugs, etc. What is the correct treatment?

A.—The aetiology of dermatitis herpetiformis is obscure; focal infection, the absorption of toxic agents from the intestines, a specific virus infection, and—on the slender evidence of the frequently present eosinophilia—an allergic basis have all been suggested at different times. Arsenic given in increasing doses to the limit of tolerance, and then scaled down, in a series of intensive courses, each spread over ten days, is often beneficial and permits of the high dosage essential to obtain a result. Arsenic can also be administered intravenously as neoarsphenamine. Hexamine has proved useful in some cases, and the administration of small doses of sulphapyridine is constantly effective, proving almost a specific therapeutic test. The failure of the sulpha drugs, which may include sulphapyridine, as reported in the question, throws doubt upon the diagnosis, and suggests pemphigus as an alternative. Bayer's "germanin," had it been available, might well be the remedy of choice, although requiring some experience if unfavourable reactions are to be avoided.

Modern Colostomy

Q.—How does a modern colostomy differ from the old-fashioned classical operation?

A.—The chief purpose of a colostomy is to divert the contents of the colon completely from the portion of the bowel below the artificial opening. The colostomy should be made in the most suitable part of the colon, and care should be taken that the opening does not retract within the abdominal wall. In former times sufficient care was not always taken to see that the faecal stream was completely diverted; the rod commonly utilized to form the spur was frequently removed too soon and some of the faeces used to enter the lower part of the bowel. Nowadays great care is taken to ensure the formation of a good spur, either by keeping the rod or rubber tube (which transfixes the mesentery) in its position for two or more weeks, or by completely dividing the bowel. The spur may also be made more prominent by causing oedema of the intervening mesentery by tying a ligature loosely round it.

Left inguinal colostomy used to be done sometimes without sufficient consideration of the position of the growth. It is now quite common to perform transverse colostomy, so that the opening may be well away from a growth in the left side of the colon. The opening through the abdominal wall is made smaller than formerly, so as to lessen the risk of ventral hernia; the risk of stricture at skin level is obviated by excising a small portion of skin at the edges of the wound. Occasionally obstruction of the small intestine has followed the slipping of a loop of gut between the abdominal wall and the coil of colon which has been brought up for the formation of a colostomy; nowadays this is prevented by stitching the parietal peritoneum to the mesentery of the colonic loop, and thus shutting the door of this dangerous opening. When the whole of the bowel below a colostomy has been removed, the main considerations are to see that the part brought out to form the permanent anus has a sufficient blood supply, and is sufficiently long to maintain its position without tension and consequent danger of retraction within the abdomen. Such a terminal colostomy is often made through a small stab incision, which sufficiently ensures the patient against the danger of subsequent ventral hernia.

In a discussion on the management of the permanent colostomy (*Journal*, Aug. 18, 1945, p. 229) the term "modern colostomy" was used strictly with reference to the modern treatment for cancer of the rectum. Mr. A. Lawrence Abel was making the point that almost all cases of cancer of the rectum, no matter how advanced, including

many cases of four years' history and more than four years' duration, are by modern technique found to be operable. The operation he advised was the abdomino-perineal excision of the rectum, which entails removing the whole of the last 18 inches (45 cm.) or so of the large intestine—i.e., from about the middle of the pelvic colon down to and including the anus and perianal tissue. This leaves the cut end of the pelvic colon free to be brought through the abdominal wall, and therefore becomes a terminal colostomy in practically all cases. The term "modern colostomy" was used to emphasize Mr. Abel's view that cancer of the rectum should be excised in all possible cases, even with secondaries in the liver or some actual growth known to be left in inaccessible parts of the pelvis; in this terminal colostomy the wall of the bowel was sutured to the peritoneum and the skin. Very few cases developed any herniation or bulging of the abdominal wall, and there was very little projection from the skin. If every endeavour was made (and Mr. Abel claimed success in over 90% of cases) to remove the actual growth by a one-stage operation, using the pre-operative technique he outlined, a much more satisfactory colostomy was obtained than the old-fashioned classical operation, and it was more easy to control.

Coroners and Mental Hospitals

Q.—Necropsies are carried out as a routine in most mental hospitals. Is it obligatory to supply the coroner with a copy of the post-mortem notes on certified or temporary patients when there is no doubt as to the cause of death? In such a case, can the coroner dictate the extent and scope of the post-mortem examination? Has the coroner a statutory or other right to demand that with every notice of death in the case of a certified or temporary mental patient there should be attached a form, signed by the nearest relative, stating that they are satisfied with the treatment received by the patient and do not desire an inquest? This seems a most undesirable practice, apt to initiate a suspicion that ill treatment is common in mental hospitals.

A.—The coroner's powers and duties are laid down in the Coroners Acts, 1887–1926. When he is informed that the dead body of a person is lying within his jurisdiction, and has reasonable cause to suspect that the person has died a violent or unnatural death or a sudden death of which the cause is unknown, or has died in prison (or in certain other circumstances), he must inquire into the death.

When a certified or temporary patient dies in a mental hospital (etc.) the superintendent must notify the coroner in writing, and give a statement of the facts, before the end of the next day. Now the coroner has no legal power to call for a copy of the post-mortem notes, nor for a form signed by the next-of-kin expressing satisfaction with the treatment. On the other hand, he has the legal power to declare in any case that he is not satisfied with the statement of the facts, and to treat the death as one that puts him on inquiry. Then he may do any or all of the things the Acts say he may—i.e. summon the medical attendant of the deceased to give evidence on the cause of death, and direct him or some other practitioner to make a post-mortem examination and report in writing, and order any special analysis or test to be made. Briefly, the questioner has the choice between doing what the coroner asks, and declining and submitting to having all his deaths inquired into by the coroner's statutory procedure.

Effect of Tobacco on the Heart

Q.—I should like information about (1) symptoms of tobacco poisoning of the heart; (2) differential diagnosis; (3) any recent literature on the subject.

A.—There is still much controversy as to whether tobacco damages the heart at all. The evidence is mainly statistical, indicating a higher proportion of electrocardiographic abnormalities and a lower expectation of life in smokers than in non-smokers. It is probable that in the cardiovascular, as in other systems, tobacco acts by aggravating pre-existent disorders rather than by producing a specific syndrome of intoxication. The only common symptoms are transient acceleration of the pulse and elevation of blood pressure during smoking, a tendency to extrasystoles, and rather more than the normal increase in pulse rate and breathlessness on exertion. In those already suffering from coronary sclerosis smoking may precipitate attacks of angina pectoris. The differential diagnosis is from other conditions which may increase cardiovascular irritability, such as emotional stress, caffeine, etc. There does not appear to be any recent scientific review of the effects of tobacco-smoking on the circulation, but original data and references are given in an article by H. G. Hadley (*Med. Rec.*, 1941, 153, 267).

Boveri Test for Tuberculous Meningitis

Q.—What is known of the Boveri test for tuberculous meningitis? Is this test—bleaching of a solution of potassium permanganate by the cerebrospinal fluid—given only in tuberculous meningitis? On what factor does the bleaching action depend?

A.—Reference to several comprehensive works on clinical pathology yields no information about this test. Admixture of equal volumes of a dilution of human plasma in distilled water, contain-

ing 100 mg. protein per 100 c.c., and of a 1 in 5,000 solution of potassium permanganate completely bleaches the latter, as would be expected. Potassium permanganate liberates oxygen in the presence of any organic material, and is thus decomposed. This is, therefore, no more than a rough test for excess of protein, and would give a positive result in any acute meningitis. If it has been found of the slightest use in the past, it can only have been when facilities for the proper examination of the fluid were not available.

Penicillin for Styes

Q.—How is penicillin used in the treatment of styes?

A.—Penicillin locally gives excellent results in styes. It is best used after epilating the infected lash or lashes and expressing such pus as is present. Penicillin ointment can then be smeared in the first place, on the healthy lid margin to counteract any reinfection. The infected area is then covered with a thicker layer of ointment. This procedure can be repeated four or five times a day, and maintained for two or three days. It is essential that the ointment be made up in a suitable base, as an unsatisfactory base decomposes the drug. It is best to use specially prepared ointment bases, such as those put up by British Drug Houses and by Boots. These are adequately buffered and sterilized. The most suitable concentration of penicillin is 250 to 400 units per gramme. These ointments are more stable than solutions, and remain active for at least a fortnight at room temperature. There is no point in the systemic use of penicillin in styes, for adequate concentrations are obtained by the local application. Though styes can be rapidly brought under control by local penicillin, and reinfection and relapse frequently prevented, it is still essential to recognize that most patients suffering from styes require general treatment to counteract their poor resistance to infection. At school treatment centres it has been found that penicillin by itself does not solve the problem of recurrent styes in children. It is still necessary to provide general constitutional treatment for such children.

Time of Death after Injury

Q.—A necropsy at 8.30 a.m. on the body of a man alleged to have been shot the previous afternoon, revealed an entrance wound in the right abdomen and an exit wound in the left buttock. There were eight punctures of the intestine, the left hip was fractured, and the left external iliac vessels were ruptured. In the peritoneal cavity there were 1½ pints (850 c.c.) of fluid blood with no clots. The climate in this North-West Frontier Province is subtropical, and the maximum temperature at the time was 112° F. with no rain. One medical witness said that death must have taken place not later than half an hour after the shooting. Another medical witness stated that blood clots four to six hours after death in sub-tropical climates, and after twelve hours liquefies again. In his view the man could have lived for more than two hours, and could have made a statement after the injury. Please comment on these two different views.

A.—Any opinion as to the duration of survival, or the possibility of voluntary acts, after penetrating injuries of the abdomen must be very guarded. No definite opinion is warranted from the quantity of blood found or its condition with reference to clotting. Since the bowel was perforated in this case, the admixture of intestinal contents from the ruptured bowel would prevent the normal clotting of blood. Opinion in such cases is best assessed on microscopical examination for signs of repair in the wounds themselves. The infiltration by leucocytes of the periphery of the wound starts in about one hour, and by the extent of the leucocytic migration and subsequent stages of repair, which follow in regular sequence, a more definite opinion can be formed. In this particular case one can see no reason why the person should not have lived and have given a coherent statement two hours after the injury.

Painful Feet

Q.—A patient has been suffering for several months from swelling and marked tenderness of the pressure points of the soles and undersurfaces of the toes of both feet. There are thickening of these areas and a dusky flush. Padding the arches with adhesive felt to relieve the strain on the other parts of the soles relieves the pain for a day or two, but very soon these areas also become painful. In the past 18 years I have seen about six similar cases. They seem ultimately to clear up, but take a matter of months or years to do so. Is there any effective ambulatory treatment?

A.—The causes of pain in the pressure areas of the soles of the feet are so numerous that it is not always possible to give a dogmatic opinion even when a case is seen personally. Still less is a correspondence answer likely to hit the mark. However, in the absence of any recognizable local lesion, the following suggestions may help. The earliest stages of ischaemic conditions, whether arteriosclerotic, thrombo-angitic, or spastic, often cause pain, redness, and some swelling, before other effects become obvious. Elderly patients in whom the subcutaneous fat is undergoing atrophy and absorption all over the body, including the soles of the feet, not infrequently complain of tenderness over pressure areas, and upon examination the bones can be easily palpated through the thinned coverings. Diabetics,

short of obvious clinical signs of neuritis or arteriosclerosis, may complain of such symptoms, sometimes associated with a little swelling and dusky redness. A further condition, which is becoming so rare that it may easily be overlooked, is gout. The deposit of biurate crystals in the fibro-fatty pads of the heel and ball of the toes may be so great as to cause recognizable nodules, but in lesser cases the manifestations are not unlike those described in the question. A patient who has been off his feet for a long time on account of illness, or who has suffered from a wasting disease, may complain when he first starts to get about again. Like the elderly patients, there is here loss of resilience in the pads of the sole. Finally, in these days when so much is attributed to vitamin shortage it is just necessary to add that quite rarely shortage of the B factors may be the cause of pain and swelling in the soles of the feet. In this answer, which is by no means exhaustive, it is of course assumed that there is no evidence of gross general or nervous disease.

So far as treatment goes, if one of the above causes is discovered it must be dealt with. Local treatment by skilful padding is correct, but sponge rubber might prove a more suitable material than felt in a case of this type, where relief from pain rather than correction of a deformity is the aim.

Penicillin for Gonorrhoea

Q.—Is instillation of penicillin solutions into the urethra of value in the treatment of acute gonorrhoea? If this worked it might be less painful than repeated intramuscular injections.

A.—Instillations of penicillin solutions into the urethra have been tried in gonorrhoea, they are of some value—as are solutions of sulphonamides—but are far less effective than penicillin parenterally, and cannot be relied on to effect cure of the condition. Now that gonorrhoea can usually be cured by a single injection of penicillin suspended in beeswax-plant oil the question of pain assumes much less importance.

Alveolar Absorption

Q.—I recently had toothache and x rays showed two molars which had been filled, with "bony absorption at the alveolar margin". The teeth and roots appeared sound radiologically, and externally the teeth seemed sound, there was no sign of inflammation of the gums. It has been suggested that this is "ano domini" (I am 46), it at there is no treatment, and that when the pain becomes unbearable I must have the teeth extracted. What is the cause of the alveolar absorption, and is there no treatment?

A.—As the teeth in question appeared sound on both clinical and x-ray examination, it can be assumed that the toothache was not caused by any carious cavity. As they had been filled previously, it is possible that the pain was due to a hyperaemic condition of the pulp, or even an acute pulpitis. The bony absorption at the alveolar margin, however, means that there is some degree of pyorrhoea present, with the subsequent exposure of the cementum or dentine of the root. Extremes of temperature, or the contact of some jam or syrup with this area, would cause pain. The treatment of pyorrhoea cannot be entered into here, except to point out that it depends on the surgical elimination of all pockets and the keratinization of the gum margin by constant friction with the toothbrush and wooden tooth pick. The exposed dentine can be treated with silver nitrate, or, if the pain is acute, by the application of zinc oxide and clove oil.

Pregnancy in Middle Age

Q.—I have recently been asked the same question by three patients—ladies of 51. "Although menses are still fairly regular, can I safely give up contraceptive methods, or is there still a risk of pregnancy?" All these ladies are married with children, and in no case has there been a pregnancy for 19 years.

A.—Fertility in woman is at its peak between the ages of 20 and 24, declines rather slowly until the age of 35, and thereafter falls rapidly until it approaches zero at the age of 45 to 50. It is, however, impossible to say at what age sterility is absolute. So long as menstruation continues there is a slight chance of pregnancy, and conception can occur even after the menopause. This is because ovulation sometimes continues, regularly or irregularly, in the absence of menstruation. The long period of sterility (presumably voluntary) in each of these cases does not preclude conception, although it may mean that it is a little less likely. It is perhaps relevant to comment that the husbands should not be excluded from consideration—a low degree of fertility in the male might to some extent counteract lowered fertility in the female. Probably the best plan is to explain to each patient that, although the chances of conception are remote, they nevertheless exist and will continue to do so for at least one or two years after the menopause. Thereafter, although pregnancy is still not impossible, it is so unlikely as to be unworthy of practical consideration. It is then up to each patient to decide whether she is willing to take what amounts to the slight risk involved in abandoning contraception at the present time.

Some published cases of post-menopausal pregnancy, and the question of contraception and the menopause, were referred to in answers published in the *Journal* (Dec. 11, 1943, p. 771, and

June 30, 1945, p. 933). These might be consulted. According to the Registrar-General's Statistical Review for England and Wales for 1940, 24,793 "maternities" were credited to women aged 40-44, 2,203 to women aged 45-49, and 18 to women of 50 and over. We do not know, however, whether these women had ceased menstruating or not. About 0.3% of births in England and Wales, Scotland, Australia, and New Zealand are in women aged 45 and over.

Flatulence and Auricular Fibrillation

Q.—At the age of 75 I have auricular fibrillation and at night I suffer from flatulence, lasting one to two hours and relieved often by a mixture of alkalis. When walking, say 20 to 50 yards (18 to 45 m.), I get flatulence, and have to stop for one or two minutes. I very seldom have anginal pains. Can you explain the correlation between flatulence and the cardiac condition?

A.—Flatulence is a common symptom in disorders of the heart. This is specially true of syndromes due to deficiency in the coronary supply, such as coronary thrombosis. In general, patients are unable to distinguish sternal oppression from true dyspeptic symptoms; what is taken to be flatulence often leads to attempts to eructate, which aggravates the symptoms. Flatulence related to exertion is probably of coronary origin and is the counterpart of anginal pain; this symptom should, therefore, be treated by preparations designed to relax coronary spasm and promote the coronary circulation. In the present case the occasional anginal pains indicate that there is at least a coronary element in the whole syndrome. It is suggested that this patient should take tab. trinitrin, gr. 1/100 (0.65 mg.), allowing it to dissolve under the tongue a few minutes before starting walking. If it is effective in preventing the onset of flatulence on exertion, it might be taken six or more times daily in the same manner. For the prevention of nocturnal flatulence, trinitrin might be tried on retiring, or, alternatively, a simple mixture of chloral hydrate with bromide, gr. 10 (0.65 g.) of each. Trinitrin might be employed also for the relief of nocturnal attacks. Should these methods fail to relieve the flatulence some carminative may be given, such as peppermint water 3ss (14 c.cm.); if sodium bicarbonate gr. 30 (2 g.) is added to this, gas is produced in the stomach; this evokes the desire to belch, and once the gas is expelled from the stomach the sensation of flatulence is likely to disappear.

INCOME TAX

Travelling Expenses and Cost of Shelter

C. P. asks can a claim be made for (a) the cost of visiting an infant welfare centre 20 miles from home, and (b) the use from time to time for professional purposes of an air-raid shelter which cost over £100.

. (a) If, as would seem to be the case, the work at the Centre is carried out as a separate appointment unconnected with the general practice of C. P.'s husband, the answer is "No." (b) No part of the cost of the shelter can be claimed, as that ranks as capital outlay and not as a current expense. So far as annual expenses are concerned the rule with regard to the use of premises for professional purposes is that a proportion of the annual value as assessed to income tax can be allowed. But if, as is assumed, no increase was made in the assessment of the main premises because of the erection of the shelter, C. P. cannot establish that any tax is being paid on the annual value of the shelter and no claim would be competent.

Appointment: Travelling Expenses

H. S. is in practice and sees patients at his residence and elsewhere. He also acts as chairman of a Medical Recruiting Board and incurs expense in travelling from his residence to the place of meeting. Can he claim these expenses as a deduction?

. The expense is not deductible under Schedule E, and the only way in which H. S. appears able to obtain any relief in respect of the cost of travelling is for the remuneration in question to be included in his general earnings for assessment under Schedule D and not assessed separately under Schedule E. Whether the authorities will consent to that arrangement we cannot say, but H. S. may be advised to make such a request through the local inspector of taxes.

Cost of Fitting Out Laboratory

F. H. S. has spent between £50 and £100 on fitting out a laboratory for research work from which he gets no financial return. Can he recover tax on this amount?

. No. In the first place the expenditure is in the nature of capital outlay, and, in the second place, as no financial return is expected the expenditure was not "money wholly and exclusively laid out for the purposes of the profession" in the sense in which those words would probably be construed by the court.

LETTERS, NOTES, ETC.

Surface-marking the Lower Border of the Liver

Mr. L. R. C. AGNEW (Glasgow) writes: In his letter (Dec. 29, p. 941) Capt. R. P. Gillespie mentioned an auscultatory method, new to him, for defining the lower border of the liver. It may be of interest to note that a similar method, so-called "auscultatory percussion," has been used for defining cardiac surface-markings. The stethoscope chest-piece is placed on the sternum just proximal to the xiphoid process. A forefinger is now made to scratch the skin surface from the posterior axillary line to the relevant border of the heart. A sudden increase in intensity and clarity of the hitherto muffled sound of scratching proclaims that the cardiac border has been reached. Repetition of this process from varying points on the thoracic skin enables the entire area of cardiac dullness to be ascertained. Similarly, by vertically scratching the right side of the abdomen the liver border may also be mapped out. Capt. Gillespie seems correct in his surmise that this method for surface-marking the liver finds no place in clinical teaching. I am within six months of the Final M.B. examination and have never heard of it in lectures or seen it mentioned in current British textbooks. Auscultatory percussion of the heart is, however, mentioned in Major's *Physical Diagnosis* (1944, p. 198) and other American works. In obese subjects especially I have found the test of value, both for heart and liver surface anatomy, but have usually used it to confirm clinical findings based on the traditional methods of palpation, percussion, and auscultation.

Surg. Lieut. M. B. CARSON, R.N.V.R. (Stevnage), writes: With reference to his letter dealing with the surface-marking of the lower border of the liver, Capt. R. P. Gillespie is mistaken in supposing that the method he describes indicates the lower hepatic margin. The "loud rubbing noise" is only obtained while the stroking finger is passing over the region of the stomach and ceases when the limits of that organ are reached. This method was taught me as a student as a rapid means of obtaining a rough idea of the size of the stomach, and, so far as I am aware, is not of Russian or Polish origin.

Dr. HILDA M. DENHOLM-YOUNG (Farningham, Kent) writes: With reference to Capt. R. P. Gillespie's letter, the auscultatory method is not the monopoly of Russians and Poles, for it has been taught in Edinburgh for at least 16 years.

. And in a certain well-known London hospital the method was taught at least 20 years ago.—Ed., B.M.J.

Venereology

Lieut.-Col. HENRY RICHARDS, R.A.M.C., writes from the M.E.F.: Due to the mail's delays a copy of the *Journal* for Oct. 20, 1945, reached me yesterday. I cannot agree with Brig. T. E. Osmond (p. 556) that the term "venereologist" has supplanted "dermatologist." We yet have specialists in dermatology in the Services, and the Dermatological Section of the Royal Society of Medicine still flourishes. The ophthalmologist and the laryngologist instanced by Brig. Osmond do make a study of the eye and the larynx respectively. The specialist in venereal diseases does not necessarily make a study of venery. This is my objection to the term "venereologist." Nor do I agree that by being destructive my criticism is thereby valueless. If my car is not running well it is my job to point this out, but I call on an expert to diagnose and remedy the defect. My letter drew attention to what I regard as a defect in medical terminology. That it was not altogether without value is proved by the erudite, if light-hearted, intervention of Dr. Robert Cook (Nov. 3, p. 634).

R.A.M.C.T.A. Reunions

Lieut.-Col. J. N. GROVES, D.S.O., R.A.M.C., writes from 11 Charmouth Road, St. Albans, Herts: Will all old T.A. R.A.M.C. officers please note that there is a social evening on the first Friday of every month at 7 p.m. at the Central Mess of the Duke of York's Headquarters, Chelsea. The 140 County of London Field Ambulance have already formed an Old Comrades Association for all pre-war and wartime members. It is desired to make this a general meeting place of all officers and other ranks of 140 Field Ambulance, 13th London G.H. 141 Field Ambulance, the 8th Field Hygiene Section and any affiliated units. Many old faces were there on Jan. 4.

Obstetric Instruments Wanted

Dr. STEFFAN LASKI, of the Polish Forces, Camis Esquin Camp Helensburgh, nr. Glasgow, writes: Forgive me please my asking you to help me to get an obstetric instrument set. The condition in Poland require to do the obstetric operations in patients' lodgings; because of the war I lost my set in Poland and all my effort to get another set in Great Britain were unsuccessful. The shopkeepers answer it is impossible to get now even a new midwife forceps, so I intended to ask you kindly to help me to buy a set I can pay any reasonable price. Can any reader help?

BRITISH MEDICAL JOURNAL

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SOCIAL MEDICINE*

By

MAJOR GREENWOOD, D.Sc., F.R.C.P., F.R.S.

Professor Emeritus of Epidemiology and Vital Statistics in the University of London

A professional statistician is, if a sexagenarian, a cautious prophet; but I do not risk much in prophesying that a majority of you will become general practitioners, *doctors*, that is why I have taken for my subject what we call Social Medicine and the Germans call Social Hygiene. What Prof. John Ryle (1943), now at Oxford, means by Social Medicine is precisely what the late Prof. Alfred Grotjahn (1923, 1932) of Berlin meant by Social Hygiene—viz., the effects, good and bad, on the health of human beings of their nature and nurture, *all* their nature and nurture, not some items of it. We reject the word "hygiene" because—whether logically or not—to English men and women hygiene does always suggest either the statutory duties of a medical officer of health or, on a lower plane—and, after all, we are not always on mountains—various useful objects of commerce, for some of which we have to queue, filters and other things. Grotjahn rejected the word "medicine" because in German professional circles social medicine suggested sometimes what we call professional ethics and, oftener, the technical and administrative problems of health insurance. I do not think I need enlarge upon the obvious—namely, spin sentences expounding the truism that doctors, who are trying to help human creatures, cannot succeed unless they are interested in people. That is obvious.

There is a story, so old that it may be new to some of you, of Thomas Sydenham, when asked by a pupil what books he should read, replying, "Read *Don Quixote*—it is a very good book; I read it still." Learned men have discussed what he meant by that. Dr. Johnson actually said:

"The perverseness of mankind makes it often mischievous in men of eminence to give way to merriment. The idle and the illiterate will long shelter themselves under this foolish apophthegm."

With apologies to the formidable shade of Samuel Johnson, I suggest that it was not Sydenham who was talking foolishly. Two hundred years later a wise physician whose name you will now before you sit your finals, H. G. Sutton, said in the preface to a course of lectures on Medical Pathology (I must trust to memory, for I have no copy): "You will see I often quote Shakespeare; he understood human nature." Sydenham had the same opinion of Cervantes. This is obvious but not very helpful. Granted that the good doctor must understand human beings, how is one to compass understanding? Reading Cervantes and Shakespeare is not enough. I think we may learn something from the successes and failures of the apostles of Social Medicine; that is why I am going to take some of your time in telling the story of an apostle whose name is almost certainly unknown to you and whose voluminous works you are unlikely ever to read—Alfred Grotjahn (1869–1931), the first and, for all I know, last Professor of Social Hygiene in the University of Berlin.

Alfred Grotjahn's father was a busy country doctor, and his on was "up against it" from the beginning. Seventy years go the enuresis nocturna of nervous children was treated, even in a doctor's family, drastically—with flogging, confinement to the cellar, and the throwing of pails of cold water over the patient's naked body, memories of which recurred in dreams when he was a sexagenarian. The curriculum of a classical

Gymnasium (Grotjahn's account of which suggests an exaggerated parody of a British public school a hundred years ago—not the intellectual paradise which Matthew Arnold described) was thoroughly uncongenial, and its vicium remained at school until he was 21, when he succeeded in passing the arbitrary examination; and, as he tells us, he acquired in all these years of study no real knowledge of the classical or any other foreign languages, or of mathematics. He never did master any foreign languages; he could in later life read English and French fairly well (*leidlich*), but neither speak them nor understand them when spoken.

By the time he had attained the comparative freedom of a medical student Alfred Grotjahn knew a good deal about human suffering and frustration from personal experience, not being a merely selfish introvert, but a big if not great man, it led him to feel for others and set about helping them. He became a socialist and attended academic lectures on economic. In England in the early eighteen-nineties a diligent medical student could qualify in four years. Grotjahn took six, and in 1896, at the age of 27, set up in general practice in Berlin. He earned his living as a general practitioner for more than twenty years but already, in 1896, his ambition was to devote himself to social medicine and he published the first of his many books in 1898. It was a treatise on the social pathology of alcoholism, and he gradually attracted attention in academic circles. The then famous economist Gustav Schmoller, whose pupil he became and of whom he speaks with affectionate reverence in the autobiography part of which I am summarizing, thought well of him and tried to obtain his habilitation. The first attempt was unsuccessful, Grotjahn, like most psychological left-handers, inspired both affection and dislike, the famous Rubner was not one of his admirers, and Rubner was very powerful, but at last, in 1912, Grotjahn was habilitated as titular professor of social hygiene with a trifling salary and a couple of rooms on the top floor of the University Institute of Hygiene. He was now a man of 43, author of many books and papers, editor of a *Zeitschrift*, and still earning his living in general medical practice. After the war, in 1920, he became a full professor with a, theoretically, adequate salary. For three years, 1921–4, he combined his academic duties with those of membership of the Reichstag, found them, of course, hopelessly incompatible, and for the last seven years of his life devoted himself wholly to social medicine. This bald summary cannot bring home to you the intense activity of Grotjahn's life, his scientific literary output was great, but in addition he was an active promoter of social reforms and took pains to acquire the technique of committee work, parliamentary drafting, and much besides. In journals he would be called an eminent publicist and an eminent scientist. Also, he was a busy doctor. I will add—whether it will move your pity or your admiration I do not know—he did not smoke, drink neither alcohol nor coffee, ate no flesh food, and never permitted anybody to clean his boots, dust his books, or render him any personal service.

The easiest way to understand the strength and perhaps the weakness of Grotjahn's concept of social hygiene—our social medicine—is to read his textbook, *Soziale Pathologie* (third edition, Berlin, 1923): a sample would be his account of the social pathology of tuberculosis. In the most popular textbook

* A paper read to the Cambridge University Medical Society on

social pathology of tuberculosis was not overlooked. In the eighth edition (this was a decade later than the edition of my undergraduate days, but not, I think, fundamentally altered) one has a statistical paragraph in which "improved social condition of the people, better housing, better food, better habits" are regarded as the most important factors of a declining death rate. Nearly two pages are given to environmental and hereditary influences: "Exposure to dust, close confinement, long irregular hours and low rates of wages favour the prevalence of the disease." The popular medical textbooks of this generation—at least those I have examined—say no more, indeed rather less. Grotjahn's chapter on tuberculosis is a systematic expansion of such hints. The relation between poverty, housing, and occupation on the one hand, and higher or lower mortality from tuberculosis on the other, is illustrated on (mainly German) statistics.

We find an account of the cost, not only in mortality but also in days of sickness, for which purpose German data are peculiarly valuable because of the longer history of State health insurance in Germany. Even now, after a generation of State health insurance, there is no generally available British analysis of morbidity in occupations so good as was published in Germany with respect to the Leipzig area more than a generation ago.

Grotjahn did not let his readers lose sight of the interaction of social-economic factors, and was one of the first medical teachers to stress the folly of supposing that sanatorium treatment alone could be a panacea for a social evil.

To advocate the segregation of patients with open tuberculosis without having made adequate provision for their dependants during the treatment and for the patient's employment after "cure" is just as fatuous as the advice of the mythical physician to a phthisical charwoman that she should winter in the Riviera. To young people in 1945 this is obvious; many clever people, young and old, did not see it 30 years ago. The problem of communal health, like that of peace, is indivisible. Grotjahn was a stimulating teacher who did see the problem of social medicine as a whole. Like other men, great or small, he had weaknesses, and, as it is much easier to copy the faults of a great man than to acquire his virtues, it is not ungenerous to inquire what they were.

I have mentioned that Grotjahn obtained academic recognition very slowly. No doubt this was partly due to political heterodoxy, partly to academic trade-unionism—the professional academic sometimes resents the intrusion of amateurs—but there may have been less petty motives. Both in his *Soziale Pathologie* and in his autobiography Grotjahn speaks of the importance of medical statistics:

"Without being myself a statistician or, through lack of the indispensable mathematical ability, being able to become one, I was, from the beginning, convinced that medical statistics must be regarded as the basis of social-pathological and social-hygienic study and therefore needed the most careful cultivation. At that time the victorious march of bacteriology had relegated medical statistics to the background. In hygienic circles then it was quite generally believed that the nature of great epidemics could be sufficiently explained on purely bacteriological lines. It was not necessary to rob bacteriology of a single leaf of her garland in order to have to reckon with strong distaste in medical circles if one, as I did, in season and out of season, insisted that this view was erroneous and that a quantitative study of the theory of epidemics was as indispensable as before the bacteriological era. Since then this view has made its own way, and now medical statistics have the hope of attracting more general interest. Unfortunately, my high appreciation of statistics has never led me to do any really scientific work in their field, for I lacked the indispensable minimum of mathematical ability"—*Erlebtes und Erstrebtes*, p. 128.

In this passage there is some self-deception. It is true that no one without a natural gift for mathematical reasoning and thorough mathematical training is likely to make a first-rate contribution to the theory of statistical technique, but any man of common ability can, if he gives himself time, acquire a competent knowledge of modern vital-statistical methods, and Grotjahn was a man of more than common ability. Grotjahn would not give himself time, and persuaded himself that he could do without the knowledge.

He could do this easily because he was much more interested in studying people than in reading about them. Speaking of

the tours organized by the Health Committee of the League of Nations, he wrote:

"I took every opportunity of leaving the official hygienic caravan to take an uncondemned stroll through the working-class district of the town we were visiting. Observations made in this way tell one more about the real hygienic level of a population than the inspection of selected hospitals and institutions made to look pretty beforehand. One must watch the little children in the streets and courts of the poor districts, look at school-children as they enter and leave the school buildings with an eye to their state of health, stroll attentively through the courts and alleys, have an eye on the country folk coming to market and assess their physical quality. I am accustomed never to enter or leave a railway station outside Berlin without spending a few minutes in the waiting-rooms of lower railway classes and looking at the people there. Ten minutes in the third-class waiting-room at Copenhagen and ten minutes in the corresponding place at Belgrade give one a better idea of the differences in cultural levels within this little Europe than thick books. Anybody who has given his attention to this can soon, make instructive comparisons, and receive impressions not to be had from reports, descriptions, and statistical tables."—*Erlebtes und Erstrebtes*, p. 266.

A principal interest of my life for over forty years has been the study of medical statistical tables; that, however, does not prevent me from saying that what I have just quoted is profoundly true and adding that no one should be a doctor at all who is not, like Grotjahn, more interested in human beings than statistical tables, laboratory experiments, or even the science of medicine. Nobody without an interest in living people, just as people, will add much to social medicine. But although the chariot of the soul cannot move at all without the horses of emotion, it may come to grief if the charioteer—reason—cannot guide the horses. One may misinterpret what one sees in the third-class waiting-room. Sometimes Grotjahn was mistaken. Here is a trivial but instructive example.

Grotjahn, like many social reformers, distrusted prophylactics generally advocated by any majority, medical or lay. There are two reasons for this bias. Pioneers are in a minority and apt to assume that what is generally believed is false; they also fear that if the public think disease can be prevented by so relatively cheap a method as inoculation the public will not insist on more fundamental and costly reforms. It is much cheaper in money to vaccinate a slum population than to rehouse them. So Grotjahn was suspicious of orthodox arguments in support of vaccination against smallpox, particularly of deductions from the experience of the German Army. He used counter-arguments similar to those of Creighton—that the severity of the disease varied, that it had declined in countries where vaccination was not compulsory, etc.—and remarked that in modern times the accuracy of the records was greater than in the past, when cases of measles, scarlet fever, and chicken-pox may have been included in the statistics. So far so good, but he added to his criticism this footnote:

"In 24 of the States of North America with 64 million inhabitants, in the first six months of 1921, 18,374 cases of smallpox were notified without a single death, and in the previous period 16,311 with one fatal case were notified. This fatality of 1 in 34,000 is only intelligible if one supposes that not all the cases were of genuine smallpox—at any rate, that chicken-pox was included. If such smallpox statistics are published and reported on in 1922, how many cases of illness may have been incorrectly included in earlier times?"—*Soziale Pathologie*, p. 25.

Quite apart from the fact that in earlier times the fatality of smallpox, as recorded, was high, this criticism of the American statistics (which could equally have been applied to our own) wholly ignores one of the most interesting epidemiological events of our own time—viz., the emergence of a variety of smallpox, sometimes called alastrim, in which the physical signs of severe "classical" smallpox were widespread but the patients did not die. It is now well known, through the flocculation test (see Craigie and Tulloch, 1931), that dermal material from patients gave positive reactions whether the clinical disease were "classical" smallpox or alastrim, but varicella crusts did not. In other words, Grotjahn's condemnation of the American statistics was ill founded. He had not himself had any practical experience of the variant which has a local interest for Cambridge men (Copeman, 1920), and his knowledge of epidemiological literature was not deep.

I do not pause upon these petty weaknesses of a faithful servant of humanity to depreciate him but to warn ourselves.

To the *Forscher* of a German university a generation ago, to a man like Rubner, Grotjahn would have seemed no *Forscher* at all, but, in our jargonese, a publicist, using the researches of others, not himself making discoveries, and speaking contemptuously of techniques he had not mastered. An unjust and incomplete statement indeed, but not without a tiny kernel of truth. If we came to think of social medicine as wholly a matter of feeling and intuition, came to speak contemptuously of "mere" laboratory science, of "mere" technique, we should fail. The rejoinder of the "mere" technician is crushing. He does understand his technique, he does make discoveries; do you? If our hopes for the future are even partly realized doctors will not be so isolated as they have been: they will have opportunities of pooling their experience at a lower level than, say, the General Register Office.

Just as most people at some time in their lives have started to keep diaries, many doctors have begun to keep case books and records. Few diarists continue for years, and perhaps not many doctors persevere. There are excellent reasons: one grows busy and has no clerical help. That is where *real* health centres are important. Those who would like to do medical-statistical or social research are deterred by the thought that their experience is limited: while Government "experts" have hundreds of thousands of data, they only have tens or hundreds. The fear is groundless. Paucity of data is partly compensated by the intimate knowledge of him to whom these data are records, reminders, of living human creatures he has known intimately. The paucity itself will be compensated, the tens and hundreds of records become thousands if doctors work together; the group must not, however, be so large that intimate knowledge of the material is lost. The doctors must work up their own material. Of course, I do not mean that a doctor must not seek technical advice: it would be silly to rush to the opposite extreme and proclaim that his intimate knowledge of the facts puts him above the reach of those vagaries of chance which "mere" statisticians emphasize. The doctor who makes neither too little nor too much of technique is the salt of the earth. It is futile to assign an order of precedence in scientific merit—like debating who was the greatest poet in history. But if I had to choose the best contribution to statistical epidemiology made in England during the last ten years I should pass over the officials and professors and cite *Epidemiology in Country Practice*, by Dr. W. N. Pickles (1939), a country doctor. Dr. Pickles knew and cared for the people the records of whom were his statistics. He made discoveries which eluded officials and professors whose material was just cards.

It is a very long time since research on that level has been done by town doctors. This is a model for research in social medicine.

A novelist who wrote a "best seller" fifty years ago, Miss Beatrice Harraden, has a pretty fable of a traveller in quest of the Ideal, the temple of which, he believed, was to be found on the summit of an almost unscalable mountain. After years of toil he discovered that the temple was not there at all, but down in the place from which he came—a building in which he had played as a child. You, I am sure, whose most impressionable years have been lived in this noble seat of higher learning and research, have been thrilled by the thought, the aspiration, that you too might be research workers. Do not forget there is a research laboratory greater even than the Cavendish: the streets, the homes, the factories in which common people pass their lives. There is the laboratory of him who adds to our knowledge of social medicine. Great discoveries are waiting to be made by doctors who, in the words of the Book of Common Prayer, are in love and charity with their neighbours and intend to lead a new life, if by that one may mean intend to master those tools of social research of which statistics—real statistics—and psychology are not the only ones but among the most important.

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IRREGULAR HAEMAGGLUTININS AFTER TRANSFUSION

BY

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The development of irregular haemagglutinins, both as a result of iso-immunization in pregnancy and after repeated blood transfusions, is now well recognized, the familiar example being the immunization of the Rh-negative patient to an Rh-positive foetus or Rh-positive transfusion. During the past year, in an attempt to detect and identify such irregular agglutinins, we have made a systematic study of 100 patients receiving transfusions.

The Investigation

The majority of the patients were routine admissions to the medical wards, but as one of the wards is associated with a research department a relatively high proportion of them suffered from blood diseases requiring repeated transfusions. Seven patients from non-medical wards were also investigated, either because they had shown a transfusion reaction or because they were known to be Rh-negative. In all there were 37 cases of haematemesis, 14 of ulcerative colitis, 31 blood dyscrasias, 7 of which were cases of aplastic anaemia; 4 were healthy volunteers who were being bled and transfused for red cell survival experiments. The remaining 14 suffered from various conditions such as battle injuries, sepsis, and menorrhagia. There were 52 women and 48 men in the series.

Methods.—The patients' ABO group and Rh group were determined, if possible before transfusion. The results of Rh grouping after transfusions were uncertain, owing to admixture with transfused cells. This was particularly so in the patients with aplastic anaemia, who were existing practically entirely on transfused blood. Samples of the donor cells were also typed for Rh in most instances. Each patient was questioned

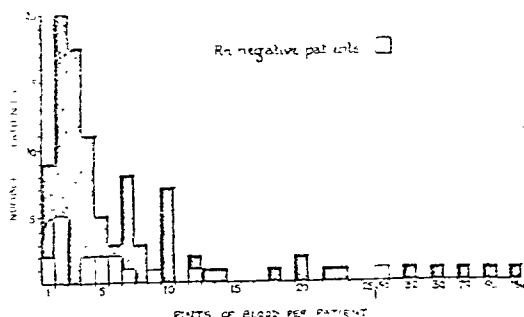


FIG. 1.—Distribution of 958 pints (544 l.) of blood in the series of 100 patients.

about previous transfusions, and an obstetrical history was taken from the women. A note was made of any reaction to transfusion. Samples of blood were taken 10 to 14 days after transfusion, allowed to clot at 37° C., and the serum separated. Each serum was set up in serial dilutions against the patients' own cells and a panel of cells of known ABO, M, N, P, and Rh types. By including always examples of Rh, (CD₅), Rh, (cDE), and rh (cde) it is possible to cover all the six Rh antigens included in Fisher's scheme (Race, 1944). As A, individuals may occasionally develop a, in response to transfusion with A, cells (Wiener, 1941) we included A, cells in the panel in dealing with Group A patients. The investigations were made at 37° C., room temperature, and 4° C. The serum of any patient who had shown a reaction to transfusion or an inadequate rise of haemoglobin was, if possible, re-examined at a later date. Serum from other patients—e.g., those suffering from aplastic anaemia—was examined on several occasions in association with the repeated transfusions. The 100 patients between them received the equivalent of a total of 958 pints (544 l.) of

blood (including transfusions in the past), of which 609 pints (346 l.) were given during the period of the present observations. Most of the transfused blood was in the form of packed cells, the plasma being removed just before transfusion. The amounts received by each patient in equivalent pints of blood are indicated in Fig. 1.

Blood Groups.—Except in 11 cases where red blood cell survival experiments were carried out by giving Group O blood to Group A or B patients, the blood used was all of homologous ABO group. In accordance with the usual practice, however, no attempt was made to secure blood of the same Rh type. Seventeen patients were Rh-negative; these all received some Rh-positive blood. Fifty-eight of the remainder were grouped before transfusion and were Rh-positive; a proportion of these received Rh-negative blood. The other 25 were not grouped until after transfusion, but appeared to be positive. Apart from two patients from non-medical wards, who were included because they were known to be Rh-negative, the material was unselected with regard to Rh types. Discounting these two, 15 out of 98 were Rh-negative, which is the expected number, and the likelihood of errors in grouping having been made after transfusion is therefore not great.

Obstetrical History.—Of the 52 women 12 had had one or more stillbirths, miscarriages, or neonatal deaths, but only one had a history really suggestive of associated haemolytic disease—viz., first infant dead of jaundice at 16 days, 23 years before, then three normal children, then a miscarriage, and finally a child dead with anaemia at 14 days, 11 years before. She was Group B Rh-positive and had a mild transfusion reaction, but no antibody could be demonstrated in her serum.

Reactions.—Thirty-nine of the patients had a reaction with one or more of their transfusions or had a history of reaction in the past. Six of these were Rh-negative—i.e., Rh-negatives were not unduly frequent among the patients showing reactions. It is difficult to get an accurate record of the reaction rate in relation to the number of pints of blood, for where large transfusions have been given reactions may have been due to more than one of the donors used. So far as could be ascertained, however, there were 39 reactions in the 609 pints (346 l.) given during the period of observation, and 90 reactions in the total of 958 pints (544 l.) (Table I). The 90 include 29 in one patient (Case III, below). This same patient had only three reactions during the recent period, and she is largely responsible for the higher reaction rate in the total number of 958.

TABLE I.—Reactions in Relation to 958 Pints of Blood

Type of Reaction	No.
Slight rigor or rise of temperature	68
Severe rigors	5
Jaundice alone	3
Jaundice + some other signs of reaction (e.g., rigor or fever) ..	4
Jaundice + haemoglobinuria	1
Labial herpes	3
Diarrhoea	3
Urticaria	3

Results.—One might have expected to find irregular agglutinins in several of these patients, judging both from the frequency of reactions and from the very large number of transfusions received by some. Such agglutinins were, however, demonstrable in only two cases.

Case I

Mrs. M. S., aged 35. Inactive rheumatic carditis, severe hypochromic anaemia, and menorrhagia. No pregnancies. Group O Rh-negative (rh⁻). Transfused with 1 pint (568 c.cm.) of Group O blood, later shown to be Rh-positive (Rh,Rh₁). No reaction at the time of transfusion, but a rise of temperature to 102° F. the next day. Two weeks later no irregular agglutinin could be found, but on re-examination for hysterectomy six weeks after transfusion the transfusion officer (Dr. W. Ormerod) reported difficulty in cross-matching more blood. A strong anti-Rh agglutinin of the anti-Rh₁ (Δ + Γ Fisher) was subsequently identified in the serum.

Case II

Some details of this case have already been reported (Callender *et al.*, 1945). Miss F. M., aged 25. ? Lupus erythematosus diffusus. Has never been pregnant. Her illness is characterized by recurrent pyrexia, transient rashes, arthritis, and persistent anaemia, for which she has received nine transfusions from eight donors over a period

of a year. Her own group being O Rh-positive (Rh,Rh₁), she has developed four different irregular agglutinins: St (γ Fisher) reacting with all Rh-negative and Rh₁ bloods, and three new antibodies which we have called "anti-Lutheran," "anti-Willis," and "anti-Levy." None of these was naturally occurring, and they are active at 37° C.

The St (γ) was responsible for two transfusion reactions—namely, jaundice, appearing 6 days after transfusion of 2 pints (1.14 l.), both subsequently shown to be Rh-negative, and at a later date a severe haemolytic reaction with haemoglobinuria and jaundice. This reaction was due to blood which was identified later as Rh₁rh. "Anti-Lutheran" was initiated by the blood of one of the two Rh-negative donors, and it therefore may have been partly responsible for the first reaction. "Anti-Willis" was associated with two febrile reactions accompanied by a rigor, but the blood which stimulated "anti-Levy" gave no apparent reaction.

The following notes are included as a contrast to Cases I and II.

Case III

Miss O. T., aged 62. Chronic aplastic anaemia, myelosclerosis. Group O, Rh group undeterminable. First became anaemic in 1937. Between Oct., 1937, and Jan., 1938, received 10 transfusions. History of reaction with all of these. June, 1939, six transfusions—again reactions consisting of rigors and vomiting. First admitted to the Radcliffe Infirmary, Oxford, April, 1940. Twenty-four subsequent admissions up to May, 1945. During this time she has received transfusions on 33 occasions, being given 167 bottles of blood, mostly in the form of packed cells. From April, 1940, to May, 1944, she showed some form of reaction every time she was transfused. On four out of seven occasions since then she has had no reactions. In spite of reactions she has always shown an adequate rise of haemoglobin after transfusion. In 1942 difficulty was once found in cross-matching blood, slight microscopical agglutination occurring with all the Group O donors tested. This difficulty has not recurred, and repeated examinations for irregular agglutinins have been negative.

TABLE II.—Reactions in Case III; April, 1940, to May, 1945

	Type of Reaction	No.
Vomiting +	Slight febrile reaction	8
	Rigor	13
	Severe rigor with high fever	3
	Labial herpes	2
	Urticaria	1
	Diarrhoea	2

Cold Agglutinins.—We did not find any irregular agglutinins which were more active at temperatures below 37° C., but when looking for such antibodies we thought it worth while to record

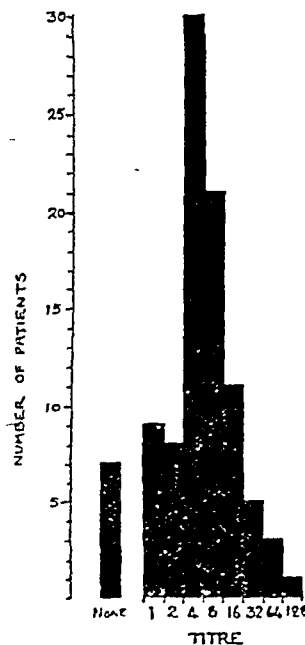


FIG. 2.—Titre of cold agglutinins in the sera of 95 patients

our findings in relation to the ordinary cold agglutinins. Cold agglutination was examined for microscopically, sediment being removed with as little disturbance as possible and the result being classified as for Rh grouping. The titres of cold agglutinin found in this way are shown in Fig. 2. In 5 cases the serum was

not examined for cold agglutinins; in only 7 out of 95 was none found. Every serum showing cold agglutination reacted with the respective patient's own cells as well as with those of others in the panel. No excessively high titres were noted. Among those showing a titre of 16 were three of the four healthy women volunteers who had been bled and transfused for red cell survival experiments. Taking this as an arbitrary limit of normal, only 9 showed a higher titre. Three of these patients had had haematemesis, one had a carcinoma of the colon, one was pregnant, one had a haemolytic anaemia, while the patient with the highest titre of cold agglutinin—i.e., 128—had leukaemia. No correlation between the titre of cold agglutinin and the number of transfusions given was noted either in the series in general or in patients whose serum was examined repeatedly in association with numerous transfusions. Fifteen patients had cold agglutinins which were also active at room temperature. In studying their sera more fully it was noted that the cells of one donor (M. S.) reacted over a wider thermal range than others in the panel. One serum (H. R.), while reacting with all bloods, including the patient's own cells, at 4° C., gave agglutination at room temperature with the cells of M. S. alone of the panel. The agglutination was present up to above 26° C. but disappeared entirely on warming to 37° C. Some 150 other bloods tested with this serum gave about 13° similar positive results at room temperature regardless of their ABO, M, N, P, or Rh types.

"Auto-agglutinins."—Two patients with haemolytic anaemia, one with an associated lymphatic leukaemia, showed auto-agglutination at 37° C., room temperature, and 4° C. The sera did not agglutinate any other than the patients' own cells at 37° C. In the blood of the leukaemic patient the agglutination of the cells was so strong that it was impossible to get an even cell suspension and to be sure of the results of Rh grouping. A similar difficulty has been reported by Reisner and Kalkstein (1942).

Discussion

Both the patients in this series who were shown to have developed irregular agglutinins present some unusual features. Mrs. M. S. demonstrates clearly the possibility of producing antibody of the Rh type after a single transfusion without previous sensitization by pregnancy. A theoretical danger is here suggested, for were she to have an Rh-positive child the infant would probably suffer from haemolytic disease, and would not escape as is usual for the firstborn. Fortunately, few people are so easily sensitized, or this would be a very real danger in giving transfusions to young women.

The other patient, Miss F. M., illustrates in the first place the possibility of immunizing an Rh-positive patient to the rh antigen. This is, of course, recognized in relation to certain instances of haemolytic disease of the newborn, but has not previously been found in response to transfusion alone. Furthermore, the development of four distinct agglutinins in response to transfusion appears to be unique. Wiener, Silverman, and Aronson (1942) have reported two cases of multiple immunization, and suggest that there exist "certain constitutionally susceptible individuals who can be easily sensitized." The findings in this series certainly bear this out. In contrast to Cases I and II, 10 of our patients received 20 pints (11.4 l.) or more of blood without developing evidence of intra-group incompatibility. One Rh-negative patient suffering from leukaemia had 30 pints (17 l.), and the patient (Miss O. T.) with aplastic anaemia has been given 184 pints (104.5 l.) over the past eight years.

With regard to the incidence of the development of irregular agglutinins, De Gowin (1945) in a series of 5,386 consecutive transfusions found 6 reactions which were attributable to Rh antigenicity. In two of these there had been previous iso-immunization by pregnancy. Young and Karihar (1945) in a series of nearly 1,000 transfusions found 5 reactions in 3 patients which were due to acquired sensitivity to the Rh factor. Two of these patients had certainly been immunized by previous pregnancies; the third may have been so, though the evidence was inconclusive. Ayer and Kammer (1944) found two irregular agglutinins in a series of 46 patients receiving 231 transfusions. In our series we have 5 antibodies demonstrable in 958 transfusions, but four of these were found in one patient.

For various reasons it seems very doubtful whether any of these series gives a true representation of the incidence of iso-immunization after transfusion. In the first place, agglutinins may be transient in their appearance and may thus escape detection if the sera have not been examined at the appropriate interval after transfusion. But the time of appearance is variable, and in some patients, as in Mrs. M. S., there may be considerable delay before agglutinins become evident. Here the antibody was detected only when the patient was readmitted six weeks after the original transfusion. In a case reported by Moloney (1945) anti-Rh was detected only on the 53rd day after transfusion, none having been found the previous week.

A further difficulty is the occasional development of the "incomplete" form of antibody (Race, 1944; Wiener, 1945), which not only fails to give agglutination but may inhibit or block the action of an agglutinin actually present. The new "Coombs test" should be of great value in investigating such cases (Coombs, Mourant, and Race, 1945).

In De Gowin's and Ayer and Kammer's series, only those patients who had transfusion reactions were investigated for the development of agglutinins. These are, of course, the patients in whom one is most likely to find such antibody, but the transfusion which stimulated the production of one of the new antibodies in our patient F. M. was unaccompanied by any suspicious reaction. This raises another point—namely, that new antibodies can be detected only if samples of the donor cells are available for setting up repeatedly against the respective recipients' sera. There are obvious practical difficulties in doing this on a large scale, and it was not attempted except in the case of F. M. The next best procedure is to set up the sera under test against a large panel of known cells and to investigate any discrepancies in the results. A second irregular agglutinin in the serum of F. M. was detected by this method at a time when the St (γ) was at its height.

Summary

Out of 100 patients transfused with 958 pints (544 l.) of blood two patients were shown to have developed irregular agglutinins.

One Rh-negative patient developed anti-Rh ($\Delta + \Gamma$ Fisher) after a single transfusion without previous iso-immunization by pregnancy.

One Rh-positive patient developed St (γ Fisher) and three new antibodies, all active at 37° C.

Cold agglutinins were found in the sera of 63 out of 95 patients examined, in titres of 1 to 128. In 15 of these the agglutinins were also active at room temperature.

In two patients an agglutinin was found which was active at 37° C. and reacted with the patients' own cells only.

We wish to thank Prof. L. J. Wits for his interest and advice, and Prof. D. F. Cappel and Dr. R. R. Race for help they have given, particularly in the investigation of Case II. We are grateful also to the blood transfusion officers for their co-operation and to the staff of the Radcliffe Infirmary, who have allowed us to study patients under their care.

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Lord Rushcliffe, chairman of the Nurses' Salaries Committee, the Mental Nurses Subcommittee (appointed in association with that committee), and the Midwives Salaries Committee, has sent a letter to Mr. Aneurin Bevan, the Minister of Health, regarding the review of salaries of mental nurses and of midwives which is now being undertaken. In order to dispel any doubts which might arise while this review is taking place, Lord Rushcliffe invited Mr. Bevan to make it clear that any increases recommended following this review will have effect from Jan. 1, 1946. This is the date on which the increases of salary recently announced for certain grades of nurses became effective. Lord Rushcliffe further intimated that the method adopted in applying these recent increases will also be proposed in the case of any increases decided on for mental nurses and midwives. In his reply Mr. Bevan has informed Lord Rushcliffe that he readily accepts these proposals.

CLINICAL DIAGNOSIS OF LUMBAR INTERVERTEBRAL DISK PROTRUSIONS

WITH INDICATIONS FOR THEIR OPERATIVE REMOVAL*

BY

JOHN E. A. O'CONNELL, M.S., F.R.C.S.

Posterior crural or sciatic and anterior crural pain are familiar symptoms. In the past the commonly accepted view has been that such pain results from an interstitial neuritis of the sciatic or anterior crural nerves, or that it is referred from lesions of the muscles, ligaments, and joints of the lower back. While the milder cases recover with a variety of treatments based on these aetiological hypotheses the results of such

Table indicating the Common Clinical Features of Lumbar Disk Protrusions and Emphasizing the Signs of Localizing Value

(Level of Disk Protrusion)	L5-S1	L4-L5	L3-L4
Extradural nerve related to protrusion	1st sacral	5th lumbar	4th lumbar
Site of pain	Posterior crural—sole and lateral margin of foot	Posterior crural—dorsum and medial margin of foot	Anterior crural—medial malleolus
Site of paraesthesiae	Sole of foot	Dorsum of foot	Subcutaneous surface of tibia
Spinal deformity	Lumbar lordosis diminished Scoliosis Flexion: gross reduction	Lumbar lordosis diminished Scoliosis Flexion: gross reduction	Lumbar lordosis diminished Scoliosis Flexion: slight reduction
Spinal mobility	Extension: slight reduction	Extension: slight reduction	Extension: ? reduction more severe than with lower lesions
Straight-leg-raising test	++	++	-(+)
Drop test	+	+	-
Femoral-nerve-stretch test	-	-(+)	++
Motor disturbance	Wasting and loss of tone in glutei, hamstrings, and calf. Weakness in hallux	Wasting and loss of tone in glutei, hamstrings, and calf. Weakness in hallux	Wasting, loss of tone, and weakness in quadriceps
Dermatome in which sensation may be diminished	S1	L5	L4
Reflex (Knee-, Ankle-)	++ -(+)	++ +-	-(+) ++

therapy have been disappointing in the more severely affected patients. During the last ten years much light has been shed on the aetiology of these crural pains by neurosurgeons, led by Mixter (Mixter and Barr, 1934; Mixter and Ayer, 1935)

probability if the leg pain is associated with a characteristic series of physical signs in the lumbar spine and affected lower limb (as indicated in the accompanying Table; see also Fig. 1)

Diagnosis

A variety of different lesions may occasionally give rise to the syndrome under discussion. However, experience suggests that all of these are much less common than lumbar intervertebral disk protrusions, and but three occur with any frequency. These are a tumour within the spinal canal, inflammatory or malignant disease of the spinal column (the former usually tuberculous and the latter metastatic), and spondylolisthesis. Clinical examination alone will not infrequently suggest the presence of one of these three much less common causes of lower-limb pain, but accessory methods of investigation may be required. In the first place radiography of the lumbar spine must never be omitted, and will demonstrate the presence of spondylolisthesis or vertebral disease. Further, it may show changes suggestive of the presence of an intraspinal neoplasm, and will sometimes demonstrate the existence and the level of an intervertebral disk protrusion. The latter is revealed by narrowing of an intervertebral interval and perhaps localized osteo-arthritic changes at this level. Secondly, lumbar puncture with manometry and examination of the cerebrospinal fluid may be helpful if the presence of a neoplasm is suspected, since such a lesion is much more likely to be associated with a subarachnoid block than is the usual type of disk protrusion. This is due to the fact that most lumbar intervertebral disk protrusions occupy a relatively small proportion of the spinal canal and therefore interfere little with the passage of cerebrospinal fluid to and from the sacral cul-de-sac. On the other hand, by the time a tumour lying among the roots of the cauda equina is of sufficient size to give rise to well-marked symptoms it will usually have produced a subarachnoid block—often a complete one. Thirdly, myelography with oxygen or some radio-opaque material may be required. This can certainly be helpful in atypical cases, but in the present series the procedure has been employed with diminishing frequency as experience has increased. That myelography does not necessarily lead to more accurate diagnosis is shown by the following figures. Of 39 explorations on the basis of positive myelographic findings 6 (15%) proved negative, while of 201 explorations carried out without previous myelography 7 (3.5%) were negative.

Thus it is believed that in the majority of cases the existence of a lumbar intervertebral disk protrusion can be discovered by clinical examination alone, radiography of the lumbar spine being the only accessory method of examination used as a routine. Further, it is considered that careful clinical examination will not infrequently provide evidence which allows of the location of the level of the affected disk. This belief is based upon the observation that a disk protrusion of the usual type is related to one extradural intraspinal nerve only and the theory that the majority of the symptoms and signs depend on this relationship. The clinical picture resulting from the protrusion will vary according to the particular extradural nerve affected. In the Table the clinical findings in protrusions of the last three lumbar disks are contrasted. In this table it is not intended to suggest that such clinical findings will invariably direct one to the correct level, but simply to indicate that clinical examination gives considerable assistance in locating the affected disk. Should the level first explored at operation be normal a second level compatible with the clinical picture can be readily exposed. With the modern operative technique, which necessitates the removal of only a small part of one lamina to expose an intervertebral disk, there is little disadvantage in the exposure of two disks if it appears to be indicated.

An Essential Difference

Before considering the indications for operation in these cases it is important to emphasize the essential difference between an intraspinal neoplasm and the usual type of intervertebral disk protrusion. A neoplasm gives rise to progressively increasing compression of surrounding nervous tissue. A mass of disk tissue, when it protrudes into the lumbar spinal canal, usually occupies but a small part of this canal. The dural theca will usually be slightly displaced and deformed, but it

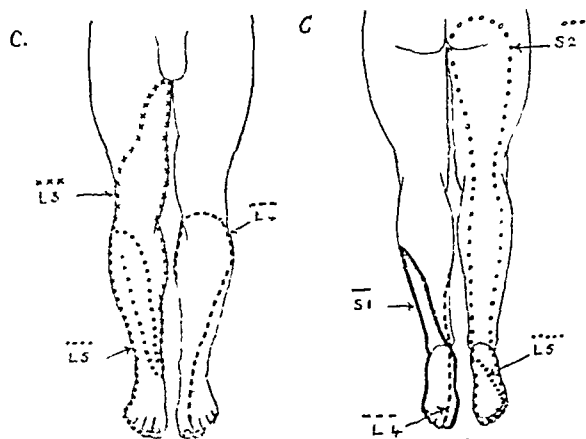


FIG. 1—Showing extent and position of certain lumbar and sacral dermatomes (after Foerster)

evidence has gradually accumulated to suggest that, at least when the symptoms are severe, by far their commonest cause is a lumbar intervertebral disk protrusion. The presence of anterior crural or sciatic pain should therefore immediately suggest the possibility that a protrusion of a lumbar intervertebral disk has occurred. This possibility becomes a

* A paper given at a meeting of the British Orthopaedic Association in June, 1945.

contained nerve roots will rarely suffer as a result. On the other hand, the single extradural intraspinal nerve which is related to the protrusion can be displaced to a limited extent only because of its attachments—proximally to the dura and distally to the limb plexus to which the nerve passes. When the limit of possible displacement is reached the nerve will be stretched over the mass of displaced disk tissue. Were it not for its relatively fixed position in the antero-lateral part of the spinal canal the extradural nerve would be displaced like the dural theca and a protrusion of ordinary size would be almost symptomless so far as the lower limb is concerned. It is thus believed that the severity of the patient's symptoms is closely related to the degree of tension in the affected extradural nerve. With the passage of time after the occurrence of a protrusion several factors probably tend to bring about a reduction of tension in this nerve and thus a spontaneous diminution in the symptoms due to tension. The nerve may elongate before the stretching force and thus become less tense. With the passage of time the protrusion frequently tends to diminish in size and in this way the stretching force will be diminished. In cases in which the protrusion has perforated the posterior longitudinal ligament such diminution in size may be due to the loss of fluid from the protrusion—so that in time it may be converted into a low calcified ridge. When the posterior longitudinal ligament is intact it seems likely that with the patient in the horizontal position the bulge of disk tissue may be withdrawn to some extent into the intervertebral interval which previously contained it. Again, a change in relationship of protrusion and extradural nerve may bring relief—the nerve slipping from a position of tension on the summit of the protrusion to one of relaxation in a trough to either side. Here then are possible explanations of the spontaneous improvement in or even disappearance of symptoms which frequently occurs in the presence of protrusion of a lumbar intervertebral disk.

It must be admitted that when a patient's symptoms disappear spontaneously and operation is therefore unnecessary, it cannot be stated with absolute certainty that an intervertebral disk protrusion was responsible for the pain. However, there is much to suggest that the same lesion is responsible whether the pain be persistent or of short duration. Many cases in which the presence of an intervertebral disk protrusion is eventually confirmed by operation give a history of recurring attacks of pain separated by intervals of freedom. Moreover, in both groups the history and physical signs are identical. Finally, as has been indicated above, there are a number of reasons why pain due to an intervertebral disk protrusion may diminish spontaneously. It is thus believed that spontaneous recovery does occur in the presence of a lumbar intervertebral disk protrusion and, further, that it is a frequent occurrence. In the neurosurgical department in which the series of patients now under discussion were treated probably less than one patient in every three referred because of low back and crural pain is submitted to operation. Each patient must receive careful study, and operation must not be based on the reasoning that because a patient has low back and crural pain he therefore has a lumbar intervertebral disk protrusion and it should be removed. Moreover, an operation which has not been preceded by adequate study may require a wide exposure and inflict unnecessary trauma or indeed it may be performed uselessly and harmfully in the presence of some lesion other than a disk protrusion—such as, for example, a neurofibroma arising from one of the nerve roots of the cauda equina. A final reason for careful and complete examination of these patients is the advancement of knowledge which will result. Thus a better understanding of this large group of patients will be attained, and incidentally the development and disappearance of neurological disturbances due to nerve root lesions of varying degrees of severity can be studied.

Indications for Operation

The indications for excision of the intervertebral disk protrusion in these cases will now be considered. In some patients the need for operation is obvious. The pain may be intensely severe though of short duration (e.g., two months), or it may be less severe but have caused long-standing disability. At the other extreme there are patients with pain so mild or of such short duration that nothing more is necessary than to explain the

natural tendency to spontaneous recovery. It is in the case with symptoms intermediate in severity between the two of these two groups that careful judgment is required in selecting patients for surgery. Three aspects must be considered—the severity and duration of the symptoms, the severity of the neurological signs and the severity of the tension signs.

The first consideration is therefore the patient's estimate of the severity of his symptoms. This has obvious importance but is rarely enough in itself to indicate operation if not supported by physical signs. As is true in the treatment of other chronic pains, so also in crural pain it is desirable that one should submit to operation patients whose capacity to bear pain is markedly subnormal and also those who, for various reasons, may be exaggerating mild symptoms. The duration of the pain is important too. It is only in rare cases that operation has been performed for pain of less than three months' duration, and then only when it has been extremely severe. The second consideration is the severity of the neurological signs. The importance of these signs in diagnosis has already been discussed. Further, when the neurological disturbance is severe it will constitute an indication for operation. Occasionally a lumbar intervertebral disk protrusion may give rise to cauda equina injury, with the usual motor, sensory, and autonomic disturbance. Less uncommon is the group of cases in which gross weakness and sensory loss are present in one lower limb. A series of such cases in which the disk protrusion occurred during labour has been reported elsewhere (O'Connell, 1944). However in the majority of patients the neurological signs are unobtrusive and do not constitute an indication for operation. As is widely recognized, an ankle-jerk lost during an acute attack of sciatica may still be absent years after the acute pain has disappeared, and the same may at times be true of muscle wasting and areas of sensory loss. The third consideration, and certainly the most valuable indication for operation, is the severity of the tension signs. When these are well marked and the symptoms are of sufficient duration operation is clearly required.

Several of these tension signs have been discussed in a previous communication (O'Connell, 1943). It has been suggested that the diminution or absence of lumbar lordosis and lumbar scoliosis (including the alternating form) were postures designed to relax the stretched extradural nerve. The straight leg raising test was positive because hip flexion with an extended knee quickly caused a further increase of tension in the extradural nerve crossing the protrusion. Such an increase in tension would of course aggravate the patient's pain and the greater the tension already present in the extradural nerve the lower the angle through which raising of the straight leg will be permitted. A modification of the straight leg raising test which has been previously described as the drop test has been found useful (Fig. 2). Both legs are raised together to a point just

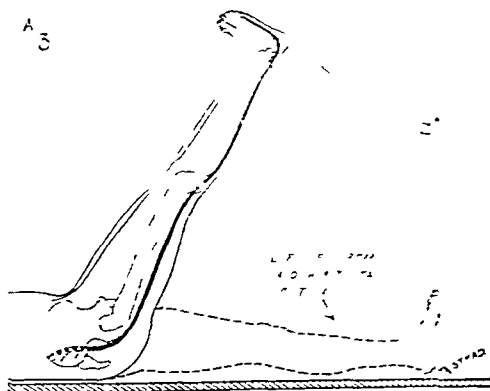


FIG. 2—The drop test.

short of that which causes pain. The sound leg is then allowed to drop to the bed, and an exacerbation of pain occurs if the test is positive—as it very often is in cases requiring surgery. Another tension sign that has been found of value in upper

lumbar disk protrusions is one which has been called the femoral-nerve-stretch test. A protrusion of the second lumbar disk is related to the third lumbar nerve and one of the third lumbar disk to the fourth lumbar nerve, and while little tension is developed in them by straight-leg raising it has been shown (by dissections) that they rapidly become tense when the hip is hyperextended and the knee flexed. In cases of upper lumbar disk protrusion the movement causes a marked increase in the patient's pain (Fig. 3).

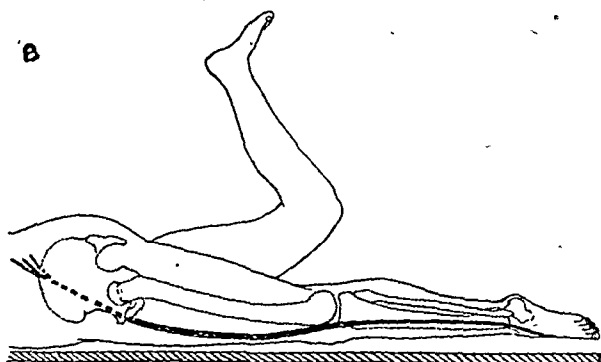


FIG. 3.—The femoral-nerve-stretch test.

In this discussion of operative indications attention has been centred upon cases with lower-limb pain. Most of these patients have low back pain in addition, but cases are also seen in which low back pain is the only symptom, any leg pain having cleared up spontaneously. In the majority of such cases which have been seen it has been felt that an operation to remove a disk protrusion would be unsound, and they have been referred to the orthopaedic surgeon for treatment—including spinal fixation in the more severe cases. In a very few cases in which severe low back pain was associated with attacks of locking, a disk protrusion has been removed with gratifying relief of symptoms.

Conclusion

These observations are based upon the clinical and operative findings in a personal series of over 220 proved cases of lumbar intervertebral disk protrusion treated at St. Bartholomew's Hospital and in an E.M.S. neurosurgical unit during the period Jan., 1938, to May, 1945. Many of the cases have been referred to me by Mr. S. L. Higgs, at whose request I have made this communication and for whose help and encouragement I should like to express my gratitude. Among other colleagues who have referred the patients in this group to me I am particularly in the debt of Mr. L. W. Plewes and Wing Cmdr. J. H. Hunt.

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The Central Council for Health Education will hold one residential summer school in England this year, at Somerville College, Oxford, from Aug. 14 to 28 inclusive. The directors of the school will be Miss D. E. M. Gardner, M.A., head of Child Development Department, University of London Institute of Education, and Dr. Robert Sutherland, medical adviser and secretary to the council. The school is intended primarily for those who have to do with the training and care of children and young people—teachers, youth leaders, health visitors, school nurses, educational and medical administrators, training organizers, welfare superintendents, sanitary inspectors, and students. The object of the school is to present the content, methods, and applications of health education. Sessions will be devoted to lectures in physiology, psychology, the biology of infection, sociology, and health, as well as to lectures, demonstrations, and discussions on the methods and applications of health education. Evening lectures will deal with wider educational, psychological, social, philosophical, and spiritual aspects. There will be opportunity for discussion under experienced leaders, for viewing health films and acquiring technique in visual aids. The afternoons will be left free for optional visits, sports, and physical recreation under expert leadership. Those wishing to book accommodation or to be supplied with further details about the school should write to the medical adviser and secretary, Central Council for Health Education, Tavistock House, Tavistock Square, W.C.1

SURGICAL TREATMENT OF DYSENTERIC LESIONS OF THE BOWEL AMONG ALLIED PRISONERS OF WAR IN BURMA AND THAILAND

BY

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Dysentery has levied a tragic toll among prisoners of war engaged in constructing the Thailand-Burma railway. Multiple diseases have been the rule and malnutrition rife. For example, numerous prisoners suffered simultaneously from dysentery, malaria, tropical ulcer, and gross malnutrition. Avitaminosis, particularly that associated with the B₂/B₆ complex, has been common. Some of the special problems in the treatment of dysentery have been:

(i) The appalling severity of the lesions, in many cases demonstrated to have *Entamoeba histolytica* infection.

(ii) The ever-embarrassing shortage, and in many cases the complete absence, of specific amoebicidal drugs.—For example, in working camps providing the most wretched conditions of life, at times not even magnesium sulphate could be obtained, and recourse was had to such pathetic devices as the administration of charcoal manufactured locally. Emetine, when available, was often obtained only sporadically, in clandestine ways, and had to be used with the utmost economy, with a view not to cure but to prolong life.

(iii) Facilities for microscopy were very frequently not available as a diagnostic aid in the early stages.

(iv) Chronicity of the bowel infection and the establishment of an "emetine-resistant" subject deriving little relief from treatment, or almost immediately relapsing.—This may be due in large part to the extremely low vitality of the individual through the multiplicity of diseases, malnutrition, and complete exhaustion. Many subjects were forced to continue working with established dysentery, and commonly months went by with only the crudest symptomatic treatment being possible, so that the bowel suffered gross damage. When this chronicity was established large quantities of emetine, even to a total of more than 50 gr. (3.25 g.) given over the period of illness, quite failed to provide relief.

Pathology

In practically all those seeking surgical relief *E. histolytica* had been demonstrated in the stools, and in most cases proctoscopy revealed typical amoebic ulceration in the lower bowel. Only one case in the series under discussion was not proved to be amoebic. Undoubtedly in some subjects both amoebic and bacillary infection were present, as reflected by the inclusion in the stools, in addition to *E. histolytica*, of a bacillary type of exudate and macrophage cells. In the acute phase of the disease, with constant passage of blood and mucus—up to 60 motions daily—ulceration was often not the usual limited and circumscribed amoebic lesion, but took on very florid forms associated with devastating lesions of the large bowel, notably a gross cellulitic swelling; and tumour formation occurred, or even huge patches of sloughing gangrene, spreading at times to the peritoneal coat. These florid lesions were chiefly in the caecal region and right half of the colon; spread to the ileum, however, was negligible.

The complication in this type of infection was all too frequently peritonitis, due either to the seeping of infection through the bowel or, less commonly, to actual perforation. In a few cases severe haemorrhage occurred, associated with passage of sloughs.

In the more common cases of prolonged chronic infection with the passage of blood, mucus, and pus over long periods, and gradual exhaustion, it was often noted at operation that inflammation, scarring, and fibrosis were present in the caeco-appendicular area. The caecum and ascending colon were fixed and indurated, with adhesions, and the peritoneal folds and

appendices epiploicae were grossly thickened. A common feature was a tendency to obliteration of the taenia and loss of haustration, the bowel being thickened, congested, and fibrosed, with roughened peritoneum and a brownish-red mottling. In two cases with no previous history of appendicitis the appendix had almost entirely sloughed away (ileostomy series). In general the appendix shared in the pathological process to a greater or lesser extent. In one case a cellulitic condition of the caecum and ascending colon of slow onset was associated with a retrocolic perforation and abscess formation (ileostomy series). Stricture formation after sloughing was met with principally in the rectum, but one patient became obstructed with a similar fibrotic process in the ascending colon near the hepatic flexure, a stricture also being present in the rectum. In two cases with gross fibrotic thickening in chronic colon lesions pathological section revealed *E. histolytica* embedded deeply in the fibrosed coats of the bowel. One interesting case of polyposis of colon and rectum requiring resection was associated with this deep infection.

Clinical Features

For the most part surgical cases fell into two groups: (1) Earlier cases of more acute nature, in which the principal difficulty was to afford relief of pain, tenesmus, wasting, deterioration, and loss of morale owing to lack of specific drugs to control the disease. For this type of case appendicectomy and caecostomy have been most effective and have certainly saved a number of lives. Indeed, the effect of this operation has in many cases been dramatic. (2) Cases of longer standing with a grossly damaged colon which, even when specific amoebicidal drugs have been repeatedly given in quantity, have failed to respond. In some of these cases, of years' duration, the complete rest of the large bowel afforded by ileostomy has been invaluable.

The Case for Surgery

Despite almost insuperable difficulties medical treatment of amoebic cases has been most diligent, and every form of available medication was tried in ingenious ways. In many cases emetine was for periods not available, and when it was it had to be used most sparingly in small courses to give the maximum life-saving effect. Ipecacuanha, emetine, emetine bismuth iodide, yatren, stovarsol, carbarsone, as well as drugs of the sulphapyridine series and sulphaguanidine, were, however, administered in quantities normally curative to many patients who finally required surgical treatment.

Bowel lavage per anum was frequently employed, using various solutions such as saline, silver nitrate, copper sulphate, potassium permanganate, eusol, rivanol, tannic acid, quinine, and yatren when available. The results were most disappointing, and in general experience cast doubts on the feasibility of thoroughly flushing out the large bowel in this way. This was mainly due to the intense irritability of the ulcerated bowel, the patient being unable to retain more than a few fluid ounces before voiding.

The failure of medical treatment and the wretched plight of dysenteric patients led to an interest in surgical relief even though surgical measures are given little prominence in standard works. In Thailand this failure led at first to the adoption of appendicectomy and caecostomy, as affording easy means of efficiently washing out the bowel. This measure began to be practised in 1943 independently in various centres such as Kanburi Hospital (MacFarlane and de Solderhoff), Takanoon (Pemberton), Tarsau and Chungkai Hospitals (Dunlop). The striking relief given to patients who seemed beyond hope caused much gratification.

In the meantime Lieut.-Col. A. E. Coates, A.A.M.C., introduced in Burma the technique of ileostomy, and on his arrival at Nakompaton stimulated interest in the hospital clinical society by showing a case in splendid condition after this operation many months previously. This case had been deteriorating hopelessly and had at no time in the course of the disease received any emetine. Lieut.-Col. Coates believed that there would be a small residue of chronic cases for which this measure would be invaluable.

It must be noted that without emetine any surgical attack on the appendix or caecum involves some danger of spread of amoebic infection to the abdominal wall. I had observed this

catastrophe in two patients previously, and was of the opinion that appendicectomy and caecostomy were much more satisfactory if a small quantity of emetine was available to follow the operation.

The freedom of the ileum from infection and the complete diversion of the faecal current by ileostomy presented arresting advantages; the only disadvantage was that a more severe second operation would ultimately be required, and that many patients felt some reluctance to endure prolonged faecal soiling. It was evident, however, that patients could enjoy perfect health without colon function; indeed they could carry on useful work, thus allaying fears that this operation was impracticable under the poor hospital conditions available and that it might upset the slender nutritional balance of those already suffering from gross malnutrition.

Operations performed at Nakompaton P.O.W. Hospital in 1944-5

Appendicectomy.—8 cases. One of these was formally closed recently, and one closed spontaneously after the disease process had subsided. The remainder have been left open as an insurance measure, despite the fact that every patient except one has regained good health.

Caecostomy.—1 case.

Ileostomy.—14 cases. Of these only the original case of Lieut.-Col. Coates has as yet been closed by a small-bowel anastomosis.

Excision of Sigmoid Colon after Transverse Colotomy.—One case of amoebic dysentery and gross polyposis of the left half of colon and upper rectum.

Resection of Right Half of Colon and Terminal Ileum and Ileotransversostomy.—One case—that of a fibrous stricturing lesion of the ascending colon. Rectal stricture was also present. Preliminary ileostomy was performed to relieve intestinal obstruction.

Excision of Rectal Stricture and Anastomosis.—One case of complete stricture of the rectum.

Spinal analgesia was employed in all cases except one in which a local infiltration was used.

Deaths

There were three deaths among ileostomy patients. Two of these were due to operation being deferred until the patients were in a moribund state, death occurring on the fourth and tenth post-operative days. The other death occurred after the patient had temporarily regained good health, and was due to intercurrent disease. In the case of resection of the right half of the colon death was due to peritonitis and acute dilatation of the stomach. The health of this patient was greatly undermined by an amoebic abscess of the liver and lung and by two serious operations for a lip carcinoma with secondary glands in the neck. In assessing mortality rates it must be remembered that all these patients were considered unlikely to survive without surgical intervention.

Nature of Operation; Complications and Results

Appendicectomy.—In all cases except two the appendix was brought out through a small transverse muscle-splitting incision in the right iliac fossa, the caecum being sutured to the peritoneum. In two cases the appendix was brought out through a small separate stab incision. In all cases the appendix was immediately divided and a tube inserted at operation. It has been clearly shown that if any difficulty is experienced in delivering the appendix there is no objection to dividing the meso-appendix, but it is necessary to leave intact the small arterial branch at the base of the organ. No cases have shown any serious infection; the wounds healed well and none have given any anxiety. One case developed a small ventral hernia after spontaneous closure. This was ultimately repaired and the stump of appendix removed. Six of the eight cases regained good health, five having passed clearance tests of more than six negative stools. Two of these received no emetine post-operatively—only bowel lavage with yatren and copper sulphate solution. One patient who appears to be in perfect health has on one occasion shown *E. histolytica* cysts in stools. Another has merely held his own, as against previous steady deterioration, and still has active infection. One case failed

to make progress, and subsequently underwent ileostomy with excellent results.

Caecostomy.—One patient, though suffering serious chronic infection, did not desire ileostomy. He had had a previous appendicectomy, so caecostomy was performed. The result has been excellent after assiduous bowel lavage. He has passed a clearance test of six stools. He still wears the tube, but without inconvenience. In many cases the complete relief of symptoms has been most dramatic with these simple operations. For example, in some instances the number of motions has fallen immediately from 20–30 a day, the patient never having more than 1 to 2 daily after operation, and blood and mucus have quickly disappeared from the stools, with rapid cessation of pain and distress. This relief is thought to be due to three factors: (i) temporary paralytic ileus of the bowel following operation; (ii) release of wind through a "bung-hole"; (iii) the effect of lavage. This undoubtedly has considerable value, as demonstrated by the relief expressed by many patients and by fluctuation when patients were moved and it was not carried out. In stubborn cases large quantities of fluid have been given by the drip method with good results. The most effective post-operative method has been a course of emetine (usually only 5 gr. (0.32 g.) available), and bowel lavage with preliminary saline followed by yatren solution 2½%. Rivanol solution 1/1000 and CuSO₄ 1/5000 have given good results. Usually not more than 5 yatren wash-outs could be carried out.

Ileostomy.—The site of election for operation has been 18 in. (45 cm.) from the ileo-caecal junction, and in six cases the incision has been a small right rectus-splitting one, with the proximal limb of the bowel at the distal extremity of the wound. In the remaining cases a small muscle-splitting incision as for appendicectomy has been employed, with the proximal limb on the medial side. One interstitial mattress stitch through an avascular point in the mesentery, together with a few sutures of the seromuscular coat of the bowel to the peritoneum, has fixed the bowel satisfactorily. In general, long exploratory incisions have not been used. In three cases a very diseased appendix was removed at operation. On three occasions the bowel was not divided at the original operation, a suture being fixed into the proximal limb through the belly wall. The procedure did not provide as satisfactory drainage as with a clean division of the bowel and for the time being the faecal current was not completely diverted, so now in all cases the bowel is divided and two tubes inserted—one for draining and the other for lavage of the colon. The main complications met with have been minor attacks of obstruction during the first month, associated with hiccup and sometimes vomiting and distension. Approximately half the cases have shown this complication in greater or lesser degree. The high-residue diet of prisoners of war has been found largely responsible, and with a strict diet of low residue it has usually been possible to leave the tube in for 7 days, until the wound has quite healed. The oedema of the exteriorized gut takes about one month to subside, and care is needed in regard to diet during that period. Lavage of the proximal limb of the ileum, together with removal of the tube and dilatation of the stoma, may be required to clear obstruction. Pituitrin has been found useful. Care must be exercised regarding fluid replacement, as in the early stages some 50 fl. oz. (1.4 l.) may drain away daily. Blood transfusions and saline administrations are often necessary in such cases. Saline is easily given by the proximal limb of the bowel as well as by other routes.

A temporary skin irritation often arises during the first few days of wearing an ileostomy bottle. These have been improvised from Dutch water-bottles, Service pattern. No serious reaction of digestive action on the tissues has occurred, but the application of serum of slaughtered bullocks has been found useful in certain cases. Usually vaseline, zinc cream, or talcum powder has been effective. The skin rapidly becomes toughened. No serious wound infections have developed. Prolapse of the intestine by intussusception has occurred in two cases—one a rectus-splitting case, the other a small transverse-iliac-fossa incision. This was readily replaced.

The general condition of these patients has been most satisfactory and their gain in weight and vigour most convincing. It is particularly noted that during the first few weeks after

operation the lower ileum to some extent takes over the function of the large bowel and the discharge becomes much thicker and less fluid. Usually blood clears up in a period of from a few days to a month, and in some cases the patients have not had any rectal motion for weeks or months except with an occasional wash-out.

In several cases no emetine could be given post-operatively, yet the patients have made good progress, gaining weight rapidly. Occasional bowel wash-outs—e.g., weekly—are useful in removing debris from the colon, but where these have not been possible some patients have gone weeks and months without any bowel action. Four who have recently been operated on are still not entirely free from rectal motions with blood and mucus; but all have made excellent progress, gaining much weight, and already are altogether brighter and more cheerful. One of these required drainage of a right-sided retroperitoneal pericolic abscess, with only intermittent discharge through the bowel.

Seven cases, representing operations performed a varying number of months ago, have all regained something like normal health and vigour, and most of these patients are quite active, eating a normal diet and doing light work. In the absence of adequate emetine two of these have had a slight relapse with passage of a little blood and mucus per rectum, but this rapidly cleared up with bowel lavage. In the remaining five, rectal lesions were observed to heal in two to three months, and more than six examinations of bowel content revealed no *E. histolytica* infection. The ileostomy bottle usually requires emptying five times in the 24 hours, but patients find life quite tolerable after the previous misery.

Closure of Enterostomy.—This step has been deferred at Nakompton pending x-ray and sigmoidoscopic investigation of the large bowel. Lieut.-Col. A. E. Coates closed the original ileostomy case brought from Burma after two years' rest of the bowel, and this patient is now in excellent health. It was noted that one case arriving at Nakompton had been previously closed by Major T. M. Pemberton, R.A.M.C., after approximately three months' ileostomy drainage. This patient has remained quite well. In general it is felt that the opening in the bowel is an excellent insurance against recurrence of active symptoms, and that the decision regarding closure is best deferred until after evacuation from Thailand.

Summary and Conclusions

Brief particulars are given of a series of cases submitted to operation at Nakompton after failure of medical treatment of amoebic dysentery infection.

The cases were all of exceptionally severe nature, and facilities for treatment were poor.

Most cases had become emetine-resistant.

Appendicostomy and caecostomy have been proved very useful measures for cases with less severe bowel damage, the infection usually being of a few months' standing. These operations have, however, given excellent results in some severe cases of long duration, and even in this type of case well deserve a trial if the patient does not desire ileostomy. More radical operation can always be done if this simple procedure fails. It is desirable but not essential to use emetine in the post-operative phase, and yatren wash-outs have been found most effective.

Ileostomy has given excellent results in the most severe emetine-resistant cases even when emetine has not been available post-operatively. It is the most certain method of arresting the disease.

Experience in Thailand has led us to believe that surgery has a definite place in the treatment of dysentery, and that early consideration should be given to this measure in cases where medical treatment has failed and the patient is continuing to deteriorate.

The results obtained by surgical methods have been due to the close collaboration not only of several surgeons but also of the physicians in charge and the pathological staff, as well as the medical orderlies, who have laboured devotedly in the operating theatre and wards. Special mention is due to the physicians especially concerned with these cases. These are Lieut.-Col. MacFarlane, R.A.M.C., Lieut.-Col. H. Larsen, N.E.I. Medical Services, and Major W. E. Fisher, A.A.M.C., Capt. J. Street, R.A.M.C.; also Major T. Marsden, R.A.M.C., for his ingenious pathological assistance.

Typical Appendicostomy Case Report

British O.R., R.A.S.C.—The onset of dysentery occurred in a Thailand jungle camp in Feb., 1943. Symptoms were very severe—approximately 20 motions daily with much blood. No emetine was

at first available, and he was treated with magnesium sulphate and potassium permanganate Lowel wash-outs. Later the patient had the advantage of 12 gr (2.13 g) emetine in 6 courses several courses of ipecacuanha 2 courses of castor oil (10 tablets) a 4 to 5 bowel wash-outs. Sulphadiazine was also tried and gave a transient fall in the number of motions. He resisted all treatment finally receiving practically no benefit from either administration. Before operation his condition was wretched. Weight 74 st (47.6 kg). He had a wasted appearance, could get no rest because of pain, tenesmus and very frequent motions and his appetite had failed. He begged for operative treatment. Abdominal examination revealed diffuse tenderness and thickening of the colon but no tumor formation. Proctoscopic examination showed very active ulceration of the rectum of amoebic type. Stool tests repeatedly showed *E. histolytica* red blood cells, and pus cells.

Operation Aug. 8, 1944.—Spinal procaine 170 mg. Morphine 1.4 gr (16 mg). A small transverse skin-areola incision as made in the right iliac fossa and the muscles were split. The caecum was thickened, indurated, and bound down to the right iliac fossa by adhesions. The appendix was large, thickened, congested and indurated, and was found in the ilio-caecal anastomosis. No ulceration of the mucosa was seen. To mobilize the appendix most of the meso-appendix was clamped and tied leaving the arterial branch at the base, the appendix was then brought out of the wound and the caecum sutured with fine silk through the peritoneum. The peritoneum was closed with catgut, the muscles with catgut, and the skin with silk-worm gut. Fine transfusion tubing was passed into the appendix to the caecum at a point 1 in. (2.5 cm) from the abdominal wall to which the tube was then anchored with a stitch. Dressings of soft paraffin and tinct. benzoini com. were applied.

On the first post-operative day yareten wash-outs 2½% preceded by saline 1 pint (465 ccm), five daily wash-outs with yareten solution were given followed for a time with copper sulphate 1/1000 daily. Emetine was available on the fourth post-operative day, and 5 gr (0.32 g) was followed by a course of emetine bismuth iodide 15 gr (1 g). The wound healed by first intention, sutures being removed on the seventh day. The stoma was excellent with a mucocutaneous junction. There was no untoward reaction.

Progress.—By the fourth post-operative day the patient had one motion daily, firm and almost clear of blood. Appetite improved right from the start and the pain disappeared. In four months he had put on over 7 st (19 kg) in weight. Proctoscopy in Feb. 1945 revealed a healed rectal mucosa. Now, after twelve months he is perfectly healthy, and has had no relapse, he has gained nearly 4 st (25.4 kg) in weight and works as a voluntary orderly. All stool tests have been negative—the last a series of six done in Aug. 1945. The appendicostomy stoma causes no particular inconvenience.

STREPTOCOCCAL MILIARY INFILTRATION OF THE LUNGS

WITH DESCRIPTION OF A CASE

BY

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The existence of an infiltration of lung tissue, giving rise to radiological shadows almost identical with those of pulmonary tuberculosis but not apparently connected with the tubercle bacillus is well known (Scadding 1937, and others). In a consideration of the aetiology of subacute pulmonary infections (Davidson and Ellman, 1941) attention was drawn to the fact that many pulmonary lesions are now brought to light which, before the days of adequate x-ray examination, passed undetected, and while in most of these the nature of the disease is not in doubt, in many the differential diagnosis is still a matter of considerable difficulty. In other words, radiological diagnosis no less than physical diagnosis has its limitations, nor does it always provide a short cut to that understanding of the morbid anatomy of disease which can be reached only by a synthesis of all the available data.

Since the publication of the above mentioned paper I have encountered a number of acute and subacute non-tuberculous pulmonary infections closely simulating, in their clinical and radiological appearances, pulmonary tuberculosis but showing signs of healing by natural resolution within a relatively short period. In some such cases the streptococcus has undoubtedly been a causal organism. A case of an apparent acute streptococcal miliary infiltration of the lungs is now described.

History of Case

Miss A., aged 20, was admitted almost moribund as a case of acute febrile emia to Leatherhead Emergency Hospital on Aug. 1945. She possessed a picture of gross anaemia and a violent infection. She gave a history of increasing fatigue, weakness and pallor over the past two to three months. Her period, previously irregular but normal, had during that time been scanty. Immediately before admission, in addition to aggravation of these symptoms she had noticed acute dyspnoea on exertion, attacks of giddiness and palpitation and a slight cough on the morning of admission. There was a loss of any obvious loss of weight. During the evening of 19-5 a slight pyrexial attack was accompanied by a sore throat and a cough with a little yellowish sputum. She also had a severe haemorrhage after which the sputum was blood-stained. The attack lasted two weeks and was followed by a similar attack, followed by the haemorrhage a few months later. There was otherwise no noteworthy previous history. The family history was otherwise normal and her occupation was of no significance so far as her illness was concerned. Seven weeks before the onset of this illness she had attended a mass radiography clinic when her lungs had been reported as clear.

On admission she was grossly anaemic, so weak that she could not walk. Her respirations were shallow and rapid (6) to

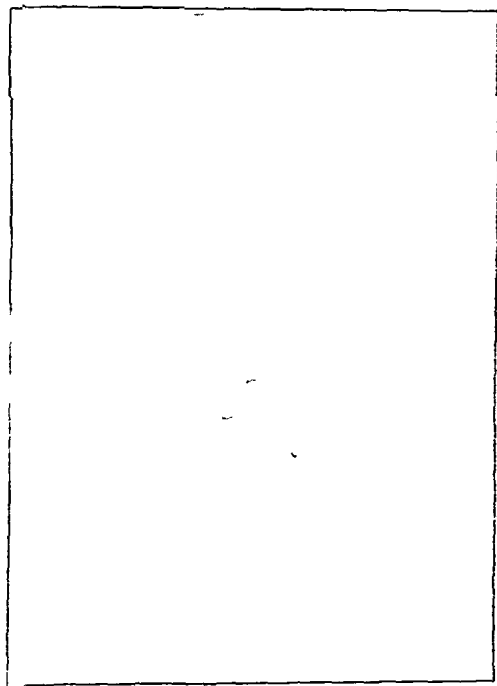


FIG. 1.—Diagram of chest from a case of acute streptococcal miliary infiltration of the lungs.

pulse was thin, rapid (120) and irregular, temperature 101°. Examination of the lungs showed scattered crepitations throughout both lung fields and broncho-vesicular breath sounds. The heart was not enlarged clinically, the rhythm was regular, the heart sounds were very faint, there were no significant murmurs, the blood pressure was 100/60. There was no lymphadenopathy, or splenomegaly. Examination of the fundi showed them to be normal, but a large haemorrhage was seen in the right retina. A blood count showed a haemoglobin of 23%, the white cells numbered 26,000, mainly polymorphonuclear in type, otherwise there was nothing significant in the differential count. X-ray examination of the chest showed diffuse miliary infiltration of all zones of both lungs but the apices were singularly clear (Fig. 1).

The next day her pulse was more regular and the respirations no longer so shallow. The physical signs in the chest were unchanged and the temperature was still 101°. Following half a pint (254 ccm) of blood, given very slowly, her haemoglobin rose to 70%, the white cells numbered 23,000 (polymorphs 90%). She was given large doses of iron and ascorbic acid, and 3/4 pint (426 ccm) of concentrated blood again that night. On Aug. 7 the physical signs in her chest were

less marked; the respirations were still raised (34), but they were not quite so shallow. The haemoglobin was now 36%. Repeated examination of the sputum (laryngeal mirror) showed an almost pure growth of haemolytic streptococci, but no tubercle bacilli.

Penicillin, 20,000 units three-hourly, was started soon after admission, a total of 960,000 units being given in six days. Two days after beginning the penicillin (Aug. 9) her temperature had dropped to normal, the respirations were 28, and the haemoglobin had risen to 40%; the retinal haemorrhage was still visible. A day later her respirations had also dropped to normal; the physical signs in the lungs were markedly diminished and the adventitious sounds were confined to the bases. Her haemoglobin continued to rise steadily.

Serial x-ray examination of the chest showed progressive resolution, and within ten days the miliary infiltration had completely

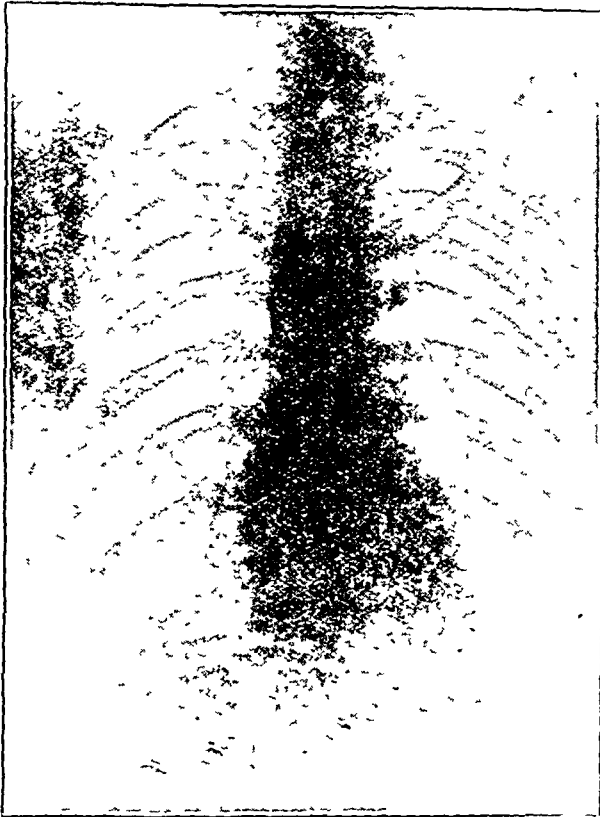


FIG. 2—Skiagram of same case, showing complete resolution

resolved (Fig. 2). The retinal haemorrhage had also resolved and the blood count had become entirely normal. A gastric residuum at this time showed that the patient was achlorhydric.

Discussion

The rôle of the streptococcus in pulmonary infections of an acute pneumonic or bronchopneumonic character, as well as varied subacute pulmonary infiltrations of similar aetiology, is significant, although in some cases debatable, and there is an increasing literature on this subject. In the case I have recorded the sputum was collected on a laryngeal mirror and precautions were taken to avoid contamination by mouth organisms. A heavy growth of haemolytic streptococci was repeatedly found and, bearing in mind the severe toxæmia and the clinical and radiological lung findings, there was undoubtedly a haematogenous lung infection of streptococcal origin. Admittedly, many bacteriological examinations of sputum will show a mixed aetiological flora, including streptococci, but in this case the sputum, apparently uncontaminated, contained on each occasion an almost pure growth of haemolytic streptococci.

Twining (1938), among others, records that streptococcal pulmonary infections may closely simulate acute or chronic pulmonary tuberculosis. Miliary infiltrations of the lung, apart from those of a tuberculous nature, may occur as a miliary erythematosis, in silicosis, in bronchiolitis (particularly following influenza and measles), in Hodgkin's disease as a lymphadenomatosis, in leukaemia, in certain pulmonary mycoses, in blastomycosis, in Bock's sarcoidosis, in miliary amyloidosis of

the lung, in miliary stasis of the lung with mitral stenosis, etc. Twining also refers to a case of bronchiolitis obliterans described even at necropsy as a miliary tuberculosis until histological sections finally disproved this. The case was reported by Assmann, and was an end-result of influenzal bronchiolitis.

I use the term "miliary" in this case because the radiological appearances of the lung simulated a miliary tuberculosis. Gloyne, in a personal communication, informs me that he has seen, at necropsy, several cases of an acute streptococcal disseminated bronchopneumonia, in some of which "silicosis" had been suspected; and in the present case some would perhaps have used the term "disseminated streptococcal bronchopneumonia." My own feeling, however, is that the miliary nature of the radiological appearance of the lungs more than justifies the description "streptococcal miliary infiltration of the lungs." It is of interest to note that in the case here reported the apices were not involved in the skiagram.

It is presumed that this patient had had a simple achlorhydric anaemia for some months and that an added streptococcal infection at this stage had rendered her a victim of streptococcal septicaemia with a pulmonary localization of a miliary nature. I have not been able to find a similar case in the literature.

Summary

A case of simple achlorhydric anaemia complicated by the sudden onset of acute streptococcal septicaemia with miliary pulmonary localization is presented. A dramatic response to penicillin therapy (aided by transfusions and iron therapy for the anaemia) resulted in complete resolution of the lung lesion.

I am indebted to Dr. D. Nabarro for the pathological investigation.

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HEREDITARY CLUBBING OF DIGITS IN TWO FAMILIES

BY

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The whole question of clubbing of the digits was reviewed in detail in 1942 by Mendlowitz, and he included a discussion of hereditary clubbing in which different fingers or toes may be involved in varying degree. Some fingers or toes may be spared but thumbs are nearly always included. Usually the patient cannot remember ever being free from clubbing, but the condition may become more pronounced in middle life. Horsfall (1936) described three families with a total of 20 cases, the abnormality occurring in four generations in one family. In 18 of his 20 cases all the digits were clubbed in the affected members, but in the other 2 cases (belonging to one family, with 10 affected members) only a minority of digits were involved.

Personal Cases

In the first family I encountered (see family tree, Fig. 1) all the affected persons had bilateral symmetrical clubbing involving the first three fingers (Fig. 2) and toes. The fourth and fifth digits were quite normal. Clubbing varied in degree from member to member, and became more pronounced with increasing age. All the affected members, and many others, had webbing of the second and third toes.

In the second family (Figs. 3 and 4) the defect was in the little finger only, and was asymmetrical. Thus in the mother the left little finger was much more affected than the right, whereas in the three affected children the right little finger was chiefly involved. Toes were normal in this family, and webbing was absent. The mother stated that neither her siblings nor her parents were affected.

Skiagrams showed shortening of the phalanges of the affected digits in both families. There was no disease associated with the clubbing in these families.

Capillary Microscopy

Mendlowitz pointed out that studies of clubbed fingers by capillary microscopy had yielded results of doubtful value. I found that, in clubbing, capillaries are generally but not invariably much lengthened and congested, with a tendency to

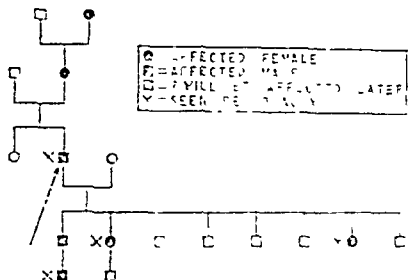


FIG. 1.—Tree of Family 1. Hereditary clubbing of first, second, and third fingers and toes—bilateral and symmetrical.

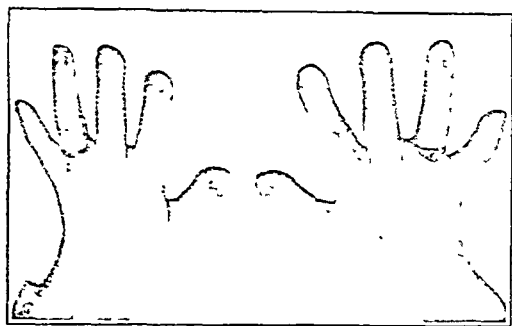


FIG. 2.—Photograph of hands (Family 1)

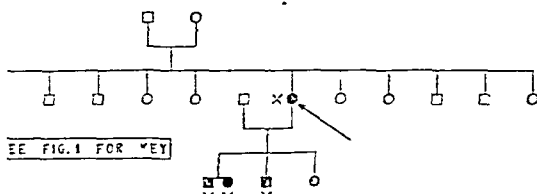


FIG. 3.—Tree of Family 2. Hereditary clubbing of little finger.

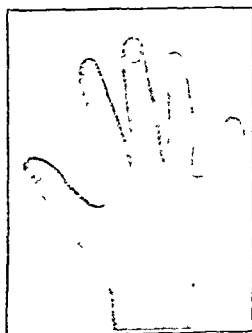


FIG. 4.—Photograph showing clubbing of little finger (Family 2)

formation of (microscopic) petechiae. In these families capillary microscopy showed no difference whatever between the clubbed fingers and the normal fingers. In the first family capillary microscopy was done on one affected member only. In all fingers there was the usual number of capillaries per field; but they were long, with wide loops and wide limbs, and blood-flow

was rapid. In the second family capillaries were studied in two affected members. They were normal.

I thank Mr. J. R. M. Whigham for his help, and Dr. J. E. McCartney and Mr. J. Andrews for the photographs.

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Medical Memoranda

Leiomyoma of the Ileum producing Intussusception

The following case is considered worthy of record in view of the relative rarity of the condition.

CASE REPORT

A man aged 41 was admitted to Llandough Hospital, Cardiff, on Nov. 23, 1944, with a history of pain in the upper abdomen for about 3 to 4 years. The pain came on half to one hour after a meal and was relieved by alkalis. Three months prior to admission he noticed that he was becoming constipated, and the night before he entered hospital some blood was passed per rectum. In addition, for about two months there had been pain in the region of the umbilicus. The day before admission a barium meal had been given, and this induced severe abdominal pain.

On examination his general condition was good and, apart from tenderness in the right iliac fossa, no other abnormal signs were elicited. On Dec. 14 a palpable mass was found in the right lower abdominal quadrant. A barium meal and follow-through revealed no lesion in the stomach, duodenum, or small intestine, but the occult blood was positive on two occasions. Subsequently a barium enema was given, and this revealed an obstructive lesion in the upper part of the ascending colon.

Laparotomy was performed on Jan. 3, 1945, and this revealed an ileo-caecal intussusception, with the apex lying about halfway down the ascending colon. Reduction by the usual technique was easy, and examination showed the apex of the intussusception to have been occupied by a tumour of the ileum. The tumour, which was endo-colic, was situated approximately 6 in. (15 cm.) from the ileo-caecal valve. Accordingly about 8 in. (20 cm.) of terminal ileum containing the tumour was excised and continuity re-established on end-to-side ileocolostomy. Convalescence was uneventful, and he was discharged from hospital on the 15th post-operative day.

Examination of the excised specimen showed a firm mass about the size of a walnut, projecting into the lumen of the gut, its surface being lobulated.

Pathological Report.—"The tumour is a submucosal leiomyoma, which is forming a polypoid mass projecting into the lumen of the intestine. Histologically it appears unusually vascular in parts and there is some ulceration on the surface, but there is nothing to suggest malignancy."

COMMENTARY

Leiomyoma of the small intestine is uncommon. Smith (1937) collected 109 leiomyomata of the small intestine, and Horsley and Keasbey (1939) reported 15 additional cases. Morrison (1941) in a series of 21 benign tumours of the small intestine found 2 cases of leiomyomata, both in the ileum; and Golden and Stout (1941) recorded 6 cases—two duodenal, one jejunal, and three ileal locations. Weber and Kirklin (1942), analysing a 32-year period at the Mayo Clinic, found 14 cases of small-gut leiomyomata in a collection of 41 benign tumours. These tumours are more common in the ileum than in the jejunum or duodenum (Moore and Schreisser, 1934; Railford, 1932), the average age incidence being 30 to 40 years (Rankin and Newell, 1933).

The two outstanding features of the reported cases are mechanical obstruction and melæna. In the submucosal variety the commonest presenting finding is intestinal obstruction due to intussusception, while in the subserosal variety melæna is the principal clinical feature (Smith, 1937).

The case here recorded confirms Smith's finding that submucosal leiomyomata tend to cause intussusception.

I am indebted to Dr. Jethro Gough, of the Pathology Department of the Welsh National School of Medicine, for the pathological report.

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Reviews

PRINCIPLES OF HUMAN PHYSIOLOGY

Principles of Human Physiology. Originally written by Prof. E. H. Starling. By C. Lovatt Evans, D.Sc., F.R.C.P., F.R.S. Ninth edition. Chapters on the Special Senses by H. Hartridge, M.D., Sc.D., F.R.S. (Pp. 1,155; 668 illustrations, 7 in colour. 36s.) London: J. and A. Churchill. 1945.

The 9th edition of the *Principles of Human Physiology* appears without its former prefix and is now more closely associated with Prof. Lovatt Evans, who has actually been responsible for the work since the 4th edition. While it is true that the main emphasis in medical education should be the inculcation of fundamental principles rather than a mass of factual knowledge, it is nevertheless necessary to remember that these same principles are derived from facts. It is a merit of the book that physiology is presented as an experimental science. Probably because of this outlook the author has never claimed that the work should be a text in clinical physiology, although the requirements of the medical student are fully met and full use is made of clinical references. Though it may not be the easiest book for the student to work from, there can be little doubt that with the aid of good teachers, who will assist him to obtain the right perspective, he will find "Starling" gives him a lasting foundation on which to build his physiological knowledge and its clinical applications.

There are no great changes in the general arrangement of this edition, but rewriting in many places has served not only to bring the work abreast with recent knowledge, as in the sections dealing with electrical exploration of the nervous system, or lymph formation, but also to emphasize the co-ordinated working of the different systems of the body, which is the essence of modern physiological thought. This approach to the subject is shown by some examples from the headings of the different sections of the book: Systems for Distribution of Materials—Blood, Circulation and Respiration; The Intake of Materials—Nutrition, etc.

An innovation is the prefacing of the chapters by historical notes; and although they are perhaps too short to be of value in themselves, yet they should serve as useful stepping-stones to historical reading for the many students who will continue to use this textbook.

THE FIRST THOMAS WAKLEY

Battling Surgeon. By Charles Brook. (Pp. 176. 2s. 6d.) Glasgow: The Strickland Press. 1945.

If I cannot subscribe fully to Dr. Brook's hero-worship, I can congratulate him heartily on a very interesting book about a man to whom our profession can never be too grateful. But when he says, "I say, and I say it with emphasis, that great as Joseph Lister was, he was a mere pygmy by the side of Thomas Wakley," I cannot help feeling some doubt as to his sense of proportion. But I can go a long way with him in his admiration for Wakley, for I was, so to speak, "brought up on him." The country doctor to whom I was acting as a very young unqualified assistant had a long series of early volumes of the *Lancet* in which I browsed and thereby imbibed a taste for the politics of our profession and an unholly and quite uncritical admiration for Wakley's gift for invective. Those were the days in which antagonists in the press and on the platform had no use for the rapier. Wakley was an expert with the bludgeon and obviously enjoyed using it. Resisting temptation, I shall give only one example quoted by Dr. Brook. Wakley was bestowing a parting benediction on the editor of a rival journal which had just expired. "He is a disingenuous without plausibility and dishonest without astuteness. He had the wriggling lubricity, without the cunning, of a serpent."

If we are occasionally repelled by the brutality of his language, we must not forget that Wakley was living in a medical world in which abuses were rampant. Few men can have had a fuller life; a medical student (on very short commons), a practitioner for a time in London, the founder and editor of the *Lancet*, and, along with this, coroner and Member of Parliament. In each of these fields he made his mark as a reformer, and in spite of his pugnacity became a

popular national figure respected even by his opponents. He gained his spurs as a fighting man by his attacks in the young *Lancet* on the almost incredible nepotism and corruption on the staffs of the London teaching hospitals. He published, for the first time, reports of hospital lectures and operations accompanied by scathing criticism. He naturally found himself in the Law Courts. Indeed, for many years he lived in a vortex of legal actions, generally as defendant, and often proved himself equal to the greatest advocates of the time. His next great attack was on the unreformed College of Surgeons. This brought him more enemies, but he wore most of them down and did much to accelerate reforms which have made the College what it is now. His Parliamentary career was unusual. It was only at the third attempt that he carried the Finsbury Division as an independent radical. He refused to do any canvassing and his supporters paid his expenses. Thereafter he was returned as long as he was willing to stand. We owe him many legislative reforms, and not all of them in the medical field. It was his pioneer work which led to the Medical Act of 1858, still the basis of our legal position as a profession. He got power for coroners to pay for a post-mortem examination; he successfully opposed a clause in the Vaccination Act of 1840 which would have confined vaccination to Poor Law medical officers; and was largely instrumental in so altering the law as to make the operations of the "resurrectionists" unnecessary. He was trenchant in his criticisms of the conditions in lunatic asylums. As coroner for West Middlesex he conferred a new dignity and usefulness on that office, was strongly in favour of medical coroners, and was the chief figure in several important cases arising from inquests, the most outstanding being that of a soldier who died as a result of flogging. This led to its practical discontinuance.

The *Lancet* under his charge did great public work, as, for example, in the exposure of the adulteration of food, milk, and water, and legislation followed. There was, indeed, hardly any social abuse prevalent at that time which the *Lancet* did not tackle—generally with effect. The book is very good value for 2s. 6d. It would be well worth the money if it were only for the brilliant character sketches of most of the leading medical men of the time. It deserves to be read by everybody interested in how our social reforms have come about, and who is thankful to those who, in face of immense difficulties, made advances possible. Our profession may well be proud of Thomas Wakley and grateful to Dr. Brook for reminding us of him.

ALFRED COV

SEMINOLOGY

Studien am Menschlichen Sperma. By Charles A. Jochl. (Pp. 154.) Basle: Benno Schwabe and Co. 1942.

This book provides a concise exposition of the methods employed in studying human semen. The technique closely follows the lines described in other textbooks on the subject. One original process deserves attention: a method is described for embedding the formed elements of semen in paraffin for sectioning. This allows a more thorough cytological study of the cells of spermatogenesis which are too scanty in the smear preparation. The author claims that changes in spermatogenesis—e.g., as the result of treatment—appear in these cells before the spermatozoal picture alters. If this is so the laboriousness of this method would be amply repaid. The findings of over 1,300 semen analyses and post-coital tests are evaluated, and an appendix containing excellent histological illustrations clarifies doubtful points of nomenclature.

The author's exposition is clear, and his approach to the subject entirely practical. His book is a good introduction into a comparatively unexplored field of clinical research.

A third edition of SANFORD R. GIFFORD'S *Textbook of Ophthalmology* is published by W. B. Saunders Company at 20s. It covers the elementary aspects of ophthalmology concisely and adequately. It contains rather less obsolete teaching than is usual with books of this size, as is seen in the excellent account of retinal arteriosclerosis, but it also slips up badly in its occasional adherence to obsolete teaching, as instanced in the section on the treatment of ophthalmia neonatorum.

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VACCINATION AGAINST INFLUENZA

The use of virus vaccines for protection against influenza has hitherto given either inconclusive or frankly disappointing results. Undaunted by these, the Commission on Influenza in the U.S.A. pursued endeavours in this direction in the early years of the war, and were able by the autumn of 1943 to stage a full-scale trial. A full description of this trial and its results has made a rather belated appearance in a series of 7 papers¹ which together form a massive contribution to the literature of this subject. The introductory paper by Francis gives a general account of the methods used and of their evolution. The vaccine was derived from egg allantoic fluid, and virus from this source was concentrated tenfold by adsorption on chicken erythrocytes; each dose of 1 ml represented 2.5 ml of allantoic fluid containing the PR8 strain, 2.5 ml containing the Weiss strain (both of type A), and 5 ml. of the Lee strain (type B). It was preserved with formalin and phenyl mercuric nitrate, and shown to retain its potency in this condition. Of the populations studied, one half received a single dose of 1 ml of this vaccine, while the remainder were given an injection of saline with the same two preservatives added; thus not even the sensation produced by the inoculation enabled the recipient to guess whether he belonged to the treated or to the control group. The majority of the subjects were university students in "Army Specialized Training Programme" units; the status of such a student is not quite clear, but they appear to have been housed together and subject to discipline. Regular sick parades were held, and all men diagnosed as having influenza were placed in hospital. In a considerable proportion of vaccinated and controls and in most cases of clinical influenza repeated antibody titrations were carried out, sometimes by several methods and with the use of more than one strain of virus. The virus in cases of influenza which occurred was also identified at every centre.

At each of six centres—two in New York State, and the remainder in the Universities of Minnesota, Iowa, California, and Michigan—the total number of men studied was over 1,000. Vaccination was done in November, 1943. The astonishing feature of this experiment is that influenza, proved at every centre to be due exclusively to type A virus, broke out almost immediately afterward. In two centres the beginning of the outbreak was simultaneous with vaccination, and elsewhere the first cases occurred within a few days or up to a fortnight; only in California was there an interval of about a month before the first cases and two months before the epidemic reached its peak. From five centres the reports are unanimous in recording that vaccinated subjects had less influenza than controls. The experience of Minnesota is typical, the percentage of vac-

inated men developing influenza being 2.7 and of the non-vaccinated 9.06. The difference was nowhere less than 2-fold and at two centres it was over 4-fold. In California, on the other hand, although there was some difference in favour of the vaccinated group in the frequency of influenza, it proved to be due to type A virus, the total cases of clinical influenza, including those not tested for virus and those in which such a test was negative, are almost identical. This series alone can be interpreted only as meaning that the vaccine was without effect.

The sole ostensible difference between California and the other centres is in the time elapsing between vaccination and the appearance of influenza. If this were the explanation it would almost condemn the method in itself, since an immunity so transitory would be of value only in the gravest emergency. That it is not the explanation is suggested both by the fact that the antibody level following vaccination remains high for months, and by observations pointing to another and almost equally disturbing reason. It has been recognized for some years that different strains of type A virus vary antigenically, and further evidence of such differences was obtained in these studies. At Michigan the correlation between serum antibody level and the frequency and severity of influenza was close when the Weiss strain was used for titrations, but the results with the PR8 strain were less conclusive. It seemed, therefore, that the Weiss strain, which was contained in the vaccine and had been isolated only six months before, was closely related to, if not identical with, that responsible for the epidemic. In California, on the other hand, serum antibody titrations were done not only with these two strains but with a third isolated during the epidemic itself. Perhaps the most striking figures emerging from these studies are the ratios between increase in titre due to infection and that produced by the vaccine. These were, using PR8 1.8, Weiss 4.1, and Olson (the current strain) 3.7. Analysis of the same data shows that according to titrations employing PR8 the antibody responses to infection and vaccination were equal, whereas in tests with the Olson strain infection caused a mean increase 3.7 times greater than that produced by vaccine. One cannot avoid the conclusion that the California outbreak was due to a virus differing antigenically from those in the vaccine to such an extent as to deprive this vaccine of almost all protective power.

It is as well that this single negative result was obtained, or those at the five other centres might have encouraged a far too optimistic outlook. It seems that the study of influenza increases yearly in complexity, and this increase keeps pace with and neutralizes the effect of every advance achieved. What limit is there to the possible subdivision of type A virus? And may not its variety account for the transient immunity produced by the attack itself? This has always been a serious stumbling-block to any belief that artificial methods can achieve worth-while immunity. We can only conclude for the time being that vaccination against influenza has not yet passed beyond the experimental stage, and that only further studies of this most laborious nature will illuminate the subject further. It may perhaps also be concluded that should a catastrophic

war just as after the last, a vaccine prepared from the current strain of virus should if possible be used. Whether it could be prepared in sufficient quantity soon enough is another matter.

INTERNATIONAL HEALTH ORGANIZATIONS

The charter of the United Nations, adopted by fifty Governments at San Francisco in the spring of last year, entrusted the solution of health problems in the international field to the new United Nations Organization (the word "Organization" has now been dropped from the title), and at the instance of the Brazilian and Chinese delegations it was agreed that in preparing a plan for the new international health structure methods of associating it with existing institutions should be fully considered. It is useful, therefore, to recall what official international health organizations are already in being, most of them dating from the interwar or recent war period, though two of them go back to the first decade of this century.

The organizations which are devoted wholly to public health are the International Public Health Office in Paris, the Health Organization of the League of Nations in Geneva, and the Pan-American Sanitary Bureau in Washington. The first of these, established in 1909, is designed to provide a link between the signatories of the various international health Conventions, beginning with a Convention signed at Venice in 1892 with the object of preventing cholera from reaching the Mediterranean area, right down to the International Civil Aviation Convention formulated in December, 1944, and not yet in force. The Paris office acts as an information centre and supervises the application of the Conventions. The Health Organization of the League of Nations, set up under the Covenant in 1921, is the most ambitious of all the bodies. It consists of a general advisory council, a health committee with various commissions and subcommissions, and a Health Section which forms part of the Secretariat of the League. Its work falls roughly into two parts: the first is concerned with the prevention of disease, including epidemics, and the second with the promotion of health, including the study of such factors as nutrition, housing, and physical education. The work has had a wide range, but the most important activities have been the service of epidemiological intelligence, the exchanges of health personnel between different countries, and the assistance of Governments in establishing or reorganizing their health administration. The Pan-American Sanitary Bureau in Washington, with branch offices in Central and South America, derives from a conference of twenty-one American republics in 1901-2. It is a centre for co-ordination and information in the field of public health in the Western Hemisphere, and its primary interest is in staying the spread of communicable diseases.

All these organizations are solely concerned with health functions. In addition there are others which have public health as one of their interests. The International Labour Organization, set up at Geneva after the war of 1914-18, includes in its work the study of industrial hygiene, the prevention of industrial diseases, and the protection of workers against health hazards. U.N.R.R.A., which began

its work in 1943, has as one of its purposes "to aid in the prevention of pestilence and the recovery of the health of the people." The United Nations Food and Agriculture Organization, deriving from the Hot Springs Conference in 1943, seeks to raise the levels of nutrition and the standards of living everywhere. Then there are two regional bodies: the Anglo-American Caribbean Commission, established in 1942 to deal, among other matters, with the improvement of nutrition, housing, and public health; and, most recent of all, the Arab League, established in 1945 to facilitate co-operation between the Arab independent States in health questions among others. These are all official organizations. In addition there are voluntary ones such as the International Red Cross and the Rockefeller and Millbank Foundations, whose beneficence has spread far beyond national boundaries. Other important links are the international congresses, dating from the first medical congress in Paris in 1867 and the first surgical congress, also in Paris, in 1885, and again the intellectual traffic between the medical faculties of the universities of different countries.

The United Nations Information Organization (38, Russell Square, W.C.1) devotes its Information Paper No. 5 to a brief account of these bodies and a recital of the international sanitary Conventions of the last fifty years. The information is timely in view of the present assembly of the United Nations in London, when health questions may well influence some political decisions.

MODE OF ACTION OF SULPHONAMIDES

For some time after the discovery by Fildes and Woods in 1940 that *p*-aminobenzoic acid neutralizes the action of sulphonamides on bacteria it seemed that the mystery of how these compounds act had been completely solved. Further than that, the search for "antagonists" was widely pursued as a method for elucidating chemotherapeutic effect: the fact that no known naturally occurring substance antagonizes the action of penicillin is both a reason for its powerful chemotherapeutic effect and an obstacle to further understanding of how that effect is produced. But the further study of sulphonamide action has produced a more complicated picture altogether, and it seems that the Fildes-Woods theory can no longer wholly explain the ascertained facts. These complex developments are very fully reviewed by R. J. Henry,¹ whose monograph, which concludes with nearly 700 references, is one of those compilations without which few people can hope to follow the progress of present-day academic work.

The line of the argument pursued may be stated briefly as follows. It is generally agreed that sulphonamides prevent bacterial growth by inhibiting one or more enzymes. According to the Fildes-Woods theory the enzyme concerned is responsible for an anabolic reaction of which the substrate is *p*-aminobenzoic acid. Direct proof of this is lacking, and a serious difficulty in accepting this as a complete explanation is that sulphonamides are antagonized by so many substances other than *p*-aminobenzoic acid itself. These include methionine, other amino-acids, and urethane among substances of known composition, and proteins, peptone, bacterial products, and unknown elements in tissues and exudates. Another possibility is that sulphonamides inhibit oxidation-reduction enzymes, and this is an

¹ *The Mode of Action of Sulphonamides*. By Richard J. Henry. Publication of Josiah Macy Foundation, Review Series, 1944, vol. 11, No. 1, pp. 72, 698 (refs.).

explanation which Henry favors although he emphasizes that here again actual proof must await the results of further work.

It is significant in this connexion that sulphonamides are known to depress the activity of a wide variety of living cells other than bacteria, including fungi, higher plants, protozoa, and mammalian tissues. Decreased oxygen consumption has been shown to accompany this effect in many cases. One of the most interesting of these is the action on sea-urchin eggs, but here sulphanilamide inhibits the respiration and division of fertilized eggs but does not affect respiration in the unfertilized egg except in exceedingly high concentrations. Here therefore is an example of a cell in which there must be two respiratory systems—one of which furnishes the energy for cell division and is inhibited by sulphanilamide whereas the other is not. If a similar mechanism exists in bacteria the fact that oxygen consumption continues after cell division has stopped is no objection to the hypothesis that sulphonamides inhibit respiration; they may inhibit only that fraction of total respiration which provides the energy for division. These and other studies on respiration tend to class the sulphonamides with "indifferent inhibitors" such as narcotics. We have been accustomed to thinking that under the influence of sulphonamides bacteria are overcome by starvation—it is an even more attractive thought that the effect is to put them to sleep.

WORK FOR SILICOTIC MINERS

"Provision of Employment in South Wales for Persons Suspended from the Mining Industry on Account of Silicosis and Pneumoconiosis" is the title of a 6 page White Paper presented by the President of the Board of Trade to Parliament in December¹. This embodies the findings and recommendations of a "Working Party" which the President of the Board of Trade and the Minister of Labour sent to investigate the problem. The party consisted of Mr D. R. Grenfell, M.P., and another local M.P., two trade union leaders who are themselves silicotic, four representatives of local authorities, and three departmental members. Of the ten experts consulted six were medical officers. Silicosis and pneumoconiosis are due to the effect of dust in the lungs. X-ray examination reveals fibrosis in nodular form in silicosis, whereas in pneumoconiosis it appears as reticulation. Medical knowledge is incomplete, but pneumoconiosis may be accepted as the early stage along the road to silicosis, hence the importance of quickly removing suspected victims from the mines in the initial phase. Medical evidence is unanimous that if this is done the progress of the disease is arrested. Persons affected fall into two categories: (a) the vast majority who are capable of employment in any light industry which does not involve working in dust or fumes and does not require heavy lifting, but it is important to avoid long distance travelling to work, (b) a limited number of special cases that need "sheltered" employment under special conditions. The investigators are satisfied that those in the first category can engage in ordinary light industry under normal industrial conditions, and that this class of workers, in their own interests, should not be segregated from their fellows. They advise that a small number of factories should be built by the Government in South Wales and Monmouthshire through the Trading Estate Company, Ltd., in advance of a demand from tenants in selected areas containing large numbers of disabled unemployed, and that the use of these premises should carry an obligation to employ a

minimum percentage of disabled persons as defined by the Disabled Persons (Employment) Act 1944. Such Government-owned factories would need to be built without delay and located at five focal points. The recommendations are set out in precise terms. They would ensure employment for men in areas where this is a highly desirable and otherwise difficult to obtain; they would give an indirect but real preference to persons suspended from the mining industry, and they can be put into operation at once and administered within the framework of existing legislation. Action on the lines proposed ought to be taken towards rehabilitating ex-miners in South Wales who suffer from silicosis and pneumoconiosis.

BACTERIAL DESTRUCTION OF CONCRETE

The serious corrosion of concrete caused by bacteria is a new phenomenon. The production of sulphuric acid is an essential part of the process but the reactions involved are of great complexity, and a complete explanation of the mechanism is far from easy. There has been increasing evidence that some of the sulphur bacteria are at least in part, responsible for the damage. Bunker in a review of the physiology and biochemistry of the sulphur bacteria states that destruction of concrete occurs in circumstances in which much hydrogen sulphide is formed on bacterial action, and suggests that this is oxidized non-biologically to sulphuric acid. Recent evidence, however, suggests that the oxidation is in part a biological process. Parker² working in Melbourne, has investigated a number of cases of destruction of sewers in which decay has taken place just above the water line, the cement of the concrete being reduced to a putty like mass containing embedded particles of gravel. In all cases the damage was associated with sewage containing considerable quantities of hydrogen sulphide. The rate of corrosion is particularly rapid in the first period, up to 2 years during which corrosion is little apparent, then a period of very rapid destruction. Parker has isolated from the decayed concrete a number of strains of a bacillus, and attributes to it a large share of the process of oxidation to sulphuric acid. The organism for which the somewhat fearsome name *Thiobacillus concretivorus* is proposed, is strictly autotrophic, readily converts free sulphur to sulphuric acid but cannot utilize sulphates, sulphides, or hydrogen sulphide. It grows best at pH 4.0, but can grow and produce acid at any pH less than 6.0. All the strains are completely inhibited at pH 6.5. Tolerance of the bacillus to acid is remarkable, cultures of two of the strains, incubated for 80 days, producing acidity equivalent to 10% sulphuric acid, and three other strains still producing acid in a medium already containing 8% sulphuric acid. From the numbers of bacilli isolated from typical specimens of decayed concrete, and from the ability of the organism to corrode cement mortar in an atmosphere similar to that of a sewer, Parker concludes that *T. concretivorus* is responsible for the final active stage of corrosion of concrete. No explanation, however, is given of the changes which take place during the preliminary period of very slow corrosion. It is not yet clear how hydrogen sulphide is oxidized to free sulphur, which the bacillus requires for growth. Also, concrete is distinctly alkaline, and we do not know as yet by what agencies the pH is brought below the point at which *T. concretivorus* can take control. It is important that the whole process be understood, and it is hoped that the work will continue with a view to clearing up the outstanding points.

RHEUMATISM AND NEUROSIS

In recent years there has been a welcome tendency to more precise analysis of the symptoms of chronic rheumatism. It is not enough nowadays to diagnose rheumatism of the shoulder. A painful shoulder may be due to osteo-arthritis of the acromio-clavicular joint, a subacromial bursitis, prolapse of a cervical disk, fibrositis of the articular capsule of the shoulder-joint, or hysteria, and each of these will require different treatment. It is generally agreed that lumbago and sciatica are only symptomatic diagnoses, though they are real enough to the patient, and the terms fibrositis and fibrous nodule themselves have come under revision. Nevertheless, a great deal of water will have to flow under the bridges before diagnosis in terms of exact pathology will generally be feasible in the non-articular forms of rheumatism. The diagnostician who used the American Medical Association's Classified Nomenclature, in which every disease is presumed to have a local habitation and a name, will often find himself in difficulties in setting down the anatomical position and pathological nature of the lesion in a patient with non-articular rheumatism. The dilemma is stimulating, if humiliating, and few clinicians would doubt that in cases properly diagnosed as fibrositis or sciatica a local tissue change is present. Its effects may be modified by the state of the psyche, but it is not primarily psychogenic in origin. We are beginning to get a clearer picture of the nature and reference of the tissue changes as a result of the work of Copeman and Ackerman¹ on the fibrous nodule or fatty hernia of the back, F. A. Elliott² on the trigger areas, and Lewis and Kellgren³ on the basic qualities of somatic pain.

It has long been known that patients with neurasthenia suffer from "rheumatic" pains. We may be forgiven for using the comprehensive term neurasthenia, if only to recall Allbutt's⁴ description of the rheumatic pains and backache in this disorder. Many patients with this complaint have come under observation in the armed Forces during the war, and it is not surprising that they have at first been diagnosed as having fibrositis and treated for that. An excellent description is given by Flind and Barber,⁵ who point out that the so-called rheumatism consists of indefinite pains, rarely limited to the joints or any one region of the body. There is no swelling of the joints, and there are no sharply localized fibrositic nodules or trigger areas, though the patient may react excessively to deep palpation of the muscles. Diagnosis is not difficult if the patient is considered as a whole and attention is not too closely focused on the locomotor system. There is usually a personal and family history of neurosis and morbid fears about health, and other nervous symptoms are present such as feelings of exhaustion, pain behind the eyes, tremors, dizziness, blacking out, insomnia, headaches, and dyspepsia. Several explanations have been given of the mechanism of the so-called rheumatic pains in neurasthenia. Aggressive feelings which have been inhibited may find expression in muscular tensions—the cramped muscle reflects the cramped mind. If it is assumed that the pains are conversion symptoms, their situation may be explained by a local predisposition in the shape of a subclinical fibrositis; or it may be symbolic, representing inward feelings of resistance, obstinacy, and resentment. There is a slight flavour of the hothouse about these views, and the clinician may well turn back to Allbutt with his ideas of postural fatigue and lowering of the nervous threshold.

The complaint is obviously similar to the inefficiency of the respiratory musculature and the precordial pain which are characteristic of effort syndrome. The same type of patient is affected, and it is probable that experiment would show the same poor response to exercise and premature exhaustion as has been observed in effort syndrome.⁶ It is misleading to include these cases under the heading of rheumatism, for the word rheumatism by derivation implies the defluxion of a morbid humour to the part—that is to say, a local tissue change. They should be diagnosed in terms of psychiatry or constitutional pathology. There is undoubtedly a psychosomatic approach to rheumatism, but it will not be made easier by confusing rheumatism with neurasthenia.

THE BRITISH LEGION'S WORK

The report of the British Legion for 1944-5 is issued from Cardigan House, Richmond, Surrey. Membership grew during the year, and men and women who served during the war are joining the Legion in considerable numbers. More and more it has been consulted on everything connected with rehabilitation and resettlement, not only by Government Departments concerned but by a number of voluntary organizations either directly or indirectly interested in these problems; co-operation with other bodies has been a notable feature of the year's activities. The Council views with great concern the housing situation as it affects men and women leaving the Forces. Re-establishment of family life, in the Legion's view, not only is a problem of major importance for ex-Service families themselves but also holds out the gravest possibilities for the country if neglect continues. The annual conference proclaimed its fears for a situation which might well arise from the consequences of delay and ineffectiveness in dealing with this most vital matter. Among many other branches of work the Legion's Employment Bureau has continued to function during the year, and the number of placings was 9,530. On March 21, 1945, the Queen opened the British Legion Sanatorium at Nayland. Five months before then the medical director, Dr. J. B. McDougall, was seconded to U.N.R.R.A., but the B.L. village was fortunate in having on its honorary consulting staff Dr. F. R. G. Heal who undertook during Dr. McDougall's absence to act a honorary consulting medical director, and during the year he frequently visited Nayland, and Preston Hall, and Douglas House, Bournemouth. An important development on the medical side of the village scheme has been the setting up of a committee of consultants composed of physicians and surgeons who advise the council on management on medical matters in the administration of the three institutions. The council puts on record its appreciation of the valuable work done by members of the profession in connexion with the various cases they have to be dealt with.

The next session of the General Medical Council will begin on Tuesday, Feb. 12, at 2 p.m., when the President Sir Herbert Eason, will take the chair.

Dr. H. E. Magee will deliver the Milroy Lectures on Tuesday, Feb. 12, and Thursday, Feb. 14, at 5 p.m. at the Royal College of Physicians, Pall Mall East. Subject: "Application of Nutrition to Public Health—Some Lessons of the War."

¹ *Quart. J. Med.*, 1944, 13, 37.

² *Lancet*, 1944, 1, 47.

³ *Clin. Sci.*, 1939, 4, 47.

⁴ Allbutt, C., and Rolleston, H. D., *System of Medicine*, 1910, 8, 727.

⁵ *Quart. J. Med.*, 1945, 14, 57.

⁶ Jones, M. S., and Scarisbrick, R., *Lancet*, 1943, 2, 331.

MEDICAL EXPERIENCES IN SIAM

The following is an abstract of the experiences recorded by Capt S S PAVILLARD Medical Officer of 'D Battalion of 650 prisoners of war sent from Changi near Singapore to Siam by the Japanese as a working party. The period covered is from April 1942 to Aug 1945

The march of 15 miles from Changi to Havelock Road Singapore proved very exhausting, the men carried all their kit and had for the previous three months been on a starvation diet. Many fell out of the line of march suffering from "black-out" and heat exhaustion. On our arrival at Havelock Road Camp we found that conditions were deplorable in every respect. The complete absence of latrines was responsible for the ground being fouled and for the outbreak of bacillary dysentery. Washing and cooking facilities were totally inadequate and the whole camp area had been used as a refuse dump by the local Asiatic community. The morning after our arrival one of the men was found to have died during the night from cardiac beriberi, which no doubt had been precipitated by the gruelling ordeal of the previous day.

Arrangements were immediately made to clean up the camp, but the men were still grossly overcrowded in the bug and louse infected huts. Consequently many slept in the open. The men were worked as coolies and although the rations showed some improvement on Changi standards, this was not sufficient to prevent the widespread outbreak of deficiency diseases, particularly beriberi and pellagra. These conditions prevailed throughout our captivity, and the men lived on the threshold of avitaminosis. Any great exertion or fatigue invariably caused an outbreak of beriberi and pellagra. The men were "paid" at the rate of 10 cents a day, representing approximately 1s 6d per week, and out of this sum essentials such as soap had to be bought.

The most prevalent diseases were beriberi, pellagra and bacillary and amoebic dysentery. Practically the whole camp suffered from scrofula dermatitis (B deficiency). This caused great irritation and resulted in a weeping dermatitis. Diphtheria was prevalent at the time and many men contracted diphtheritic scrofula. We had brought a very limited supply of drugs from Changi which were soon exhausted. The Japanese gave us no drugs whatever, but at our request allowed us to make purchases locally.

On Oct 12 we left Havelock Road, and marched to Singapore Station carrying all our kit. Here we entrained in covered goods wagons—32 men to a truck, the floor area of which was about 18 ft by 7 ft (5.5 by 2.15 m). There were not even the most primitive sanitary arrangements on the train and on arrival at Seremban, our first stop after a journey lasting some 13 hours, we must have provided excellent entertainment for the local populace. This exposure of our men to ridicule was repeated at every halt on our journey through Malaya and Siam. There was a great shortage of drinking water, and washing facilities were non-existent.

On our arrival at Ban Pong on Oct 17 we were marched to a camp sited in a paddy field which was completely under water. This was the first opportunity I had had to hold proper sick parades. There were many cases of diarrhoea and dysentery and one case of diphtheria. The hut that went by the name of hospital was flooded to a depth of 2 ft (61 cm) and was grossly overcrowded, the patients lying on bamboo platforms 2 to 3 in (5 to 7.5 cm) above the water. The water was full of mosquito larvae and there were many cases of malaria. As a result of my sick parade 20 men were left behind when, next day, we started on our long march up-country.

Throughout our captivity everything had to be carried on our backs. Therefore our drugs were split up into small parcels and carried by volunteers. The experience of later parties proved the wisdom of this method, for in the majority of cases parties left their medical supplies at Ban Pong on the understanding that the Japs would forward them by river transport. Of course the supplies were stolen by the Japs and the parties never saw them again. We took two days to march along the made road from Ban Pong to Kamburi (some 39 kilometres). During the march many men suffered from heat exhaustion and stomach cramps due to loss of salt by sweating. Some became so exhausted that I ordered them to fall out, they were collected into groups and were later picked up by Japanese lorries. During the march the Thais gave us fruit, salt, aspirins, and quinine. The only water available was from roadside wells and could not be boiled or chlorinated. During later stages of our march through the jungle men drank from stagnant pools which were often full of mosquito larvae.

On our first night's stop and again the second night the men were in a very exhausted condition and a great number were suffering from foot blisters. My orderlies and I were dressing feet until 2 a.m. The Japanese tried to force us to march again the following day, but when I repeatedly pointed out that some 250 men were quite incapable of moving they dropped their bullying tactics and the next day we rested. In view of the physical strain which the men had undergone, I decided thoroughly to examine every one. Many complained of tightness of the chest and difficulty in breathing, and, on

auscultation, tachycardia and extrasystoles were found. As a result I reported to the Japs that 150 men would still be unable to continue the march the following day. This report brought forth the usual tirade and bullying attitude, but I pointed out that any delay would be the direct responsibility of the Jap commander and once again he climbed down. The 150 men remained in Kamburi and rejoined us some time later at Wampo having made the journey up river in barges. It is of interest to note that the average age of the men was 35 years and the average time of residence in the East 11 years.

The next day we marched through flooded paddy fields before reaching the jungle. The Japs often lost the way, and this meant that several times we retraced our steps for miles, weary miles. At that night's stop at the village of Rajah we found cover for only 100. The remainder slept out and there was heavy rain during the night. There was no provision for feeding except a supply of uncooked rice, and an adequate supply of drinking water was not forthcoming. We had to collect firewood and boiled the rice which made the first meal since 9 o'clock that morning. After the usual argument we rested the next day, and when we resumed the march 7 men were left behind owing to sickness, they, too, joined us later on. This day's rest did much to restore the men's spirits and they were able to wash themselves and their clothes for the first time since leaving Singapore.

The following day we covered 20 kilometres to the river-crossing at Tardau. The route lay through thick jungle and we used footpaths and bullock-cart tracks. We were up to the knees in mud and many men lost the soles of their boots. This day's march was the worst we had experienced, but the men's spirits remained high. Many of the stronger men helped their comrades and carried their kit. On arrival at the river-crossing we were met by a fanatical Jap officer who, armed with a heavy bamboo stick (with which he satisfied his sadism), herded us into parties of 40 to cross the river in barges.

Conditions at Wampo Camp

A day later we arrived at Tarsau, whence we were sent down river by barge to Wampo some 30 kilometres away. Wampo was to be our home for the next 7 months. Our task was to build a section of railway 12 kilometres long, with a viaduct and bridge at each end. Much of the track had to be hewn out of solid rock. The camp consisted of two huts apart from Jap accommodation. Therefore some 67% of the men were forced to sleep in the open until more jungle had been cleared and other huts built. The camp eventually held 1,500 men. The food consisted of plain boiled rice three times a day, there was no tea, sugar, or salt. Many men fainted on parade and at work. "Black-outs" were very common, and occurred when one stood up quickly after stooping or sitting. Gastro-intestinal disorders were on the increase as was malaria. We managed to obtain two tents, onto which we crowded 50 of the worst sick in order to protect them from the rain. We were unable to obtain prophylactic quinine and had the greatest difficulty in getting it for specific treatment. The Japs eventually supplied 9 g (0.5 g) per day for five days as a full course, consequently relapses were frequent.

About a week after our arrival at Wampo the first death occurred. The man was a lance-corporal (?) of the 2nd Gordon Highlanders, and died of acute bacillary and, I suspect, amoebic dysentery followed by a perforated bowel.

On Oct 28 Capt Richardson, R.A.M.C., reported a case of appendix abscess. The man's temperature and pulse were rising rapidly, and it was considered necessary to operate and drain. We had of course no operating room but constructed a bamboo table in the M.I. room. We had practically no surgical instruments at all (I had been unable to acquire any in Singapore). In fact, we had only three pairs of artery forceps, one pair of scissors (rusty), a few surgical needles and some catgut. Worse of all, we had no knife. I decided to use a cut-throat razor, and I must admit that it was one of the sharpest instruments I have ever employed. As an anaesthetic we used chloroform. Before the start of the operation the Jap M.O. arrived from Tarsau, and I asked him if he would assist me or give the anaesthetic. His answer was a silly grin accompanied by the remark that he would just look on. Pte Riley, R.A.M.C., administered the anaesthetic while Capt Richardson assisted. The abscess was located and drained.

The camp was now taking shape, and we had built a hospital to accommodate 100 men, we had in addition a dysentery wing. Felling 50 jungle-clearing progressed, and the hut accommodation increased daily. The sanitary arrangements rapidly improved, and this did much to reduce the incidence of dysentery. We were also one of the first camps to have meat, which we bought locally from the Thais. This amount was small, but was privately supplemented with lizards and snakes. These were quite appetizing, and python steaks tasted rather like fishy chicken. Tegons were also good, but difficult to catch.

As already stated we were 1,500 strong, and after 7 months of hard manual labour we had lost only 15 men. Three of these deaths

were due to drowning. Other and less fortunate camps were at this time losing anything from 60 to 120 men per month. In due course I was allowed to set off down-river with the Jap camp commandant and succeeded in buying \$800 worth of drugs, including 100 kilogrammes of peanuts. Prices were very high: 1 tablet of sulphapyridine cost \$1 (in three years it rose to \$35), and emetine cost \$12 per grain (65 mg.), rising in three years to \$100. The arrival of these drugs did much to boost morale. The camp was now finished and parties started clearing jungle for the railway.

Diseases prevalent at Wampo

A month after our arrival at Wampo the most common diseases were: malaria (daily on the increase), beriberi (neuritic and oedematous), tropical ulcers, amoebic dysentery (bacillary dysentery had shown marked decrease), diphtheria, pellagra (early signs—i.e., stomatitis, glossitis, and skin rash). Among these were some interesting clinical cases, but owing to lack of paper it was impossible to keep notes. We had not enough specific drugs to treat all cases; therefore these had to be withheld until the patient's condition was desperate. It was often a very difficult decision to know when, and to whom, to give specific drugs, as so many cases were in need of them. However, by cutting down the recognized dosage it was often possible to tide a patient over the acute phase of his disease, though convalescence was usually prolonged.

In amoebic dysentery it was found that 2 gr. (0.13 g.) of emetine would convert an acute E.H. to the more chronic stage of E.H. cysts. This often brought about a cessation of blood and mucus and a rapid improvement in the patient's health. We had no microscope at Wampo, and diagnosis depended on clinical findings.

The diphtheria patients often developed pharyngeal paralysis, and whenever they swallowed any fluid it regurgitated up the nose. I cannot help feeling that there was mixed infection with Vincent's angina, and as I had at the time some N.A.B. a few patients were given 0.45 g. intravenously, with remarkable results; for the membrane disappeared and temperature dropped to normal in a very short period. Yet had a case been only Vincent's angina one would not have expected pharyngeal paralysis to develop; but in most cases, whether they received N.A.B. or not, it did. The Japs would give us no antidiphtheritic serum. In spite of that out of 20 diphtheria cases we lost only 2.

The work on the cliff face was proceeding slowly and the Japs brought in a further 2,000 P.O.W.s. This marked the beginning of what was called "the speedo period." Everything was done at the double; the weekly half-day was abolished, and the men had no chance to wash or air their clothes. Scabies, ringworm, and other skin conditions were rife; the huts became a living mass of bugs and lice. Tropical typhus, beriberi, pellagra, malaria, dysenteries, and tropical ulcers were all on the increase. The hospital was full, and sick personnel had to work as orderlies. The Japs now started paying officers \$20 a month, half of which went towards buying extra food for the hospital—eggs, etc. The men, who were paid 10 to 20 cents a day according to rank, also contributed a proportion of their money. On my original trip to Kamburi I had bought some sacks of rice-polishings, and on our advice the Japs eventually included these in the rations. We were able to give each man 1/4 pint (14.2 c.cm.) daily, and there was a marked decrease in the incidence of beriberi.

Outbreak of Cholera

We started up-country at the end of April, 1943, "D" Bn. leaving last. After marching 40 kilometres we arrived at our next camp, Tonchan South, and here we first encountered cholera. Information was received that it had broken out at Tak anum, some 100 kilometres further up. Full cholera precautions were immediately taken and lectures given, so that when the infection started, as it did on June 8, the men were well acquainted with all its manifestations and there was no panic. I am glad to be able to say that, although "D" Bn. was at different times in three of the worst cholera areas, we lost only 7 men. Considering that some battalions lost up to 50% of their strength, I cannot help feeling that many contracted the disease through sheer ignorance of elementary hygienic principles. Not only was this apparent with cholera, but with dysentery, malaria, etc., the average O.R.'s sense of hygiene was very poor. I was fortunate in having with me in "D" Bn. educated men—lawyers, chartered accountants, and business men—who made up 70% of our strength, and they could be trusted to carry out advice given.

We found that the camp at Tonchan South was grossly overcrowded, and men were sleeping in leaky tents. Sanitary arrangements were totally inadequate, and parties were still arriving. In all there were 3,000 P.O.W.s and about 2,000 Asiatic labourers in an area of less than half a square mile (1.3 sq. km.). Soon after our arrival the Jap camp commandant (S/Sgt. Hirumatz) asked me why there was so much sickness. I urged him to let us have a larger sanitary squad, as we were allowed only one sanitary orderly per 500 men. I also warned him of the danger of cholera breaking out, particu-

larly as the coolie labour force washed in the only stream at a point above that at which we were able to draw our water. He would do nothing about it, and blamed the men for contracting diseases, saying that they did not wear shirts at night (the majority had none), but wore G-strings. Three days later Hirumatz sent for me, and to my joy was in the throes of a malarial rigor. I passed the obvious comment, but he saw no humour in the situation and wanted to be treated. I may add that except at Tarsau there was no Japanese medical officer at any camp, and consequently we had to treat Japs and Koreans. To have refused would merely have brought serious repercussions on our own sick. Only very seldom did the Japs contribute small amounts of their very inferior drugs.

Before leaving Wampo I had asked for anticholera vaccine and had been refused. However, on April 7 I walked to Tarsau and succeeded in getting some. On the following day, back at Tonchan South, I was asked to see a case, and it was the perfect textbook example. This case was reported at once to the Jap commandant, who ordered us to move the man to Tarsau. We argued that such a move would only help to spread the disease. He threatened us, but, fortunately for the men of Tarsau, three more cases were diagnosed within an hour, and Hirumatz, by now thoroughly frightened, sent for the Jap M.O. from Tarsau. On his arrival the M.O. agreed with us, and we made a small clearing in the jungle, where we pitched the one (leaky) tent available. The men were taken there on improvised stretchers (a rice sack slung on two bamboo poles). By night we had 10 cases; some had died. We applied for more tents, larger parties for clearing and grave-digging, but all our requests were refused. The camp commandant said that nothing could be done, and the men must be allowed to die. We were therefore forced to take tents from fit men (leaving them in the open) and make up grave-digging parties with officers and the sick. Deaths were occurring at such a rate that we had to dig pits within 30 feet (9.14 m.) of the tents, having too few men to clear jungle.

The coolies were dying like flies, and many fled only to die in the jungle. Our working parties were constantly finding and burying the bodies while going to and from work. The Japs moved the coolie cholera tent next to ours; these coolies had no doctors or orderlies, and were allowed neither food nor water. Their cries for water were pitiful to hear. However, our orderlies passed both food and water to them without difficulty. The Jap guards were so terror-stricken as to be useless. Three times a day a Jap orderly, with two of our sick men, went to the coolie tent and ordered the removal of the dead and dying. These were dumped into the pit, both dead and alive, along with our dead. The pit was then lightly covered with earth, and the stench of putrefaction was terrible.

Somo six weeks before the outbreak I had constructed, as a precaution, a small plant for distilling water for intravenous salines. It was a very primitive affair, the condenser being a coiled rubber tube inside a hollow bamboo in which cold water was circulated. The boiler was a 4-gallon keosene can. Unfortunately it exploded one day, scalding the operator; but it was soon replaced. Within 24 hours of the outbreak we were able to give intravenous salines. The plant was producing 40 pints (22.7 l.) daily, and eventually double that figure. The giving bottle was a jam-jar connected to a needle by a rubber tube. It was almost always necessary to cut down to the vein to insert the needle, as the vein was completely collapsed. We had no local analgesic to inject around the skin before cutting, but fortunately most of the men were insensitive to pain. In addition to salines patients were given potassium permanganate 3 gr. (0.2 g) wrapped in a cigarette paper, and swallowed every 1/4-hour. Selected cases were given sulphapyridine with what appeared to be satisfactory results.

Conditions Up-country

On July 1, 1943, 550 men were ordered up to the dreaded Kayu No. 3 camp, where they were to work on a cutting 90 ft. (27.4 m) deep through solid rock. This place was known as Hell-fire Corner. Conditions in the Kayu area were truly appalling; at the river camp there were some 500 living skeletons barely capable of movement. They were awaiting evacuation to Tarsau, and were all suffering from the usual beriberi, malaria, dysentery, pellagra, and tropical ulcers. During the previous three months there had been 100 deaths each month. Our camp was to be in this Kayu 3 area, and sanitary conditions there were a nightmare. We cleared the camp area in torrential rain and erected our leaky tents.

It will be indicative of conditions to outline the course of the stream from which we drew water for all purposes. At its head it ran through a camp of 500 men of "H" Force; they had already lost 220 men from cholera. It then ran through a coolie camp where also there was cholera. From here it ran along the side of a track and was used as a watering-place for elephants. It then entered the original Kayu 3 Camp, containing 500 men; 35 had been lost here owing to cholera. Their cholera compound was on the opposite side of the stream to the camp, therefore anyone leaving the compound for the camp had to walk through the stream in heavily contaminated boots. The Japanese had strictly and vindictively forbidden the construction of a bridge. Three days later one of our cooks who was washing sweet potatoes in the stream absent-mindedly

chewed a piece, he developed cholera in the morning and was dead in the evening.

We were in the Kavu area for three weeks, during which time we had 7 cholera cases, of which 4 recovered. It is not surprising that after this period, when men went to work at 8 a.m. and returned at 5 o'clock the following morning we had 250 heavy sick out of our total of 550. Another party of 500 also had 250 heavy sick, and this party moved into Kayu I where a hospital and doctors were available but no drugs. The 'fit' men of "D" and "F" Bns. were moved up to Hintoek for further work and I went with the sick to Tonchan Main Camp whence I hoped to evacuate the worst cases to Tarsau Base Hospital. I myself was at the time suffering from amoebic dysentery, the last emetine had been used on an acute case some weeks before.

It was now that Hirumatz repeated the behaviour which we had already suffered from at Tonchan South. It was his habit to parade the sick in all kinds of weather and at any time of the day or night. He was under the delusion that he could find fit men among the sick. He frequently accused men of malingering and administered terrible beatings.

On Sept. 3, 1943, I moved north to Kinsayok with 50 of my 250 heavy sick who had been refused evacuation down river. A few days before leaving I received a consignment of drugs from the Swiss consul via Mr. Pong. The money to buy these drugs in the black market in Bangkok was subscribed by the European residents among whom were many Germans and Italians. Conditions were better than anything we had known since Wampo, but they were marred by Sgt. Okado, the Jap medical sergeant. This man, known as Dr. Death, repeatedly beat up the sick and also the doctors, whom he said were responsible for the numbers of sick.

On Jan. 14, 1944, a party of 500 men, mostly "B" and "D" and "F" Bns., was sent to a small camp on the river bank in order to haul barges through the rapids. I went with them as M.O. The work was easy, but we had practically 100% of malaria. After six weeks these men were sent down to Tarsau and I was ordered back to Kinsayok. On my arrival there I found the camp overrun by rats, many of which were dying from what the Japs said was bubonic plague. The whole camp was turned out to kill rats, and in six weeks we destroyed 10,000. Typhus had now started and we had many cases.

On April 1 I went down with tropical typhus, and have never felt so ill, there were several other cases, and we were moved under an improvised awning. The heat at this time was intolerable—in fact, so bad that clinical thermometers registered 104° F. throughout the day. The only way to ascertain a patient's temperature was to take it first thing in the morning or last thing at night. For 17 days I had fever, and this was followed by malaria. I had lost so much weight that I was forced to sell my fountain pen to the Thais for which I got \$25, and used it to buy eggs. Throughout our captivity almost everyone was forced at one time or another to sell personal valuables in order to supplement rations. A great deal of Japanese equipment (changkols, shovels, axe heads, etc.) was also sold. The risk was heavy, as penalties were exacted with animal ferocity.

In May and June large parties of heavy sick arrived from Tarsau and Chungkai, bringing fortunately, a number of doctors with them. On June 6 we received the first consignment of food and drugs from America. Much of the food and a large proportion of the drugs were appropriated by the Japs. Even so, what we received was a godsend. As an indication of the scale of Japanese thieving, we received one parcel for every 64 men, although we knew that one food parcel per man had arrived.

Month after month of the appalling conditions during which time men were not allowed to report sick at an early stage of their diseases, rendered their ultimate cure difficult or impossible even if specific drugs were available. When men were eventually allowed to report sick the clinical picture was usually complicated by the fact that the patients were suffering from several diseases at the same time. Furthermore, they had lost interest in things around them, and the will to live. I have on many occasions argued and reasoned with the unfortunate men, but they were exhausted beyond the limits of human endurance. Even to-day we are still fighting to save some of the pitiful human wrecks who have survived the last three years.

At Christmas we were allowed a pantomime. It was a great show, and cheered everyone up. We heard that officers and men were to be separated, the men felt this keenly, for we had worked side by side for the past 3 years, and the officers had always stood between the Japs and their men. On one occasion Major Clark in the course of an argument with the Japs was struck heavily and his ear drum was ruptured, this injury gave him much trouble.

On May 12, 1945, we started our journey to Pratchina, 110 kilo metres the other side of Bangkok. We travelled as far as Non Pladock in open trucks in very heavy rain. At Non Pladock, as usual, no arrangements had been made. We spent the night in two

semi-collapsed huts which had previously been used by coolie labour. The huts were indescribably filthy.

On the 14th, after crossing the river by barges, we waited four hours in blustering sun (most men had no shirts) for the Bangkok train to arrive. The river water was too dirty to drink, so we chlorinated water from adjacent paddy fields. At 1 p.m. a meal was brought to us from a near-by P.O.W. camp. This was to be our only meal until we reached Bangkok Docks the next morning.

At 6 p.m. we arrived at Bangkok goods station which had been heavily blasted by our bombers. In a few sheds left standing were Jap fighting troops on their way to Burma. The whole area was full of bombs, ammunition, mortars, etc. We embarked on barges at 10 o'clock and made a 7-hour trip down the river to Bangkok Docks and prayed there would not be an air raid. This trip was keeping with all journeys organized by the Japs—extremely uncomfortable, there were 50 men per small barge. We arrived at about dawn and had at once to unload the junk which the Japs seem to find indispensable on any move (wood, petrol, some rice, etc.). We finished this job by 9 o'clock and were allowed 20 minutes for a meal which was provided. Immediately afterwards the men were split into working parties and sent to construct emplacements and defences of all kinds in the dock area and in Bangkok. I had 70 sick by this time, but the Japs would allow only 40, so I had to pick out the 50 worst cases.

Early in July we received a small consignment of American Ped Cross drugs (our second and last during our captivity). After the armistice had been signed we discovered that the Japs had been withholding 35 cases of drugs and hundreds of blankets.

Conclusion

At long last the signs that the end was near became evident. On Aug. 16 we noticed Japanese troops burning papers, and in the afternoon there was a parade of their camp staff. When the parade was over some Korean guards signalled across the barbed wire the information that the war was finished.

As an indication of the incidence of sickness among P.O.W.s it is of interest to note that during the period of our captivity I saw an average of 120 cases a day, while at Kavu this figure rose to 400 a day.

Our evacuation to Bangkok was delayed by the arrival of 450 P.O.W.s who had been in contact with smallpox. These men had been marching since June and had covered 600 kilometres.

On Sept. 8 Lady Louis Mountbatten visited the camp and shook most of us by the hand. She was the first white woman we had seen for 3½ years.

HOSPITAL SERVICES: FUTURE PATTERN

THE MIDLANDS AND YORKSHIRE

In 1941 the then Minister of Health initiated a survey of hospital services, dividing England and Wales into ten areas for the purpose, and appointing, himself in some areas and the Nuffield Provincial Hospitals Trust in others, persons experienced in the clinical or administrative work of hospitals as surveying officers. The reports and recommendations of these officers are now being issued. Each report makes a large Blue Book. The teams of surveyors approached their task in different ways, some dealing with each hospital of the area in turn, others with districts and groups of hospitals or with the different branches of hospital service. The result is a Domestic survey of a scale and completeness never before attempted. The survey of the London Region was reviewed in the *British Medical Journal* of July 14, 1945 (p. 56). Below is a summary of the surveys for the West and East Midlands and Yorkshire.*

WEST MIDLANDS AREA

This survey was undertaken by Mr. J. B. Hunter, F.R.C.S., Dr. R. Veitch Clark, and Sir Ernest Hart. The area covered includes the geographical counties of Stafford, Warwick, Shropshire, Worcester, Hereford, and Northampton with Birmingham, with its million population, dominating the larger part.

Desire for Co-ordination

The surveyors have been impressed in practically every part of the region with the desire for co-operation between the rate-supported and the voluntary hospitals. Any difficulties have been "largely psychological on both sides." Action mon-

* H.M. Stationery Office. West Midlands Area, 5s. net, Sheffield and East Midlands, 7s. 6d. net, Yorkshire, 5s. net.

likely to be profitable would be: (a) division of functions between the two hospitals in each locality so that both undertook general medicine and surgery and allocated special departments between themselves, instead of both running smaller units; and (b) attachment of a single group of specialists to the staffs of both hospitals. Cottage hospitals are considered to be a necessary part of any organized hospital plan, but they should not assume the functions of a general hospital; they are peripheral units in any district served by a general hospital at the centre.

In each hospital district there should be a range of consultants adequately covering general medicine and surgery and obstetrics and gynaecology, as well as the principal specialties. At present the number of consultants is limited by the economics of the area. If there is no living to be made by consulting work then "full" specialists are not available for the staff of the hospital, and committees of management have to get along with general practitioners of the immediate neighbourhood.

"In the past the tendency has been for the general practitioner gradually to drift into surgery, or whatever branch of medicine he is most interested in, and to do this as an offshoot from his general practice; he may be entirely self-taught and without proper training for the particular branch he chooses. . . . The surveyors are of opinion that this is not the right procedure. They feel that hospital authorities should be in a position to pay a sufficient annual sum to enable consultants of approved training and ability to perform the work, and that such specialists should not have to be dependent on their private practice to enable them to live."

Having gone as far as this in areas concerning which a subsidy is found necessary to secure adequate specialist service, they feel bound to go on to affirm that all consultants should be paid for their hospital work.

The need for a complete change of outlook in the care of the chronic sick has impressed them. They recommend that no patient should be admitted directly to a "chronic" hospital; he should in the first instance be admitted to a general hospital for a thorough assessment of his case. Accommodation for the chronic sick should be planned on lines which will enable the patients not only to receive good medical and nursing care but to enjoy life so far as their faculties permit.

Birmingham and District

The following hospital districts for the West Midlands area are proposed:

Birmingham	Shrewsbury
Bromsgrove	Stafford
Coventry	Stoke
Dudley	Stourbridge
Hereford	Walsall
Kidderminster	Warwick and Leamington
Northampton	West Bromwich
Nuneaton	Wolverhampton
Rugby	Worcester

In Birmingham there is need for a new general hospital with out-patient department to serve as a district hospital for the northern and eastern boundaries of the city. Birmingham General Hospital, in its unrivalled position, should extend and improve its out-patient department and emergency services. The new Queen Elizabeth Hospital should be completed as planned to provide more general and surgical beds. Selly Oak should have the major out-patient department for the southern parts of the city.

It is felt that in any scheme for Warwickshire Coventry should play a larger part and serve as a major hospital centre for the districts in the north-east; with it the district hospitals of Nuneaton and Rugby should be associated. Two general hospitals are suggested, of not more than 700 "acute" beds, to serve Coventry and the surrounding zone, with the same specialist staff available to both. The staffing of the general and special departments of Coventry hospitals is considered to need strengthening. A main district hospital should be situated at Leamington or Warwick and linked with Birmingham for certain specialist needs. A new hospital at Sutton Coldfield to serve the residential fringe of Warwickshire east of Birmingham is also considered desirable.

A general hospital in Worcester is recommended for the service of the central and southern parts of that county. Worcester Royal (within whose walls the British Medical

Association was founded) would naturally fill the position if strengthened in staff and in certain physical resources. A general hospital is also needed in Bromsgrove to serve the north-east of the county; the "hatted" All Saints Hospital should meet the immediate need, and with certain modifications might meet the requirements of a long-term policy. Kidderminster General Hospital, strengthened in its medical staff and eventually rebuilt away from its present restricted site, would serve a district, and Corbett Hospital, Stourbridge, is well placed to serve a population of 120,000.

The Black Country

North Staffordshire was found to be practically self-contained in its general hospital provision. The two large general hospitals at Stoke are both well sited, and the co-ordination of their work and that of the orthopaedic hospital is for the moment more important than extensions, but in time such extensions must be made, and the work of these hospitals might well be supplemented by a recovery hospital outside. In Mid-Staffordshire Burton-on-Trent is a natural centre for a population of nearly 100,000, but there will have to be an increase of beds. Stafford should be the centre of a hospital district of some 180,000 population, but here again the general hospital would need extension to perhaps 400 beds. In South Staffordshire, Wolverhampton, Walsall, West Bromwich, and Dudley each possess one or more general hospitals serving their town and the surrounding area. These four towns are considered to be natural centres at which to locate general hospitals. Smethwick would be served by St. Chad's, Birmingham, and Hallam, West Bromwich.

The Rural Midlands

Shrewsbury is the natural centre for the hospital district of Shropshire. The Salop Royal Infirmary, the County Hospital, and the Eye, Ear, and Throat Hospital, with a total of 430 beds, will need to provide the hospital services for the district until substantial rebuilding can be undertaken, and it is thought that it should be possible to secure some of the advantages of a united hospital right away by appointing to the three a common medical staff. Wolverhampton would be the most convenient centre to provide for Shropshire most of the consultant and other services not available in Shrewsbury, and Shrewsbury should look to Birmingham for its university connexions and for the rarer forms of specialist service.

The main task in Herefordshire is to secure a co-ordinated general hospital service. One general hospital of economic size would serve the area. At present there are two in Hereford—one voluntary and the other local authority—with no tradition of co-ordination. The surveyors hold that there is no room in Herefordshire for two such hospitals, though the total number of beds is required. The clinical departments of both institutions should be regarded as complementary and the staffs built up as one team. This would be facilitated by an allocation of functions between the two hospitals. Hereford could look most conveniently to Birmingham and its medical school and associated general and special hospitals for scientific inspiration, general consultative help, and certain less frequent specialist services.

Northampton, in the view of the surveyors, should be the centre of an organized hospital district for its county, with the general hospital there associated more closely with the one at Kettering. The Northampton hospitals would need to be linked to a university medical centre for stimulus, exchange of medical personnel, and certain services such as thoracic and neurosurgery and some forms of radiotherapy. Hitherto Northamptonshire patients needing treatment at a major centre have usually gone to London, and the attraction of London with its numerous medical centres and large numbers of consultants is bound to continue. Nevertheless, London is overloaded, and it is desirable to relieve it of all those areas which can be advantageously linked up with other university centres. Therefore it is proposed that Northamptonshire should be associated with Oxford, notwithstanding difficult railway connexions.

SHEFFIELD AND EAST MIDLANDS AREA

The survey in this area was in the hands of Prof. L. G. Parsons, Dr. G. E. Godber, and Mr. S. Clayton Fryers. The last-named did not take part in the survey of Derbyshire and

Yorkshire because of the unwillingness of the local authorities in those areas to accept a lay survivor. The area includes seven counties and part of an eighth comprising a population of close on four millions. There are two teaching general hospitals, both of them in Sheffield and other hospitals, larger than the teaching ones which are recognized in their districts as consultative centres.

General Criticisms

A marked tendency to over-development of certain aspects of work is noted especially lavish expenditure on equipment in competition with neighbouring hospitals.

"Elaborate operating theatres are commonly found in small cottage hospitals even in those where operations are relatively infrequent and sometimes may be performed by unskilled hands. We have seen complicated and highly expensive equipment for the treatment of severe fractures duplicated in hospitals the work of which would be better restricted to simpler forms of treatment, leaving the patient with a slightly longer journey to a better-equipped hospital where complicated treatment can be undertaken under expert supervision. X-ray apparatus is usually found in cottage hospitals, although many have no visiting radiologist or even radiographer."

The effect of contributory schemes on the normal flow of patients is mentioned. In some areas the survivors were told that non-contributors might have less chance of admission to the only available suitable hospital than contributors whose need was less, also that some contributory schemes associated with particular hospitals are reluctant to allow a patient to go to another hospital even though he might benefit by the special treatment obtainable there, because such treatment would involve payment from contributory scheme funds. On staffing the comment is made that there seems to be a tendency for municipal hospitals to seek to stand alone and to provide much of their medical service by means of whole time staffs, thereby necessarily reducing the opportunities for developing experience in special lines of treatment. Hospitals for infectious diseases vary exceedingly, from excellently designed ones at Sheffield and Leicester to the worst parodies of hospitals which need not be named.

Comment is made on the lack of co-ordination between authorities, even within the same administrative county.

"An arbitrary line on the map often determines whether a patient shall have access to a well-staffed relatively modern hospital in a natural hospital centre or be sent some distance away to an unsatisfactory institution, whether the case be one of infectious disease, tuberculosis, maternity, or some chronic illness."

The bad results of strict adherence to local government boundaries are nowhere better exemplified than in Leicestershire and Nottinghamshire, where the respective counties and county boroughs have each erected good sanatoria, each pair being only five miles apart, instead of combining to produce more efficient and larger hospital units. The same lack of co-ordination exists in general hospital work. In some areas the voluntary hospitals are accustomed to transfer chronic cases to municipal hospitals and to have little other relation with them. This position of dumping ground is hotly resented by municipal hospitals, especially when they have developed into well equipped acute hospitals, but in justice to the voluntary hospitals it must be said that in many instances until comparatively recently they alone were equipped to deal with the acute sick. In no area is there a general pooling of facilities. Even the sharing of consultant staffs varies greatly in degree.

Inadequate Consultative Service

Another striking point brought out in the survey is the inadequate numbers of available consultants. In Sheffield the number of consultants is too small for the town itself. Nottingham, Leicester, Derby, and Doncaster have long been recognized as consultant centres and, especially in surgery, have staffs of considerable size, but in medicine the number of consultants has been relatively less developed. New members of staffs of the larger hospitals are often recruited from general practitioners and some are still in general practice. Lincoln and Grimsby are in an intermediate stage in the development from general practice to consultant staff, in some other areas, such as Barnsley, Stamford, Mansfield, Chesterfield and Boston only one man is engaged solely in consultant work. Certain

specialties have been slow in developing. Only one gynaecologist who restricts his practice to that specialty is to be found in the whole of Lincolnshire. Paediatrics is relatively inadequately covered, even in Sheffield. Dermatology has not been largely developed apart from general medicine. Neurosurgery has been slow, thoracic surgery has developed very little, and plastic surgery is not organized at all.

The survivors express themselves dissatisfied with the position which permits a medical superintendent of a municipal general hospital to try to combine the work of administrator and clinician of consultant standing. The clinician of consultant standing at the municipal hospital should have complete responsibility for the treatment of his patients, whether he is a whole time employee of the authority owning the hospital or a visiting consultant giving part of his time to the work.

They are equally emphatic about general practitioner surgeons.

"Although there are general practitioners who are really first-class surgeons, the existence of general practitioner surgeons as a class has grave drawbacks, and the hospital services should be planned to eliminate the need for them. The evolution of surgery has reached the point where it is impossible for a man to maintain a sufficiently high standard of technique unless he is constantly employing it just as general practice now requires a breadth of experience which the surgeon lacks."

The general practitioner surgeon is not confined to voluntary hospitals; he is also found in public assistance institutions. In some local authority hospitals the surgeon will tackle anything regardless of inexperience. The survivors add that these comments are not intended to be derogatory of the general practitioner but only of the system.

General Shortage of Beds

The survivors are satisfied that there is a general shortage of beds in the area. There are exceptions in certain special branches, as for example, in Sheffield, where there are sufficient beds for infectious diseases, but for the type of case requiring the facilities of a modern general hospital, whether for treatment or investigation, there is not enough accommodation anywhere. The deficiency is greatest in Doncaster, the West Riding, Lincolnshire, and Derbyshire. The total number of beds in the area is just over 20,000 and it is calculated that 12,000 more are needed, including 5,800 more "acute" beds.

The principles for the organization of hospital services which the survivors lay down may be briefly summarized as follows:

- (1) The whole region for general hospital services to be served by area consultant services based upon hospital centres.
- (2) Each hospital centre to have locally resident consultants, smaller associated centres to have part time visiting consultants.
- (3) Functional union of and common staff for all the hospitals in the centre.
- (4) Cottage hospitals to be associated with neighbouring hospital centres and to be provided with nursing facilities for the type of case which would normally remain in the charge of the patient's own general practitioner, but no provision to be made for surgical work save in exceptional conditions when transfer is impossible.
- (5) Special centres, preferably at medical schools, to provide the more highly specialized services, and their staffs to be available for consultation.

The Sheffield Centre

The survivors consider that there should be a functional union of hospitals in Sheffield, with complete pooling of resources, for the benefit of the city and the district around. The special hospitals should have a right to call in consultants of all types from the general. The union of the Royal Infirmary and the Royal Hospital should become effective even while the present separate buildings remain. The City Hospital should make use of a greater range of consultants from the area consultant staff. The most urgent need in Sheffield is for adequate sanatorium accommodation for tuberculosis; a new sanatorium should form part of the Sheffield centre. The Jessop Hospital should be developed to approximately 300 beds, providing the principal gynaecological consultant centre for the area. Rotherham notwithstanding its proximity to Sheffield should be developed as a hospital centre and the same is true of Barnsley and Doncaster. In Barnsley the service of local resident consultants should be provided, but some of the specialists should

also be attached to the Sheffield centre. Doncaster should be self-sufficient for ordinary specialties, but cannot afford to "export." Chesterfield should be associated with Sheffield and not with Derby, and itself be developed on similar lines to Barnsley and Rotherham. Derby must provide a hospital centre of considerable size. The first phase must again be a functional union of the various hospitals.

Nottingham, Lincoln, Leicester

Nottingham is an old-established consultant centre, but the number of consultants here again is much too small. "At least a 50% increase of staff all round is required." The number of beds available in Nottingham is more nearly adequate than in some other areas, but there is acute need for more maternity accommodation. The conception of one major hospital including both paediatric and gynaecological beds on the City Hospital site is attractive.

Lincolnshire is the least organized area in this region. The first requirement is the establishment in Lincoln of an adequate service of consultants, who must be subsidized because there will not be enough private practice to maintain the numbers. There will be work for two or three men in all the usual specialties. Grimsby, where existing services are handicapped by lack of beds, should also be a centre of great importance. A relatively inadequate centre is Boston, around which there is a considerable rural population. "If building for general hospital purposes is justifiable anywhere in the region immediately after the war it is at Boston."

Finally, Leicester, where there is a consultative centre of high local reputation and long history. It is proposed that there should be a major hospital centre at Leicester, with a satellite centre at Loughborough. There are not enough beds available at Leicester for the present population, and still fewer for the county, but the number is more nearly sufficient than in other large centres with which the surveyors have had to deal. The consultant staff of the Royal Infirmary should be increased by 50% as soon as possible, and there should be pooling of resources to give the consultants clinical responsibility for patients at the municipal hospitals.

YORKSHIRE AREA

The survey of the Yorkshire area was undertaken by Sir Herbert Eason, Dr. R. Veitch Clark, and Mr. W. H. Harper. The surveyors were informed that the municipal authorities at Bradford declined to be associated with the survey, and therefore they did not visit the Bradford municipal hospitals. The population of the area is nearly 3,000,000. Leeds is the only university town. The surveyors recommended five hospital divisions—Leeds, Bradford, Harrogate, York, and Hull and East Riding. They assess hospital need according to the following standards: Beds for acute cases 4 per 1,000 population; for chronic cases 2 per 1,000; for maternity cases 0.5 per 1,000; for tuberculosis 1 per 1,000; for infectious diseases 1 per 1,000. On this basis the deficiency of beds in the various centres is as follows:

Bradford	..	..	981	Hull and East Riding	1,310
Dewsbury	..	..	625	Leeds	1,459
Halifax	..	..	515	Wakefield	346
Harrogate	..	..	184	York	1,154
Huddersfield	..	..	478		

Postgraduate School Proposed

It is also the view of the surveyors that the number of trained and experienced specialists in the region is inadequate for the population to be served. The number of consultants and specialists not engaged in general practice is 124, and the number engaged in general practice 272. They consider it essential that a postgraduate school for the training of specialists should be established in this region, and recommend that at the earliest possible date the Royal Infirmary, Bradford, should become such a school and be in this respect a part of the medical faculty of Leeds University. Leeds should confine itself to undergraduate teaching.

On the question of co-operation between rate-supported and voluntary hospitals the surveyors urge the distribution between the hospitals of the area of the provision of special services which require highly trained staff and special and often expensive equipment. The impersonal issue of the allocation of special units should be first discussed, in their opinion, so as

to secure a broader and more temperate outlook on both sides. The provision of one special unit in a group of hospitals instead of special units in each hospital, all dealing with the same subject, is clearly not only economical in equipment and staffing but provides a much better service for the patients, and such an arrangement will make an easier approach to staffing problems later on. A useful example of an organization suitable for such co-operation is the Leeds Joint Hospitals Advisory Committee set up in 1936.

On the subject of good hospital provision the surveyors remark that the siting of hospitals in the more densely populated parts of the region has impressed them as a matter of very definite importance. They feel it to be to the advantage of the public that hospitals should not be established anew in fully built-up areas. New hospitals should be sited either on the periphery of towns or in the adjoining country. They further suggest that of thirty-nine infectious diseases hospitals in Yorkshire eighteen are of so little use that they might be dispensed with entirely. There is no reason, in their opinion, why any fever hospital should not serve the area measured by a radius of about fifteen miles. They add that no fever hospital should be without a resident medical officer. Nineteen small-pox hospitals in the area, most of which have been empty for fifteen or twenty years, are also recommended for elimination.

Better Planning for the Chronic Sick

Like the surveyors in other regions, Sir Herbert Eason and his colleagues urge that no person should be sent direct to a hospital for the chronic sick. Admission should be in the first place to a general hospital for the acute sick. They also make certain recommendations for the better planning of hospitals for the chronic sick. As for the staffing of such hospitals, while normal medical needs may be met by the routine visits of a local general practitioner, every such hospital should have directly on its staff at least a specialist physician and an orthopaedic surgeon visiting at reasonably frequent intervals. There should also be provision for social care.

There are twenty-one cottage hospitals in the region, and the surveyors were pleased and satisfied to find that these actually did fill the gap between domestic medical practice and the work of the larger hospitals. It is their experience that the cottage hospital does in practice confine itself to this sphere of activity, and they consider that it is difficult to over-estimate its value in the hospital scheme.

They recommend the setting up of children's hospitals in rural surroundings for Leeds, Bradford, Hull and East Riding, and York and Scarborough; also that there should be, wherever possible, one central orthopaedic department or hospital attached to the "key" or divisional general hospital and two long-stay hospitals in the open country working in close relationship with it. For general orthopaedic, fracture, and short-stay cases the Leeds area will require about 200 beds, Bradford 100 to 125, and Huddersfield, Halifax, and York 40 to 45 each. For the long-stay hospitals it is estimated that the beds required would be one in 5,000 of the population.

Short-term and Long-term Policy

The larger part of this survey is occupied with detailed comments on over 100 hospitals, beginning with the General Infirmary at Leeds, of which it is said that the practice of medicine and surgery is of the high standard characteristic of a university teaching hospital, but that if the medical school is to keep pace with the development of medicine and surgery very large extensions will be required to provide modern accommodation for certain specialties. The surveyors were not favourably impressed with the Leeds Maternity Hospital; the general effect produced was "rather depressing." They found certain of the arrangements unsatisfactory, but their comments imply no reflection on the standard of professional work, either of the medical or of the nursing staff. At St. James's Hospital, Leeds, the largest of the municipal hospitals, they found the health authority "very much alive to what a modern hospital should be."

In dealing with sanatoria they lay down the following principles:

(1) Institutional treatment of the tuberculous should form an integral part of the general hospital scheme, and sanatoria should be linked with key divisional hospitals.

(2) Sanatoria should also be linked to the dispensary and domiciliary service of the tuberculosis scheme

(3) Where practicable it would be advantageous that tuberculosis dispensaries be placed in general hospitals

(4) Non pulmonary forms of tuberculosis should be dealt with as part of the sections of orthopaedics and of paediatrics

(5) The major surgery of tuberculosis should be done at a thoracic surgery unit

Finally the surveyors indicate what in their view should be the short-term policy and the long term policy for each of the divisions. In the Hull and East Riding Division for example, under the short term policy, the Royal Infirmary, the Children's Hospital the Women's Hospital, and the municipal general hospitals should become component parts of one hospital centre, without necessarily losing their autonomy, and the emergency hospitals at Beverley and Driffield should be maintained in their present activity for the service of both the city and the county until the full hospital scheme has been put into operation. Under the long term policy it is suggested that to the three hospitals mentioned there should be added a fourth, situated somewhere in the county, to meet the deficiency in bed accommodation. In York again, under the short term policy, the format on of a key hospital centre by the existing county and city hospitals together with the emergency hospital at Nayburn, is recommended, the long term policy would necessitate the erection of an additional general hospital.

The surveys of the North Western area South Wales and Monmouthshire and Berkshire, Buckinghamshire and Oxfordshire will be reviewed in a later issue.

THE MEDICAL DEFENCE UNION

SIXTY YEARS OF SERVICE

The Medical Defence Union is celebrating its Diamond Jubilee and by a luncheon on Jan 15 it recalled its history and honoured the memory of the men who assured to the profession a service which has come to be recognized as essential to medical practice. The Union was incorporated on Oct 23, 1885, by a group of laymen under the leadership of C F Rideal, to provide doctors with an insurance against the risk of prosecution for malpractice, to meet attacks by libel or slander, and to suppress unfair competition by unregistered persons. On May 6, 1886, a Midlands Branch was formed at Birmingham under the chairmanship of the well known surgeon, Lawson Tait. Tait recognized the potential value of the Union to the profession and worked hard to set it on a firm foundation. He took the chair at the first annual meeting held in London and was there elected first president. A council composed of medical men was appointed, and early in 1888 new Articles of Association were adopted and the Union became an entirely medical organization.

Progress from Small Beginnings

During the first decade internal dissension and external rivalry made progress very slow. Nevertheless by the end of the century the main lines of current and future development had been defined and the Medical Defence Union had established itself as a permanent feature of British medical organization. The membership, which at the first annual meeting totalled 544, had grown to 4,604, and the reserve fund amounted to £7,637. The next 20 years saw a progressive rise of membership, at first somewhat slow, with a slight setback during the war of 1914-18, and after 1920, when the membership was 9,032 and the available funds £19,876, the Union made rapid headway, outstripping in a few years all its previous records. The membership to day approaches 30,000, and the available funds exceed £150,000. This remarkable growth and consolidation could have been secured only by the adoption of a policy and the pursuance of a procedure that met with acceptance from practitioners in all branches of the profession.

The content of medical defence has broadened with the extension of medical practice into new spheres of activity, and the Council of the Union finds more and more ways whereby it may serve its members. In addition to the individual medical defence of members involved in or threatened with legal actions, the assistance of members worried by medico legal difficulties, both great and small, in the course of their profession, and arbitration in disputes between members, the Union has developed the collective defence of the profession

in the medico legal sphere. Under this heading come the suppression of practice by unregistered persons, the reporting to the General Medical Council of practitioners conducting themselves in a manner alleged to be infamous in a professional sense, the interpretation of Acts of Parliament and official regulations, and advice on the medico-legal aspects of new methods and techniques in medical practice.

Of the men whose work for the M.D.U. and the profession are being remembered at the Diamond Jubilee, a few only can be mentioned. C F Rideal, originator of the idea of medical defence. Lawson Tait, first president, the line of secretaries—Leslie Phillip A G Bateman, James Neal, Robert Forbes—and Campbell Pope and Victor Jaynes, who gave honorary service, the early treasurers—Granville Bantock, J A Masters, and F J Wethered, the solicitor, W E Hempton, and his son, Oswald Hempton, and among those who served very long as members of Council, M Hallwright, M Arden Messiter, and W S A Griffith, the sole survivor of the pioneers of medical defence. It is fitting to mention also Victor Horsley, Charles Ballance, Herbert Waterhouse, and Eric Pearce Gould, who gave of their best in promoting the success of the M.D.U.

At the luncheon party last week in London the president Mr St J D Burton, F.R.C.S., took the chair, and gave a brief survey of the earlier years of the Union in acknowledging a toast proposed by Sir Alfred Webb Johnson, P.R.C.S., who had paid tribute to the valuable work done during 60 years not only for individual members but for the profession as a whole. With the approach of a new concept of civilian medical practice in the form of a National Health Service wider fields of activity may be open in which the help of the Council will be sought by members engaging in that service who need personal protection against attacks and guidance in the operation of multifarious regulations.

PHYSICAL EDUCATION IN INDUSTRY

At the annual general meeting of the Research Board for the Correlation of Medical Science and Physical Education on Jan 16, under the chairmanship of Dr Frank Howitt, a report, *Medical Science and Physical Education in Industry*, was approved for publication. It is complementary to the three part report on medical science and physical education in their relation to maternity and child welfare, education, and the Services published in 1945. This year's report covers certain aspects in industry, including nutrition and diet, job analysis, job specification, vocational selection, vocational guidance, recreation, occupational health services, rehabilitation of young persons in industry, women in industry.

Research Board's Recommendations

A number of recommendations are made by the Board, among which the following stand out as of special importance.

More co-ordination should be effected between organizations making a special study of, and advising on, job analysis, job specification, vocational selection, vocational guidance, and the advice of these bodies should be made more readily available to all types of firms.

The number of works medical officers and welfare workers should be increased. The co-operation of physical medicine specialists should be sought. Firms should also employ experts in physical education.

Suitable leaders of physical recreation should be trained. It is certain that with further training a number of ex-Service instructors would be suitable for this work. Although no guarantee of employment is expected, the appropriate Government Departments should encourage suitable firms to employ well trained men and women.

An industrial health service should be planned as an integral part of the National Health Service. It should be a co-operative undertaking with full support from both management and workers. The establishment of polyclinics within industry should be the subject of experiment. The education of management and workpeople on health problems in industry should be regarded as fundamental to any improvement in the health of our industrial population.

Medical officers and personnel officers should have facilities for undertaking research. University departments and other bodies should assist such men and women with their research problems.

Great stress is laid on accident prevention in sections of the report dealing with occupational health services and young people in industry, and in the section on rehabilitation the need for co-operation between all concerned with the treatment and

resettlement of substandard and injured men and women is strongly advised. The report reads:

"In any scheme of rehabilitation surgeons, physicians, psychiatrists, nurses, physiotherapists, physical educationists, education officers, almoners, welfare supervisors, Ministry officials, training centre authorities and instructors, trades union officials, employers, and the patients themselves should work together as a team. Closer liaison should be established between authorities responsible for medical rehabilitation and industrial resettlement."

The Research Board recommends plans for the adaptation of Service rehabilitation and physical development centres for civilian purposes, and emphasizes the need for establishing juvenile and industrial physical development centres on the lines found so successful in the Army physical development centres. It is very anxious that Service men and women doctors and physical training specialists should continue their work in research and treatment under civil conditions, and hopes that, where young people are concerned, the introduction of county colleges, made compulsory under the Education Act, may not be unduly delayed, and that these colleges should form a focal point for recreational and other activities. In the interests of the health of young workers the factory law relating to the hours of employment should be strictly enforced. Constant reiteration is made of the need for research and for closer liaison between industry, youth services, and voluntary organizations.

WAR MEMORIAL FOR NURSES AND MIDWIVES

A fund is being launched to provide a war memorial to the nurses and midwives of the British Empire who have given their lives in the war. The primary object of the fund, which is to be known as the British Empire Nurses War Memorial Fund, is to furnish a war memorial chapel in Westminster Abbey, which shall house a Roll of Honour of the dead. For this purpose £5,000 is required. A chapel has been allocated by the Dean and Chapter of the Abbey, and it is anticipated that the sum will be easily reached and passed, and that a substantial balance will remain to be used for the benefit of the nursing and midwifery professions in a way to be decided later. £50,000 is the minimum hoped for.

A distinguished Council of medical, nursing, and lay members has been gathered to serve the Fund, and it is hoped it will include representatives of the Dominions, the Colonies, and India. Medicine is represented on the Council by the Presidents of the Royal Colleges of Physicians, Surgeons, and Obstetricians, and the Chairman of the Central Midwives Board. Nursing representatives include the Matrons-in-Chief of the three Nursing Services of the Crown (the Royal Navy, Army, and Air Force), the Matron-in-Chief of Red Cross and St. John, the Chief Nursing Officers of the Ministries of Health and of Labour and the Department of Health for Scotland, and the Chairman of the General Nursing Council (who is also Matron of the Middlesex Hospital and the Matron-Elect of Guy's Hospital, London), and the Registrar of the General Nursing Council for Scotland.

The hon. secretary of the Fund is Miss J. Elise Gordon, M.A., Editor of the *Nursing Mirror*. The address is British Empire Nurses War Memorial Fund, Dotset House, Stamford Street, London, S.E.1, to which all gifts should be sent. Lloyds Bank are the Trustees, and all administrative expenses are being paid by the *Nursing Mirror*.

The Medical Missionary College at Vellore, South India, has recently been recognized as a constituent college of the University of Madras and is now able to train women students for the M.B., B.S. degree of that university. The College was founded in 1918 by the pioneer medical missionary of the American Arcot Mission (Dr. Ida S. Scudder) as a medical school for women. In 1938 Dr. T. S. S. ujan, the Minister of Health, abolished the lower diploma (L.M.P.) and thus the existence of the school was threatened. After long negotiation the council of the school entered into a co-operative venture with the Christian Medical Association of India, Burma, and Ceylon to establish at Vellore a United Christian Medical College for men and women of the M.B., B.S. grade. The first step in this direction was taken when the University of Madras recognized the Vellore Medical School as a college teaching for the pre-registration and pre-clinical subjects in 1942. In 1944 Dr. R. G. Cochrane was asked to become principal in order to assist in the final steps towards recognition for the full M.B., B.S. degree. The Vice-Chancellor of the University visited the college last November, and as a result of his report the Syndicate of the University gave recognition for the clinical subjects. A further University Commission will visit in 1947-8 to report on the progress of the college. It is hoped that by then it will be possible to seek permission from the University for the admission of men students.

Nova et Vetera

"THE POOR MAN'S PHYSICIAN"

There have always been, and there still are, a large number of persons who prefer to indulge in self-medication rather than entrust themselves to the care of the regular medical practitioner. For the guidance of such persons a great mass of literature has been available since the fashion was set by the publication of the *Regimen Sanitatis Salernitanum* of the School of Salerno (Regimen Sanitatis Salernitanum) in mediaeval times. This work was printed in many editions, as also was Andrew Boorde's *Breviary of Health*, which latter is said to be the first original medical work, by a medical man, to be published in England. Such books as these were, no doubt, invaluable in country districts where no skilled aid was available, and this may explain why they were often sponsored by the Laird in Scotland and by the Lord of the Manor in England.

In 1712 there was published in Edinburgh a little book entitled *The Poor Man's Physician, or the Receipts of the Famous John Moncrief of Tippermalloch*. The author was Sir John Moncrief, who owned the estate of Tippermalloch in Perthshire and who was 85 years of age when his book was published. Like so many other works of its kind, it is a mere list of diseases with a large choice of remedies. There is no description of the cause or nature of the malady, such as is found in Boorde's *Breviary*. Some of the methods of treatment have a modern flavour and may be explained in the light of modern science, such as the use of dried blood for haemorrhage and of watercress for scurvy, but for the most part the "receipts" or prescriptions are of empiric nature and the medicaments are often disagreeable or even disgusting. A considerable choice, however, is offered to the patient who may dislike heroic or unpleasant doses.

For example, in "Bleeding of the Nose" the following are a few of the means of treatment suggested:

2. The Blood burnt, powdered, and blown up the nose.
4. Snails in their shells, bruised and put in.
5. Juice of Swine's Dung put in.

21. Sprinkle Hare's Hair on Vinegar and put them up in the nose. This is the best of anything known; it hath not an equal.
22. Blood of a Partridge or Dove wholesomely repelleth bleeding.

For "the Colick," of which no exact definition is given, there are advised:

1. The Hoofs of living creatures are singularly good being drunk.
2. The Heart of a Lark, bound to the Thigh, is excellent against colick.

"Stone in the Kidneys or Dolor Nephriticus" is to be treated by

1. A cataplasm to the Ureters, made of Onions fried with Hog's grease.
2. Whey drunk in summer is best to hinder breeding of the Stone.

A curious nomenclature is occasionally found in this book, the terms used being those employed in certain country districts to this day. For example, "Defluxion of the Windpipe or Wesand"—that is, tracheitis or bronchitis—is to be treated by "A Gargarism of the Juice of Barberries or of Mallow."

Another strange term is still applied to pharyngitis in some parts of Scotland by the patient who announces that "the pap of the halse has fallen down," meaning that his uvula is inflamed and elongated. This diagnosis appears in *The Poor Man's Physician*, where we read: "If the Pap of the Halse be overlax, first dry it with Decoction of Prune leaves or of Comfrey. Then divide an egg in two halves, after it has been well boiled, and apply one half to the Crown of the Head."

The advice of Tippermalloch is full of such nonsense and is of purely empiric quality. It has none of the sound precept to be found in later popular works of the eighteenth century, such as the Rev. John Wesley's *Primitive Physick* and Dr. William Buchan's *Domestic Medicine*, both of which had an enormous circulation.

Correspondence

Mitral Regurgitation

SIR,—It is accepted that mitral insufficiency is associated with stretching of the mitral ring, as, for instance in the failing hypertensive heart. But there is a considerable body of opinion which denies the existence of mitral regurgitation as caused by rheumatic infection. A further stage in this argument is to state that the systolic murmur loudest at the apex and conducted into the axilla is actually a physical sign of mitral stenosis. This assumption is not only contrary to logic but is disproved by cases similar to that here described. That this curious heresy is being taught is clear from the statements of examination candidates.

A young man of 23 was admitted to St Bartholomew's Hospital with fever and joint pains. There was a previous history of rheumatic fever at the age of 19, for which he was kept in bed for two months and was convalescent for a further month. On examination, fever was present up to 102° F., the pulse and respiration rates averaged 110 and 30, respectively. There was clinical evidence of some left ventricular enlargement. A systolic murmur was present, loudest at the apex and conducted into the axilla, blowing in character. No presystolic or diastolic murmurs were audible in any position of the patient. There was no clubbing of the fingers, and no petechiae were seen. The blood culture yielded a pure growth of *Streptococcus viridans* on two separate occasions. He was treated with penicillin 250,000 units daily by intramuscular injection for a month but eventually died. The post mortem examination of the heart showed a pericardium distended with serous fluid, the heart was pale, bulky, and both ventricles were enlarged. The tricuspid and pulmonary valves were normal. The mitral valve was dilated and admitted three fingers. Both cusps showed evidence of chronic thickening. Vegetations were present on the posterior cusp. The whole of the left auricle showed some scarring under the endocardium above the posterior cusp. There would therefore seem to be no doubt that mitral regurgitation due to rheumatism was present, without stenosis, and associated with the classical mitral systolic murmur.

This confirms the opinion of Samuel A. Levine in similar cases. He states in his book *Clinical Heart Disease* (W. B. Saunders Company, 1936, p. 53).

Only occasionally have we an opportunity of examining the valve before stenosis develops—i.e., if subacute bacterial endocarditis becomes superimposed on mitral insufficiency. Then we see that the past history of rheumatism and the moderately loud systolic murmur indicated a true rheumatic mitral endocarditis, producing a regurgitation but no stenosis of the valve, for the pathological examination will show both the old rheumatic and the recent bacterial lesions. The conclusion from the above is that although the diagnosis of organic mitral insufficiency should be made with caution, it is a condition that actually exists, especially in young rheumatic individuals.

The view that mitral regurgitation as such does not occur without mitral stenosis is presumably founded upon post mortem evidence. But this does not take account of the difference in mortality rate according to the presence or absence of mitral stenosis. We do not deny that the common cold or that chicken-pox exists on the grounds that we do not demonstrate them in the post mortem room. There is an identical reason why we should not deny the presence of mitral regurgitation. The legitimate assumption is that this condition is not fatal and it can also be assumed that, in the course of time, stenosis will develop in most cases of regurgitation. But it is inaccurate and illogical to describe the presence of the systolic murmur as evidence of mitral stenosis. By systole is meant ventricular systole, and ventricular systole can only produce a murmur of regurgitation so far as the mitral ring is concerned. Inaccuracy in verbal statement can only engender loose thought. This apical systolic murmur is evidence that mitral insufficiency is at the moment present, which in future is likely to develop into mitral stenosis—I am, etc.,

London W.1

GEOFFREY BOURNE

Regeneration after Sympathectomy

SIR,—I was surprised to find in the authoritative account by Prof. Paterson Ross (Jan. 5, p. 1) the statement "The sympathetic denervation following a well planned and correctly

executed operation is permanent." Much experimental work on animals has shown that the sympathetic nerve fibres possess uncanny powers of regeneration, being able to find their way through barriers of muscle back to their original distribution (Lee 1929). Simmons and Sheehan (1939) showed conclusively the return of vasoconstrictor activity in the ulnar nerve in many cases of cervico-thoracic sympathetic section, after a post-operative period of several months of complete absence of such activity. They concluded that the return was due to regeneration. Smithwick (1940) has also admitted that regeneration occurs frequently, in spite of "well planned and correctly executed operations."

In a recent study, by modern methods, of the late results of 48 upper limb and 38 lower limb sympathetic sections in Prof. Telford's neurovascular clinic at the Manchester Royal Infirmary, details of which will be published later, regeneration has been found to be the rule rather than the exception, and only 7, all lower, out of the 86 limbs showed no return of sympathetic activity. The extent of the returned activity varied from zero up to complete, but in the great majority of cases was only moderate. On the whole the clinical results in the cases of Raynaud's disease were sufficiently good, as regards the reduction of pain and disability, to make operation well worth while—I am, etc.,

Manchester

H. A. HANTON

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Ocular Signs in the Prisoner of War from the Far East

SIR,—Major G. C. Dansey-Browning and Capt. W. M. Rich (Jan. 5, p. 20) describe ocular signs in a group of prisoners of war returned from the Far East. This condition has been seen by many of us during the past six months and I am entirely in agreement with their observations, but not with their conclusions. I have now seen this ocular condition in prisoners returned from Rangoon, Singapore, Hong Kong and Java including both Indian and British and some of the cases I have seen are probably included in their paper.

These prisoners show an interesting syndrome of which the ocular signs appear to be a constant feature but there is commonly bilateral nerve deafness, of varying degree with a spinal cord syndrome. The latter is usually a picture of posterior column dysfunction (but occasionally with pyramidal signs), the legs being affected more than the arms. In at least two cases the syndrome has been further complicated by intellectual deterioration. This curious condition was discussed in some detail by Dr. Spillane and myself at the meeting of the Neurological Section of the Royal Society of Medicine held in November, 1945 and has been fully described by Spillane and Scott (*Lancet*, 1945, 2, 261).

That this syndrome is due to a dietary deficiency seems almost certain, but it seems equally certain that it has nothing whatever to do with vitamin B₁. It is very doubtful whether it has anything to do with B₂ and certainly, in some of my cases, the syndrome has existed throughout its course with no evidence of beriberi or pellagra. At the same time, scrutiny of the diet on which this picture develops suggests that the deficiency is probably in the B group of vitamins, though a deficiency of vitamin A has not yet been excluded. It seems probable that in the past the ocular signs have frequently been noted in people suffering from dietary deficiency, and, because they have also had the classic signs of beriberi or pellagra the failing vision has been ascribed to the same common factor but in most of these cases the diet is deficient in practically all vitamins.

I have little doubt that, as Dansey-Browning and Rich say, some of their cases did in fact suffer from beriberi but I would suggest that the beriberi was a coexisting deficiency picture. They are probably quite correct in thinking that the failure of vision is an irreversible process and this has now become an important problem as the number of affected ex-prisoners in this country is probably running into hundreds, if not thousands. Although agreeing that the lesion underlying the visual failure lies in the optic nerve, I do not like the term "retrobulbar neuritis," as there is less than no proof that this is an inflammatory condition—I am, etc.,

Leeds

HUGH G. GARLAND

Investigations of Remedies

SIR.—The penultimate paragraph in Dr. G. H. du Boulay's analysis of 39 cases treated with penicillin cream of low concentration (Jan. 12, p. 50) prompts me to draw attention to the uselessness of analyses the basis of which is the application of a multiple compound to a pathological condition, and the inference, if the condition improves, that the improvement is due to any one particular content of the multiple compound. No mention is made in this analysis of controls—i.e., identical treatment in all respects, ointment, washing, etc., of similar conditions, with the deletion of the remedy whose action is being studied. This method of investigation constitutes a general principle which is much too frequently omitted in reports of investigations purporting to evaluate remedies, and unless it is adopted the general "lack of faith" will, quite rightly, continue.—I am, etc.,

Leeds

C. G. KAY SHARP.

Lymphangitis Mesenterialis

SIR.—Reading Mr. Ian Aird's article on this subject (Nov. 17, 1945) I could not help feeling disappointed or rather sad. I quote: "Non-specific mesenteric lymphadenitis has found no general acceptance, etc." Alas! this seems to be true. Since about twenty years ago, when, on the basis of a clinical and surgical experience of many years, I first described in detail the clinico-pathological features of non-specific acute and chronic lymphangitis mesenterialis as a new, hitherto practically unknown,* but nevertheless very characteristic disease, I have tried in my articles written in many languages, in my lectures to students and postgraduates, in my papers at international professional meetings, etc., to convince the medical profession of the practical importance of this disease. I particularly emphasized the fact that a safe diagnosis can be clinically established, especially in chronic cases. Moreover, up to the present time I thought that I had been successful in my efforts. Medical practitioners in Central Europe, in France, in this country, in India, and even in China, where I have recently been working, were able clinically to establish the correct diagnosis and to admit cases for operation. But, as Mr. Aird rightly says, nothing can be found in the textbooks. In the past few years I have not published any more papers on this subject, because I was actually afraid of becoming a bore with my lymphangitis mesenterialis. Some members of the medical profession even did me the honour of naming it "Pribram's disease." But this of course is of little importance (hypocrisy compels me to say).

However, the first feeling of disappointment quickly yielded to full appreciation when I continued to read the description and detailed statement contained in Mr. Aird's paper, with which I fully agree. But I take the opportunity of adding a few points from my personal experience which might be of interest to the reader. I have frequently been asked why I call the disease lymphangitis mesenterialis. The answer is that the whole lymphatic system of the abdominal region is often generally affected, including, for instance, the complicated lymphatic system of the liver. Lymphadenitis mesenterialis is only one easily recognized part of the whole pathological feature. I have devoted years of special study to this liver lymphangitis, which I named lymphangitis hepatica. All relevant details will be given in my book on the hepato-biliary diseases, which I hope will soon appear in print.

I have always emphasized the point that the classical mesenteric or abdominal lymphangitis is not due to a local intestinal infection and direct propagation. It represents a general infection, with the tonsils as the most frequent way of entry. Its localization in the ileo-caecal region is intimately associated with what I have called the "lymphangitic form of appendicitis." In this form the infection does not start in the mucosa, but spreads throughout the subserous lymphatic spaces. This form frequently shows an epidemic-like appearance—a puzzling fact unless one realizes that it is a blood-borne infection, in most cases following upon tonsillitis. The connexion with tonsillitis is also an outstanding feature in lymphangitis mes-

enterialis, in both its acute and chronic forms. The tendency to recurrent attacks after a flaring up of chronic tonsillitis constitutes a great diagnostic help when inquiring into the patient's history.

The "navel colic" of children (a term used by the old authors) is nothing other than lymphangitis mesenterialis, the pain around the navel being caused by acute swelling of the mesenteric glands. But this affection is not confined to children, for I have observed it in persons up to 25 years of age. I fully agree with Mr. Aird that it predominates in the male sex. It is rarely observed in females—a fact which has some pathological reasons and significance.

The acute form is characterized by a considerably high rate of mortality. Patients are usually operated on for acute appendicitis. They are apt to die on the third or fourth day with symptoms of "abdominal sepsis," a term sometimes applied in old textbooks to such cases. The term is quite correct. The condition is actually an abdominal sepsis and not peritonitis in the usual sense, as is observed after rupture of an abdominal viscus.

In a great many cases microscopical and bacteriological examination of the inflamed glands was carried out by myself and my assistants. The microscopical findings show oedema, hyperplasia to the extent of the so-called "sinus catarrh." Suppuration is rare. Bacteriological examination revealed streptococci in a few instances and more rarely staphylococci. But the percentage of positive findings was so low that I doubt whether a purely bacteriological point of view can give a satisfactory explanation of the pathology of the disease. I have good reason to believe that in a hypersensitive lymphatic system in young male subjects allergic conditions also play a part. Although I must leave the details of this matter for another communication, I may here point out that Fisher, my co-workers, and I myself have succeeded in producing similar pathological conditions in guinea-pigs sensitized with pig serum.

The chronic form is characterized by the tendency to recurrent attacks. When questioned the patients very often reveal the important fact that the abdominal pain followed a flaring up of a chronic tonsillitis. In some cases a very severe cold or an attack of influenza culminated in so-called "abdominal influenza." In other words, these recurrent attacks of pain are definitely connected with an infection of the upper respiratory tract, in both time and aetiology.

With regard to treatment, as the diagnosis in acute cases can rarely be made with certainty except when the appendix has already been removed, laparotomy is the safest procedure. Indications are always given in the acute cases which appear under the alarming symptoms of an acute abdomen. In recurrent attacks of chronic forms three measures have to be considered and have proved satisfactory: (1) tonsillectomy, (2) protein therapy, (3) x-ray treatment.—I am, etc.,

London, S.W.1.

B. O. C. PRIBRAM.

Spinal Analgesia

SIR.—I cannot allow Dr. N. Beattie's comments (Jan. 5, p. 31) to pass unanswered. He points out that I do not mention spinal analgesia in discussing the anaesthetics used in my series of appendicitis cases. The reason for this is that I only very rarely use spinal analgesia for appendectomy, and then only when there are definite indications, such as respiratory trouble. In the ordinary case of acute suppurative appendicitis I feel that it is quite unnecessary to use an anaesthetic which lasts for over an hour when the operation can be done in 15 or 20 minutes. In the very ill cases which I mentioned in my article I am certain that a spinal analgesic would have prejudiced the patients' chance of recovery. In these cases I found that a very quick laparotomy under nitrous oxide and ether was by far the least "shocking" method.

I cannot agree with him that I have been working at a disadvantage because 80% of my anaesthetics were given by house-surgeons. Since the beginning of 1944 I have had no professional anaesthetist at my hospital and nearly all my anaesthetics have been given by my house-surgeons or resident surgical officer, only the spinal analgesics and certain of the local infiltrations being done by myself. From the beginning of 1944 until the middle of 1945—that is to say, the time during which I did a large part of the series of cases published—a

* In 1920 Wilensky (*Med. Rec.*) reported shortly three cases, one of which has, however, proved to be of a tuberculous nature. Anyway this author emphasizes the existence of a non-specific acute mesenteric lymphadenitis.

total of 3,518 anaesthetics were given at the hospital. Of these, 39 were chloroform, 401 gas and oxygen, 601 gas, oxygen, and ether, and 1,951 open ether. There were 108 spinals and 418 local infiltrations or regional blocks. Dr Beattie must not consider that we have not been discriminative about our anaesthetics because they were given by house surgeons. Each case is studied before operation in order that the proper anaesthetic may be chosen. It is my belief (if I may open an old controversy) that the surgeon rather than the anaesthetist is the person who should decide which anaesthetic should be given, and, personally, I have found it much easier to deal with house surgeons than with the professional anaesthetist. Dr Beattie will also note from the above figures that I have no animosity against spinal analgesia, although I do not use it in appendicitis cases. Unlike him I generally use heavy puerperine, and have had no complaints of post-operative headache. Using this drug, it is possible by suitable posture to make the analgesia very selective so that a low or unilateral block may be got, thus avoiding a dangerous fall of blood pressure in a very elderly individual. I invariably use spinal analgesia for resection of the colon or rectum, and for Smith Petersen operations.

I feel that the professional anaesthetist does not make sufficient use of local analgesia. There are few emergency operations which cannot be carried out by this means, and I have found it particularly useful in abdominal surgery, where complete abdominal analgesia and relaxation can be obtained by the paravertebral intercostal block, with or without splanchnic infiltration. I have found that partial gastrectomy in particular can be readily done in this way with the minimal amount of shock. I have also found it extremely valuable when doing a Smith Petersen operation in an elderly individual, a patient aged 88 being recently done in this way and making an uninterrupted recovery.

Finally, I may point out that I have found my lack of a professional anaesthetist to be a relatively small disadvantage and the best tribute I can pay to the quality of my house surgeons is to state that during the eighteen-months period in question there was not one anaesthetic collapse in the 3,518 anaesthetics given—I am, etc.,

Greenock

A LYALL

SIR.—In reply to the letters of Drs Helen B Alcock and H W Loftus Dale (Dec 8, 1945, pp 818, 819) I should like briefly to make the following points:

1 *Risks*—I am of the opinion that these have been grossly exaggerated. Of course, there is a risk in using any anaesthetic, particularly in the wrong patient. In my experience, however, such risks did not manifest themselves as often as one is made to believe. Dr Dale may be interested to know that I started to use heavy nupercaine in obstetrics only 3½ years ago, with the mere theoretical knowledge of this "dangerous form of anaesthesia." I would certainly have commenced its use earlier had I not been deterred by the adverse criticisms in the literature levelled at spinal analgesia in obstetrics as a whole. That an alarming drop in blood pressure in cases of abdominal distension often occurs is contrary to my experience. Theoretically one should expect such an occurrence, but practically it is rarely met with. During the past 3½ years we have employed spinal analgesia, using heavy nupercaine, in 660 obstetrical cases (190 Caesarean sections and 470 vaginal deliveries) and in 840 gynaecological operations. During this time only six cases of so-called "alarming drop in blood pressure" have occurred, without a single fatality directly due to the spinal analgesia. Surely Dr Alcock will not wish to abandon all forms of analgesia in obstetrics because of the possible risks entailed? I would be very interested to know how many such alarming experiences were encountered in the personal experience of the above named, using heavy nupercaine.

2 *Premedication*—The detrimental effects of premedication on newborn infants have surely been exaggerated. The harsh armchair criticisms that omopon gr 1/3 (22 mg), scopolamine gr 1/300 (0.2 mg) may produce severe foetal apnoea, and even stillbirths, are surely unfounded. I have never seen such an occurrence following Caesarean section. Almost every infant has cried lustily immediately on extraction. As house surgeon at St Mary's Hospital, Manchester, I had ample opportunity to witness many cases of Caesarean section performed under local anaesthesia, with premedication of morphine gr 1/4 (16 mg) and hyoscine gr 1/150 (0.4 mg). I am sure the members of the staff at St Mary's will bear me out when I say that no case of foetal apnoea occurred, let alone stillbirths. In operative vaginal delivery, however, the ill effects of sedation on the infant are well known and, of course, I deprecate its use. Dr Alcock misquoted me in suggesting that I employed premedication of omopon and scopolamine for vaginal deliveries. On the other hand, is not

foetal apnoea frequently encountered after "minimal ether or trilethal or under cyclopropane O," particularly in cases of foetal distress? Indeed, I would go so far as to say that even a minimal of general anaesthetic is sufficient to "put the finishing touches" to an infant in severe distress.

3 *Inhibiting Action*—The inhibiting action of spinal analgesia on the longitudinal muscle fibres, while increasing that of the circular fibres of the uterus, would theoretically contraindicate the use of such analgesia for vaginal delivery. I think I can reassure Dr Dale that in practice few difficulties are encountered in intrapartum manipulations, complications in the third stage being rare. A striking feature of spinal analgesia is the absence of shock following destructive and difficult forceps operations.

4 *Suitability of the Method*—That the majority of patients prefer to be asleep during the operation is again contrary to my experience. Not only have the women been unaware of delivery under a spinal analgesia, but have been delighted to hear the cry of the child immediately on extraction. Women who have had repeated operations have asked for spinal analgesia a second or even a third time.

5 *Headache*—I will agree that this was a serious complication early on in many series of cases. Improvements in technique and after-care have, however, led to such a striking diminution in its incidence that only two cases of severe headache have occurred in the last 266 cases. Surely a spinal headache is not too big a price to pay for the striking absence of the "burst abdomen," bad chest signs in the presence of painful abdominal wounds, and the like.

Finally I would like to reiterate my earlier conclusion, that spinal analgesia using heavy nupercaine is safe and reliable in operative obstetrics in selected cases of advanced pregnancy and would make a plea for a further extended trial of this form of analgesia—I am, etc.,

Salford

LOUIS RESNICK

SIR.—Dr N Beattie's excellent letter raises some points of interest to surgeons and anaesthetists. There is no doubt that spinal analgesia minimizes the difficulties of the surgeon working inside the abdomen and—as he says—the amount of bleeding is very much less than when ether is used. If he implies, however, that the use of spinal analgesia in preference to ether lessens the incidence of chest complications he is treating on more controversial ground. The published figures do not lend much support to this idea.

Many anaesthetists, myself among them, will nevertheless agree with him that spinal analgesia is the method of choice for most lower laparotomies, especially when the surgeon cannot call upon an anaesthetist skilled in other methods. But it should be the aim of anaesthetists as a body to see that surgeons are not placed in such a position (except, of course, in special cases like that of the ship surgeon of which Mr Beattie makes timely mention) and for a surgeon to give the spinal analgesic himself when a skilled anaesthetist is present as Mr Beattie advocates, strikes me as uneconomical, to say the least. An anaesthetist who is relegated to the position of "moral minder" to a patient anaesthetized by someone else will set himself to the task with less conviction than if he had given the spinal himself, and if more active measures should be needed the advantage of having the anaesthetist responsible for the whole conduct of the anaesthetic becomes doubly obvious—I am, etc.

RONALD WOOLMER.

SIR.—I cannot agree with Dr N Beattie in his letter (Jan 3, p 31) when he states that "no doctor should go as a ship surgeon without being master of one technique for the administration of spinal analgesia," for the very reason that conditions at sea, for the most part, contraindicate its use. Dr Beattie himself asserted that "utmost attention to detail is necessary for success with spinal analgesia" and with this I entirely agree, but he goes on to stress the importance of "keeping the head low for 24 to 48 hours—the longer the better—to avoid headache." Lone young doctors (and some not so young, for that matter) however, mostly find themselves in small ships and there is a substantial difference between conditions ashore and afloat in small ships. Owing to pitch and roll it would be only on rare occasions that he could be reasonably sure that a patient's head would remain in the low position and then it is always uncertain how long such ideal conditions will prevail.

One therefore cannot help challenging the statement that it is "safer for the patient," for this is certainly not the case.

ing specially attractive equipment, quarters, and facilities—a procedure which would have the advantage of enticing the better doctor into the area. A combination of these two measures would probably be more effective than either alone.—I am, etc.,

B.A.O.R.

R. W. CROCKET,
Squad. Ldr.

Questionnaires, Past and Future

SIR,—Dr. Robert Ritchie makes a very timely suggestion that an up-to-date questionnaire should be drawn up forthwith and sponsored by the B.M.A. The seven questions he offers for consideration are straightforward and unequivocal. If the B.M.A. really claims to reflect the recent views of its members can it offer any cogent reason why this questionnaire should not immediately be issued, or can it suggest how better such recent views could be ascertained?

There is little doubt about the meaning of the apparently generous offer of the State to buy up practices; it is nothing other than a political manoeuvre to gain control of medical men who hitherto have been a little difficult to regiment, but who, with their livelihoods at stake, may the more readily be persuaded to "eat from the hand" if they be but fools enough to accept at its face value this transparent act of generosity and sell their souls for a "mess of pottage." Who is Mr. Aneurin Bevan that he should decree that "it is highly improbable that I will permit the sale and purchase of practices"? Hitler issued just such edicts. We do not look with equanimity on similar pronouncements in this country. Are we freemen or bondsmen and are we to sit idly by while, by the stroke of a pen or the issuing of a regulation, our liberty and freedom of livelihood are filched from us?

Cannot our Association be strong enough to give us a lead when leadership is obviously needed? Armed with the mandate from a fresh questionnaire our negotiators would then be in touch with "up-to-the-minute" professional feeling. Until housing, feeding, clothing, and education are adequate State medicine at this juncture can be but a parrot cry to trap the unwary in so far as it offers improved health to the community; but State control of the doctor is a powerful political weapon for controlling all units of the population through a medical civil service owning allegiance only to a soulless State, from whom alone then would come its daily bread.—I am, etc.,

St Annes, Lancs

G. H. URQUHART.

Obituary

J. FALCONER HALL, C.M.G., M.B., C.M.
Surg. Rear-Admiral, R.N. (ret.)

We regret to announce the death of Surg. Rear-Admiral J. Falconer Hall at Chudleigh, Devon, on Jan. 15. After his retirement from the Navy, at the end of a distinguished career afloat and ashore, he was appointed in 1931 a Commissioner of the Board of Control for England and Wales, and held that post until 1938.

John Falconer Hall, son of William Hall, was born on Feb. 23, 1872, and studied medicine at the University of Aberdeen, graduating M.B., C.M. in 1893 and entering the R.N. Medical Service in 1895. After active service on the China Station, for which he was mentioned in dispatches, specially noted to staff surgeon, and awarded a medal, he won the Gilbert Blane gold medal in 1902 under a deed of trust held by the Royal College of Surgeons of England from Sir Gilbert Blane, F.R.S., the Naval sanitary reformer. In the war of 1914-18 he served in the battleship *Hannibal* at Scapa, in the battle-cruiser *Australia* with the Grand Fleet, and as senior medical officer of the hospital ship *Soudan*. For these services he was again mentioned in dispatches and created C.M.G. In 1919-20 he was Deputy Director of the Medical Department of the Admiralty, and in 1920-3 second in charge at Haslar Hospital at Malta. He held the appointment of Honorary Surgeon to the King from January, 1925, until September, 1938.

Admiral Falconer Hall had joined the B.M.A. in 1899 and sat on the Council as representative of the R.N. Medical Ser-

vice from 1928 to 1932; he was also a member of the Navy and Military Committee and the R.N. Subcommittee and the Committee on Medical Branches of the Fighting Service which reported fifteen years ago. In 1942-3 he held office president of the United Services Section of the Royal Society of Medicine.

H. A. B. WHITELOCKE, T.D., M.Ch., F.R.C.S.

Hugh Whitelocke, who died in the Acland Home on Jan. 12, will be sincerely mourned by a host of friends in Oxford and elsewhere.

He was born in Oxford in 1891, the eldest son of Mr. H. R. Whitelocke, himself a well-known surgeon and a member of the honorary staff of the Radcliffe Infirmary. He was educated at Summerfields, Rugby School, and Christ Church, and completed his medical training at King's College Hospital in 1914. After qualification he saw service in the Sudan and elsewhere during the 1914-18 war, after which he returned to Oxford and specialized in surgery. He became a Fellow of the Royal College of Surgeons of Edinburgh in 1924 and of England in 1925, and in 1926 he became a Master of Surgery of Oxford University, one of the highest surgical qualifications. He was Fellow of the Association of Surgeons of Great Britain and Ireland, ex-president of the Oxford Medical Society, and the author of numerous articles on surgery. He was elected an honorary assistant surgeon to the Radcliffe Infirmary in 1919, and became a full honorary surgeon in 1926. Thenceforward, until the second world war broke out, he practised as a consulting surgeon in Oxford, and in course of time became the senior surgeon at the Radcliffe Infirmary as his father had done. In 1939 he was appointed to command a Territorial General Hospital (the 16th British General Hospital) with the rank of colonel. He mobilized this unit, which consisted largely of local men, the Examination Schools and took it to France in January 1940. When France was invaded the hospital was evacuated from Boulogne just in time to avoid capture. Soon afterwards Whitelocke was invalided out of the Army and resumed his work at the Radcliffe Infirmary, and in the neighbourhood of Oxford at a time when an acute shortage of surgeons placed a great strain upon him and his colleagues. Although his health was not good, he continued to play an active part in the surgical work of the Infirmary, which had become a medical school in 1939. In addition to his appointment in the Radcliffe Infirmary he was the honorary consulting surgeon to Moreton-in-the-Marsh, Buckingham, Shipston-on-Stour, a Thame Cottage Hospitals, and to the National Hospital for Diseases of the Heart at Maids Morton. He also held the post of Litchfield Lecturer in Surgery and clinical examiner in surgery in the University of Oxford. He had been honorary secretary of the Oxford Division of the B.M.A. and vice-president of the Section of Surgery at the 1936 Annual Meeting.

Hugh Whitelocke was one of the most sociable and hospitable of men, and never allowed his exacting professional work cut him off from social intercourse with his large circle of friends. He was a very effective, if somewhat unorthodox golfer, and was a regular player at Frilford, of which club was captain in 1936. He was a member and Past Master of the Churchill Lodge of Freemasons and a member of Apollo Lodge. He was also a keen bridge player and a good shot. While an undergraduate he was a member of the Church Rugby XV, and subsequently became surgeon to the University team.

The qualities which those who knew him will remember were his invariable courtesy, good temper, and geniality, and the fact that he rarely, if ever, said or did an ill-natured thing. His wide professional practice, his good manners, and his friendly disposition made him one of the most popular and best known men in the neighbourhood of Oxford, and he will be greatly missed by a quite exceptionally large number of patients and personal friends. In 1934 he married Miss Madeleine Shankland, who joined with him in all his social activities and shared his popularity.

E. C. B.

Mr. HERBERT JAMES MARRIAGE, consulting aural surgeon St. Thomas's Hospital, died at the age of 73 at Woldingham, Surrey, on Jan. 12. He had been secretary of the Section of Otology at the Annual Meeting of the British Medical Assoc-

union in London in 1910 and president of the Otolological Section of the Royal Society of Medicine in 1915. Educated at the City of London School and St Thomas's Hospital, he took the Conjoint diploma in 1897, the M.B. Lond. in 1899, and the B.S. two years later, and was admitted F.R.C.S. in 1902. His early posts at St. Thomas's were those of house-surgeon, house-physician, surgical registrar, and surgical tutor. After studying otology and rhinology at clinics in Germany, he was elected aural surgeon to St. Thomas's in 1904, and held that post until his retirement in 1932. He was also aural surgeon to the London Fever Hospital for three years, and clinical teacher in otology and rhinology at the Royal Army Medical College. Marriage published a number of papers on his speciality in the *Lancet*, the *Transactions of the Otolological Society* and the *Journal of Laryngology, Rhinology and Otolology*.

Mr JOHN WILLIAM HEEKES, M.B., B.S. Lond., who died at his home in Barnes in November last, will leave a position very difficult to fill by any one person, for he persistently did the work of two, especially at Richmond Royal Hospital, where he had been honorary surgeon for 25 years. His consuming passion and major hobby was surgery, and for this work his energy was apparently unlimited, and still undimmed after long nights of operating on war casualties in the dark days. Besides being a general surgeon he was also the gynaecologist at Richmond and lecturer to and examiner of nurses, and in addition had a large private practice, in later years almost entirely surgical. His wide taste and practice in surgery was foreshadowed early in his training, for, besides being house surgeon after qualifying in 1906, he was later resident obstetric officer and clinical assistant to the throat and ear department at Charing Cross Hospital, keeping in touch with hospital teaching long after starting to practise. He became captain, R.A.M.C., in the 1914-18 war and was attached to 46 C.C.S., later becoming surgeon to St. Andrew's Hospital at Malta and to Queen Alexandra's Hospital at Millbank. After the war he was surgeon specialist to Belmont Hospital, where up to 1,400 German prisoners passed through his hands, and this unusual and concentrated surgical experience decided him to forgo general for surgical practice. In 1920 he was elected honorary surgeon and later gynaecologist to Richmond Royal Hospital—positions which he filled admirably and energetically. During this last war he was surgeon specialist, E.M.S., at Richmond and was later in charge of the fracture clinic. In 1929 he was appointed lecturer and examiner in surgery and gynaecology by the General Nursing Council—a position which he enjoyed and in which he was deservedly popular. He was direct in manner, very outspoken when necessary, but a most amiable colleague to work with, and possessed of a smile of real charm most reassuring to patients. As a surgeon he was courageous and bold to a startling degree once he had decided on the correct course of action, he was rapid and untiring and had that sound sense of judgment that only comes from long experience and intelligent consideration of his subject. As he worked, so he relaxed—energetically. He was a good horseman and used to ride regularly, he took long holidays abroad whenever possible and had been to and appreciated most of the European countries. A few years ago he bought a farm and with his accustomed energy threw himself into the problems confronting smallholders, but the outbreak of war largely hindered his activities in this direction. His last illness, which was a protracted one of over a year, he bore with unusual fortitude and cheerfulness maintained up to the end.—C.H.C.

We regret to announce that Dr HAROLD JOHN VAN PRAAGH of Hampstead, died on Jan 15 after a long illness. He was born in London in 1877 son of William Van Praagh and studied medicine at St. Mary's Hospital, where he won a natural science scholarship and the Meadows scholarship in midwifery and gynaecology. Having graduated M.B. Lond. with honours in medicine in 1899, he held a series of house appointments at St. Mary's, and was for a time casualty physician. He took his M.D. degree in 1901. During part of the last war he served at the Cambridge Hospital, Aldershot, with the temporary rank of captain, R.A.M.C. Dr Van Praagh, after settling in practice in Langland Gardens, N.W., became honorary anaesthetist to the Hampstead General Hospital and to the Hospital of St. John and St. Elizabeth. He was a member of the Council of the Hampstead Medical Society, and chairman of the Hampstead Division of the B.M.A. in 1925-6.

Dr JAMES KENNETH WATSON died on Dec 9, 1945, from injuries received when he was knocked down by a motor car in Bournemouth. Dr. Watson was born in 1870 and received his medical education at the University of Edinburgh, where he graduated M.B., C.M. in 1892, proceeding M.D. four years

later. After qualifying he held successively house posts at Morpeth Dispensary, Sheffield Royal Hospital, Sheffield General Infirmary, and Essex and Colchester Hospital. In 1896 he settled in practice at Byfleet, Surrey, where he became medical officer and public vaccinator to the Chertsey Union, and medical officer to the Post Office. He moved to Sidenham in 1910, and in 1914 became M.O.H. for Stevenage and assistant medical inspector of schools for Hertfordshire. He served as a captain in the R.A.M.C. in the war of 1914-18. He was for a time a member of the Lord Chancellor's Pension Appeal Board. Dr. Watson was the author of *Handbook for Nurses* which passed through eleven editions, *Handbook for Senior Nurses and Midwives* and *Anaesthesia and Analgesia for Nurses and Midwives*. He had been a member of the B.M.A. for many years.

Dr DONALD GEORGE SUTHERLAND, who died at Ealing on Jan 10 in his 83rd year, had been chief bacteriologist to the Metropolitan Water Board laboratories and was well known as an authority on water analysis. He was educated at Watson's College and the University of Edinburgh, graduating M.B., C.M. in 1886 with the University medal in medical jurisprudence and public health, and taking the B.Sc. in Public Health three years later. In 1890 Dr Sutherland became M.O.H. for the County of Sutherland and Burgh of Dornoch, some years later he was called to the Bar by the Middle Temple, and in 1900 entered as an advanced research student at St. John's College, Cambridge, receiving the M.A. degree of that university. After a period as assistant bacteriologist in the Local Government Board laboratories he was appointed bacteriologist to the M.W.B. in 1905. He wrote a succession of nine sanitary reports on the County of Sutherland and a dissertation on certain spore-bearing anaerobic organisms considered as criteria in the bacteriological examination of water supplies. He had been a member of the B.M.A. for 38 years.

The Services

Major Gen. Oburne Ievers, C.B., D.S.O., M.B., late R.A.M.C., has been appointed Colonel Commandant of the R.A.M.C., and Major Gen. John Percival Helliwell, M.R.C.S., L.R.C.P., L.D.S., Colonel Commandant of the Army Dental Corps, for 1946.

The following have been mentioned in despatches in recognition of gallant and distinguished services in Italy: Col (Temp) W. A. D. Drummond, O.B.E., R.A.M.C. Col G. R. Forbes, E.D., Lieut. Col. W. K. Bice, L. E. R. Luckey, and H. S. Mitchell, Major's D. K. Grant and J. S. Maclean. Capt's W. M. Biers and J. G. W. Swanson, R.A.M.C.

The following appointments and awards have been announced in recognition of gallant and distinguished services in Burma:

C.B.E. (Military Division)—Brig (Temp) H. G. Winter, M.C., V.S. late R.A.M.C. Brig (Acting) G. B. Jackson, I.M.S.

O.B.E. (Military Division)—Lieut-Col (Acting) K. J. Dunlop, Lieut. Col. (Temp) H. V. Ingram, R. T. Johnson, D. M. Baker, A. Burns, M.C., J. McI. D. McIntosh, and W. H. Wolstenholme, M.B.E., R.A.M.C. Lieut-Col (Temp) A. E. Kingsford, I.M.S.

M.B.E. (Military Division)—Lieut-Col (Temp) J. F. Heslop, Majors (Temp) J. V. Crawford, W. Drummond, F. Evans, M.C., H. G. Page and J. P. Scrivenner, Capt's G. A. Craze, C. M. MacGeach, A. McDiarmid, E. Rentoul, and C. E. S. Myers, R.A.M.C. Lieut-Col (Temp) G. V. Chaphekar, Major (Temp) M. P. Ali, and Capt's A. D. A. Maconochie and J. L. G. Pinto, I.M.S. Lieut's C. R. Narayan and H. Ali, I.A.M.C.

D.S.O.—Lieut. Col. (Temp) J. R. Kerr, I.M.S.
M.C.—Major (Temp) W. J. Ramsay, and Capt's E. G. W. Clarke and L. Wilson, R.A.M.C. Capt's T. L. W. McCullagh and V. Chittor, I.M.S. Capt (Temp) D. Ramanath, and Lieut. Gangaprasad, I.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Killed in air crash on way home from India—Capt. Paul Verner Isaac, R.A.M.C.

The estimated expenditure of the Bradford and County Joint Cancer Committee for 1946-7 in respect of the Radium Institute is £21,305, including £12,445 for salaries. The end of the war has enabled the Committee to secure a more normal staff, especially on the technical side, and to increase its estimate of costs. The chief contributors are the Bradford Corporation, £7,180; Royal Infirmary, £5,340; and the West Riding County Council, £7,775.

Universities and Colleges

Medical News

UNIVERSITY OF CAMBRIDGE

The subject of the present course of lectures on the History of Science, in the Mill Lane Lecture Rooms on Saturdays at 12-noon, is the development of experimental science with special reference to the nineteenth century. On Feb. 23 Prof. H. Hartridge will lecture on discoveries in animal physiology; on March 2 Sir Henry Dale, on experiment in medicine; and on March 9 Prof. F. C. Bartlett, on experimental psychology.

During December, 1945, the title of the degrees of M.B., B.Chir. was conferred on C. E. Cooper, of Girton College.

UNIVERSITY OF GLASGOW

At a ceremony of graduation, held on Jan. 12, the following medical degrees were conferred:

M.D.—A. K. MacRae (with honours), Constance A. C. Ross (with commendation), W. McAdam.

M.B., Ch.B.—J. Rankin (with commendation), J. M. Adam, J. K. Anderson, J. Austin, Elizabeth Boothe, J. Buchanan, R. W. Campbell, G. A. Carnahan, D. B. Carruthers, D. Clark, D. S. Cranston, J. S. Creighton, Isabella G. MacL. Cunningham, J. M. Harper, R. R. Houston, K. Jack, W. A. Jackson, M. Laidlaw, R. M. Lang, J. W. Little, J. A. McCusker, N. McDougall, J. A. W. Maguire, D. H. Munro, J. D. Nelson, T. C. Nicol, J. H. Noble, J. M. O'Brien, R. H. Park, J. D. Paterson, J. Prentice, I. F. F. Rae, J. H. R. Ramsay, W. Ramsay, R. C. Robb, Jean W. Roberts, W. Roy, Betsy D. Scott, W. L. Selkirk, D. C. V. Stewart, Elizabeth Stewart, T. Thomson, W. F. Toomey, J. L. F. Wyllie.

The Bellahouston Medal for eminent merit in thesis for the degree of M.D.: T. Anderson.

UNIVERSITY OF ST. ANDREWS

The following candidates have been approved at the examinations indicated:

M.B., Ch.B.—D. A. Kerfoot (with commendation), W. K. Bryson, J. H. Burt A. Douglas, I. C. Geddes, Katherine M. Kelly, H. A. F. Mackay, Joan C. Main W. B. Wallace, Margaret A. M. Wilson.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The Moynihan Lecture was delivered on Jan. 9 by Prof. Willem Noordenbos, professor of surgery in the University of Amsterdam. Immediately before the lecture Prof. Noordenbos was admitted to the Honorary Fellowship of the College to which he had been elected in 1943 while in captivity under the Germans. On Jan. 10 Sir Henry Dale, formerly President of the Royal Society, and Sir William H. Collins, the greatest living benefactor of the College, were also admitted Honorary Fellows.

The First Lord of the Admiralty presented the Gilbert Blane Medal to Surg. Lieut.-Cmdr. F. P. Ellis, R.N., awarded to him for his observations on the effect of the thermal environment on the health and efficiency of ships' companies working in the Tropics under active-service conditions and at action stations. The Medical Director-General of the Navy and the President of the Royal College of Physicians of London witnessed the presentation.

At a meeting of the Council on the same day, with Sir Alfred Webb-Johnson, President, in the chair, Prof. F. Wood Jones was admitted as the first Sir William H. Collins Professor of Human and Comparative Anatomy.

It was reported that Sir James Walton would deliver the Hunterian Orator for 1947 and Sir Heneage Ogilvie the Bradshaw Lecture for 1946.

The Council received with gratification gifts to the restoration and development fund of \$5,000 from the staff of the Mayo Clinic and the Faculty of the Mayo Foundation and of £N.Z.500 from the New Zealand Division of the Royal Australasian College of Surgeons on behalf of the Fellows of the English College in New Zealand.

It was reported that the remainder of the library books and the College collection of portraits and busts had been brought back to London from their various places of safety in the country.

It was agreed to institute a club in the College for Fellows, Members, and Licentiates in Dental Surgery and the members of all the associations linked with the College through the joint ceteriat at No. 45, Lincoln's Inn Fields.

It was decided to hold a meeting of Fellows on Wednesday, May 8, at 6 p.m.

Diplomas in Psychological Medicine and in Laryngology and Otology were granted jointly with the Royal College of Physicians of London to the following successful candidates:

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—A. Conachy, A. J. F. Crossley, J. E. Duffield, P. E. Sundt, T. G. Williams.

DIPLOMA IN LARYNGOLOGY AND OTOTOLOGY.—F. Badrock, R. V. Blaubaum, L. Boss, T. McM. Boyle, L. C. Jacobson, H. Jelinek, A. E. Khan, H. E. McHugh, W. J. O. Page, W. M. Ritchie.

Correction.—An asterisk should have appeared against the name of K. D. Roberts in the University of Birmingham pass list published in this column on Jan. 12 (p. 72), thus indicating that he had graduated M.B., Ch.B., with second-class honours.

The Scientific Committee and Trustees of the R. L. St. J. Harmsworth Memorial Fund have awarded £5,000 to Sir Alexander Fleming and £2,500 each to Sir Howard Florey and Dr. E. Chain in recognition of their work with penicillin in the treatment of infective endocarditis. The presentation was made by Lord Horder on Jan. 22.

At a meeting of the Medical Society for the Study of Venereal Diseases, 11, Chandos Street, Cavendish Square, W., to-day (Saturday, Jan. 26), at 2.30, Dr. Drapkin will convey greetings from the Chilean V.D. Society, and Major M. H. Salaman, R.A.M.C., will give an address on "Non-specific Genital Infections," followed by discussion.

The next meeting of the Middlesex County Medical Society will be held at Kodak Works, Wealdstone, Harrow, on Thursday, Jan. 31, at 2.30 p.m.

The Association for Scientific Photography (Tavistock House North, Tavistock Square, W.C.1) has arranged a meeting in the Caxton Hall, Westminster, S.W., on Thursday, Jan. 31, at 6.30 p.m., to discuss forensic photography. The opening paper will be by Mr. Henry T. F. Rhodes on the applications of photography to the science of criminal investigation, showing the way in which photographic and photomicrographic methods are applied. On Friday, Feb. 15, at 4 p.m., the Association will meet in the premises of Imperial Chemical Industries, Ltd., at Billingham, Co. Durham, to hear a paper by Dr. A. E. I. Vickers on photography applied to physico-chemical research.

A science meeting of the Colour Group of the Physical Society will be held on Wednesday, Jan. 30, at 3.30 p.m., in the small Physics Lecture Theatre, Imperial College, Imperial Institute Road, S.W. Mr. R. Donaldson will describe a colorimeter with six matching colours, and Mr. T. B. Davenport a direct-reading photo-electric spectrophotometer.

The Association of Austrian Doctors in Great Britain announces that Mr. C. Eisinger will speak on "Recent Advances in Oto-rhinolaryngology" at 69, Greencroft Gardens, N.W.6, on Thursday, Jan. 31, at 7.30 p.m.

A meeting of the Whipps Cross Hospital Medical Society will be held on Friday, Feb. 1, at 8.30 p.m., when Dr. J. Purdon Martin will speak on "Sciatica."

The Torquay Medical Society held its centenary dinner at the Drum Inn, Cockington, on Jan. 17. Sixty members and their guests were present, including the father of the society, Dr. Young Eales, who is 87 years of age and has been a member for 57 years.

Three scholarships for boys are available for entry to the Thames Nautical Training College, H.M.S. Worcester, at the next summer term. They are the Leverhulme Scholarship valued at £125 per annum, the Marine Society Bursary (£70), and the Goldsmiths Company's Scholarship (£50), all tenable for two years in reduction of the normal fees of £140 per annum. Successful candidates will be trained at the College to become executive officers in the Merchant Navy, and applications will close on Jan. 31. Candidates must be between the ages of 15 and 16 years in May, 1946, and will be required to undergo an examination in February. Form of application, specimen examination papers, and copy of the College prospectus can be had from the secretary, Ingress Abbey, Greenhithe, Kent.

The Cecil Joll Memorial Fund has reached the figure of £1,050. The date of closure for subscriptions has been fixed as March 1. The intention of the promoters was to ask the President and Council of the Royal College of Surgeons to establish a biennial or triennial prize essay on a surgical subject.

It has been found necessary to terminate the arrangements made for supplying dried bananas free of cost to persons suffering from steatorrhoea (including coeliac disease and tropical sprue). In future Messrs. Mapleton's Nut Food Co., Ltd., Garston, Liverpool, 19, will supply dried bananas direct to these patients at the rate of 14 lb. per month and at a cost of 9½d. per lb. post free. Applications for supplies should be supported, in the first instance only, by a medical certificate.

As part of the campaign to recruit hospital nursing and domestic staff, the London County Council arranged a public exhibition of its hospital services which is being held at the County Hall, Westminster Bridge, all this week until Saturday at 8 p.m. The general object of this exhibition is to show the various possibilities and attractions of nursing as a profession, particularly in relation to the Council's large range of hospitals and the openings and training available for domestic workers. It includes an information bureau for persons thinking of taking up nursing or domestic work with the L.C.C., and also an interview room for intending candidates.

Dr A. A. McWhan is to retire from the appointment of M.O.H. for Berwickshire on Feb. 14 after nearly 35 years' service in that post, and will be succeeded by Dr Alastair Allan, deputy M.O.H. for the port and town of Greenock.

The Scientific and Technical Group of the Royal Photographic Society of Great Britain (16 Princes Gate S.W. 7) has prepared its fixture list for the present session. Copies may be had from Mr W. F. Berg, Research Laboratories, Kodak, Ltd., Harrow, Middlesex.

Through the Dominions Office, the India Office and the Colonial Office, all Empire and Colonial administrations have been invited to co-operate in making the new *British Pharmacopoeia* now in active preparation, a pharmacopoeia suitable for the whole British Commonwealth of Nations. Mr R. R. Bennett, B.Sc., Harrison Memorial Metallist, told the Pharmaceutical Society in the course of his recent address that preparations which have mainly a local use in particular parts of the Empire will not be included, but supplementary lists of these may be issued locally for local needs. The Pharmacopoeia Commission has exchanged reports and discussions with the Committee of Revision of the *United States Pharmacopoeia* in order to harmonize the titles of both works.

The first of thirteen U.S. Army hospitals bought by U.N.R.R.A. for Poland and Yugoslavia left Newcastle upon Tyne on Jan. 14 for Poland. Eleven are 1,000-bed general hospitals, one is a 750-bed evacuation hospital, and one a 400-bed field hospital. Others are being dispatched from other British ports, and it is expected that all thirteen will have been delivered by the end of this month. They were originally intended to be used in the Far East.

The Minister of Works has appointed Major Gen. R. C. Priest, C.B., to be House Governor of King Edward VII. Convalescent Home for Officers at Osborne, Isle of Wight, in succession to Surgeon Rear-Adm. B. Pickering Pick, C.B.E.

The Privy Council has nominated Dr Bertram A. Young, medical superintendent of St. Alfege's Hospital, Vanbrugh Hill, S.E. 10, to the vacancy on the Council of the Pharmaceutical Society of Great Britain created by the resignation of Sir Walter Langdon Brown on account of ill health.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* an increased prevalence was recorded for whooping cough (324 more cases), measles (206 more), and dysentery (20 more), while 126 fewer cases of scarlet fever and 45 fewer of diphtheria were notified.

Whooping cough, which fell by almost 50% during December, rose throughout the country, the largest increase being London 52. The decline in scarlet fever was general except in the south-western counties, Wales, and the south Midland counties. The largest decreases in diphtheria were Lancashire 24, Durham 22, Warwickshire 11, Northamptonshire 10, the only increases of any size were Nottinghamshire 16, and Suffolk 12. The biggest rises in measles were Lancashire 62, and Norfolk 44, the incidence in the latter county being at the highest level for two years.

Notifications of dysentery in the Melton Mowbray area of Leicestershire increased the size of the recent outbreak from last week's total of 102 to 150. The only other large returns were London 32, Lancashire 24, and Yorks West Riding 12.

In *Scotland* the chief feature was the large increase of 156 in acute primary pneumonia. Small rises were recorded for whooping cough, scarlet fever, and diphtheria, of 13, 11, and 7, respectively. For the third consecutive week a decrease was notified for measles, and this disease is now at the level of last summer. A fall of 28 in the total for dysentery resulted in the lowest number of cases during recent months. The incidence of cerebrospinal fever has been doubled during the past fortnight, 22 of the 34 cases were notified in the city of Glasgow.

In *Ireland* the outbreak of measles appears to be subsiding, 103 cases being recorded during the week. Scarlet fever and whooping-cough were at a low level, but diphtheria remained high with 85 cases.

In *Northern Ireland* the incidence of infectious diseases showed very little change.

Week Ending January 12

The notifications of infectious diseases in *England and Wales* during the week included scarlet fever 1,355, whooping-cough 1,190, diphtheria 525, measles 777, acute pneumonia 1,445, cerebrospinal fever 86, acute poliomyelitis 10, dysentery 344, paratyphoid 2, typhoid 3. In the great towns 165 deaths were attributed to influenza.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Jan. 5.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) *England and Wales* (London included), (b) *London* (administrative county), (c) *Scotland*, (d) *Ireland*, (e) *Northern Ireland*. *Figures of Births and Deaths, and of Deaths recorded under the category of Infectious Diseases*: (a) The 126 great towns in *England and Wales* (including London), (b) *London* (administrative county), (c) The 16 principal towns in *Scotland*, (d) The 10 principal towns in *Ireland*, (e) The 10 principal towns in *Northern Ireland*.

A dash — denotes no cases, a blank space denotes disease not notifiable or no return available.

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	53	4	34	3	2	47	5	57	2	2
Deaths			1				2	2		
Diphtheria	469	31	172	85	1	479	17	141	110	27
Deaths	12	1	4		1	14			1	1
Dysentery	235	32	35	2	—	204	67	110	—	—
Deaths										
Encephalitis lethargica, acute	1	—	1	—	—	—	—	—	—	—
Deaths										
Erysipelas		1	35	9	7	—	59	11	2	
Deaths										
Infective enteritis or diarrhoea under 2 years	66	7	6	17	18	41	6	5	13	3
Deaths										
Measles*	771	89	32	103	1	11,947	240	697	10	231
Deaths	6	—	—	1	—	13	—	1	—	—
Ophthalmia neonatorum	62	7	12	—	—	63	6	14	1	—
Deaths										
Paratyphoid fever	2	2	—	—	—	1	—	—	—	1(B)
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia influenzae (from influenza)	1,165	99	76	9	9	1,242	60	14	2	20
Deaths	123	15	17	—	2	55	9	2	2	1
Pneumonia primary		79	432	27	10		65	36	19	15
Deaths										
Poliomyelitis acute	—	—	—	—	—	2	—	—	—	—
Deaths										
Poliomyelitis acute	13	—	—	2	—	3	—	—	1	—
Deaths										
Puerperal fever		2	14	—	—		3	15	—	—
Deaths										
Puerperal pyrexia†	135	11	9	1	—	124	10	11	2	—
Deaths										
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths										
Scarlet fever	1,250	111	263	16	31	1,462	43	192	18	67
Deaths	1	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths										
Typhoid fever	3	—	2	5	1	8	1	—	8	—
Deaths	—	—	—	—	—	—	—	—	1	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths										
Whooping-cough*	1,048	96	37	10	9	1,538	50	84	72	19
Deaths	14	2	—	—	—	15	—	2	1	1
Deaths (0-1 year)	43	63	49	51	17	443	54	72	43	35
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	6,291	1,055	742	263	149	6,796	1,105	697	315	171
Annual death rate (per 1,000 persons living)			16.8	16.9			15.8	20.3		
Live births	7,484	1,195	896	408	226	7,753	821	925	451	305
Annual rate per 1,000 persons living			18.0	26.1			18.6	29.1		
Stillbirths	217	20	34			224	20	25		
Rate per 1,000 total births (including stillbirths)			36					25		

* Measles and whooping-cough are not notifiable in *Scotland*, and the returns are therefore an approximation only.

† Includes primary form for *England and Wales*, *London* (administrative county) and *Northern Ireland*.

‡ Includes puerperal fever for *England and Wales* and *Ireland*.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Athology Westcent*, London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Toxic Effects of High Octane Petrol

Q.—Is anything known about chronic poisoning with high octane spirit? A patient who drove a petrol lorry for three years and was constantly exposed to fumes, sometimes having to step back to avoid being overcome during filling operations, is now in bed with pains in the back, epigastric fullness, gross hypertension, and severe retinitis. Urine shows no albumin or other abnormality; urea clearance 70% normal; no gross abnormality in the blood count. Is the present condition likely to be connected with the petrol? Would any other tests be useful, and is there any treatment?

A.—While little is known about chronic poisoning from octane spirit, it is certain that octane is more acutely toxic than petrol of lower specific gravity and boiling-point. Among the disturbances following chronic exposure to petrol fumes are listed: headache, vertigo, lack of concentration, respiratory disorders, loss of corneal reflex, tremor of eyelids, paraesthesiae of the hands, increased knee-jerks, chronic polyneuritis, and nephritis. Neither in chronic poisoning nor in the sequelae of acute or subacute poisoning (the last may perhaps be applicable to your case, since the man had on occasion "to step back to avoid being overcome") has hypertension or retinitis been recorded, but blurred vision and burning pain in the chest and upper abdomen have been observed in the milder forms of acute poisoning, and after recovery from acute narcosis caused by petrol fumes. Two such cases, after heavy exposure to high octane petrol, have recently been described by J. S. Lawrence (*Journal*, 1945, 1, 871). It is unlikely that the hypertension and retinitis are due to exposure to petrol, but it is possible that the patient's general condition and gastro-intestinal disturbance have been made worse by it. In view of the fact that permanent damage to the central nervous system has followed acute poisoning—in the form of petechial haemorrhages in the brain, meninges, and spinal cord—it might be as well to have a thorough examination of the nervous system. So far as is known, no special treatment is indicated.

Keeping Properties of Serum and Plasma

Q.—What are the keeping properties of human citrated plasma and dried human serum? How long after the date of issue is it safe to use them? I have a stock of human plasma in sodium citrate solution dated Feb. 4, 1942, and a stock of dried human serum dated June 1, 1941.

A.—Human citrated plasma in liquid form should not be stored unless frozen in the solid state. Plasma dated 1942 should certainly not be used. Dried preparations of either serum or plasma, so far as is known at present, keep indefinitely. There is no reason to suppose that dried serum dated 1941 would be unsatisfactory. Better preparations are now available, however, as technical procedures have been improved. Adequate supplies of a later date are plentiful.

Duration of Breast-feeding

Q.—It is customary in our civilized world to advise breast-feeding a baby for nine months. As a baby goes on to mixed feeding and cuts teeth before that age, how long did Nature intend the baby to be breast-fed before civilization?

A.—The answer is anybody's guess. But it is clear in the animal kingdom that a period of mixed feeding, in the double sense, does exist after the young begin to lap or chew solid food, and the mother's supply is neglected once enough food and drink can be obtained from other sources. It is said that many uncivilized tribes (in Africa) continue breast-feeding for a long period, and even the child of school age "takes a pull," so to speak, from time to time. Whether Nature intended this or not is another matter. It seems reasonable to assume that the arbitrary period of nine months has some custom behind it, and, in general, breast-feeding in the second year of life was probably never intended.

Treatment of Goitre

Q.—What is the best treatment for a girl of 16 who has been suffering from a goitre, which enlarges just before each menstruation, for the past four years? Iodine has been tried, but it increased the size of the goitre. The basal metabolic rate cannot be done in this part of the world (Bengal). Would gonadal hormone treatment be of any use? Is there any danger in trying thiouracil before taking the basal metabolic rate? The girl is 5 ft. 2 in. (1.57 m.), weighs 9 st. (57.15 kg.), and her average pulse rate is 90. She is nervous, but otherwise healthy. Her finger-nails have not had to be pared for the last year, but are healthy in appearance, though her toenails have been unusually hard since childhood.

A.—It is common for a simple goitre to begin at puberty and to show an exacerbation before each menstrual period. Before deciding upon treatment it is necessary to determine whether or not hyperthyroidism is present. Though a B.M.R. estimation is useful, the decision can be made on clinical grounds. Is the girl anxious, "highly strung," and excitable? Is her skin flushed, damp, and unduly warm? Does she feel the heat excessively? Has she lost weight? Is her resting pulse rate high? Is the pulse pressure high? Does she suffer from breathlessness on slight exertion or even when embarrassed? Are ocular signs, such as lid retraction, exophthalmos, or the classical signs of Graves's disease, present? Is there in any part of her body an obvious sympathetic predominance?

Some of these questions are already answered. She is not emaciated; in fact she is rather plump. But is her weight increasing or decreasing? The behaviour of the nails is not characteristic, but is, perhaps, more suggestive of thyroid underactivity than of overactivity. Her "average" pulse rate is rather fast, but as it is not a resting pulse rate the circumstances in which it was taken must be considered before it is interpreted. She may have been in the habit of hurrying to her consultations, or she may be frightened of doctors. Her nervous temperament may be due to causes other than hyperthyroidism, and the fast pulse rate may be a reflection of these rather than of thyroid disorder.

On the whole one would be inclined to guess that no hyperthyroidism is present. In this case thiouracil should not be given, for it is not a safe remedy. Though it is difficult to produce myxoedema in a patient with a functionally normal thyroid, it is not impossible. Moreover, a daily watch on the white corpuscles is essential if all risk of agranulocytosis is to be avoided. The treatment of choice is desiccated thyroid. Iodine is often effective, but has already failed in this case, probably because the thyroid is incapable of turning it into thyroxine. It is best to begin with a dose of gr. 1/4 (16 mg.) of thyroideum siccum every morning, and to increase the dose very gradually at fortnightly intervals, watching carefully for signs of overdosage, especially loss of weight and tachycardia. The final dose will be that which improves the goitre without producing such signs. No gonadal hormone will do any good at all.

Should further consideration, on the other hand, lead to a diagnosis of hyperthyroid goitre, thiouracil should certainly be used, in combination with physical and mental rest. With a dose of 0.4 to 0.6 g. daily there is little risk of an increase in the size of the goitre. When the condition of the patient suggests that improvement has set in, which is usually after two to four weeks, the dose is reduced to 0.2 g. daily, and after a few weeks to 0.1 g. A close watch on the white cells must be maintained throughout. In hyperthyroidism also gonadal hormones are useless. There is a theoretical reason for giving oestrogens, for they produce pituitary depression and might therefore be expected to reduce the output of thyrotrophic hormone. Unfortunately, they don't work.

Incompetent Lacrimal Duct

Q.—About ten years ago a man had an antristomy done. For the past five or six years he has suffered from the following trouble: If, during a cold, he blows his nose, mucus is driven back through the naso-lacrimal duct into the eye. When driving in a wind there is an inadequate drainage of tears, which flow on to the cheek. Why is this, and what is the treatment?

A.—The lower end of the lacrimal duct must have been damaged at the operation in making an opening between the antrum and the nasal fossa, and the valvular mechanism has been rendered incompetent. The only radical treatment would be to make a direct communication between the lacrimal duct and the nose (rhinodacryo-cystostomy), as for stenosis of the lacrimal duct, but it would be impossible to guarantee that this would give complete relief.

Morphine Dosage

Q.—In cases of severe colic—intestinal, renal, or biliary—and also in anginal and other severe neuralgic pains, what is the usual, and also the maximum, dose of morphine that can be given hypodermically with safety? How often, and at what intervals, can it be repeated?

A.—The usual dose of morphine is 1/4 gr. (16 mg.). Several cases are known in which a dose of 1 gr. (65 mg.) has proved fatal to

adults. It is therefore rarely wise to inject more than 1.2 gr. (32 mg.) within a short interval of time. It may sometimes be two hours or longer before the morphine exerts its full effect. This is particularly likely to happen in patients who are shocked and collapsed. At first they do not absorb the morphine from the site of injection, and later they may display delayed morphine poisoning when the circulation rallies and the drug begins to act. Under normal circumstances most of the effects of 1/4 gr. will have passed off in six to eight hours, and it would therefore be safe to give 1/4 gr. (16 mg.) every eight hours. In disease the physician must decide whether persistent pain is due to resistance to morphine, in which case a larger dose would be indicated, or to failure of absorption, in which case further administration might be disastrous. It is therefore not possible to make a dogmatic statement, though as a general rule it is safe to give an initial dose of 1/2 gr. (32 mg.) morphine, and follow this by 1/4 gr. (16 mg.) in two or three hours in the severe type of pain which occurs in coronary thrombosis.

Acute Cardiac Failure

Q.—What are the best emergency heart stimulants for acute cardiac failure in (a) chronic myocarditis the result of chronic valvular disease or coronary thrombosis; (b) acute myocarditis resulting from infections, such as pneumonia, typhoid, etc.? Is nikethamide a cardiac centre stimulant or, as some authorities seem to indicate, does it act only on the respiratory centre?

A.—Only general indications can be given in answer to this question; the details of treatment will depend upon the appraisal of the exact clinical state. In acute failure due to chronic valvular disease auricular fibrillation is likely to be present, and if the patient is not already digitalized this should be undertaken by one of the rapid methods, such as tr. digitalis 1½ dr. (5.25 c.cm.) at once, followed by 30 min. (1.8 c.cm.) six-hourly until the heart rate drops to the region of 100 per minute, after which 30 min. (1.8 c.cm.) thrice daily will probably suffice. In acute failure after coronary thrombosis digitalis is less likely to be beneficial. Nikethamide is commonly effective empirically, though its mode of action is not fully understood; 2 to 4 c.cm. should be given intramuscularly. Acute myocarditis in the course of pneumonia or typhoid must be far from common; the acute failure which may develop in these diseases is peripheral, and not due to inflammatory or other lesions in the heart muscle. Such peripheral failure is caused by toxæmia, often with dehydration, and the treatment will be directed to the relief of these states. Fluid infusions of 5% glucose in saline may therefore be necessary (intravenous or rectal) if the patient cannot take sufficient by the oral route. Nikethamide 2 c.cm. intramuscularly four-hourly, or strychnine gr. 1/32 (2 mg.), repeated if necessary, may help.

Dimethyl Phthalate as Mosquito Repellent

Q.—Is dimethyl phthalate a reliable mosquito repellent, as a lotion or as an ointment?

A.—Dimethyl phthalate is certainly a very effective repellent for mosquitoes and several other biting insects. It is a colourless oily liquid and is used undiluted. A few drops rubbed on the hands are wiped over the face or other areas of skin to be protected (avoiding eyelids and lips, etc., which are somewhat irritated by the liquid). This protection lasts for several hours until washed off by perspiration, etc. Another method of use is to apply the liquid to garments, through which some mosquitoes will bite. Applied in this way the repellent lasts for a week or so. Care must be observed, however, as the liquid dissolves certain types of artificial fabrics. It is harmless to silk, wool, and cotton (see our annotation, May 19, 1945, p. 705). We understand that supplies are available in small quantities in this country.

Chromidrosis

Q.—A case of trichomycosis of the axillary hair with red coloration of the sweat has relapsed twice—once after shaving, and once after shaving and treating the area with 1 in 4,000 perchloride of mercury in spirit. Would you advise as to treatment and prognosis?

A.—Chromidrosis is sometimes faked in hysterical subjects, or may be due to bacterial infection, such as *B. prodigiosus*. Treatment of this rare condition is often disappointing, and should take into consideration both the general health and the nervous system. It should not be forgotten that reinfection from clothing explains the tendency to recurrence in some instances.

Induction of Labour by Quinine

Q.—Is there any danger to the foetus in drug induction of labour by quinine 10 gr. (0.65 g.), 5 gr. (0.32 g.), 5 gr. (0.32 g.), at two-hourly intervals? In two successive cases the newborn infant died in hyperpnea on the second day, but this may have no special significance.

A.—Quinine given to the mother before or during labour permeates the placenta, enters the foetal circulation, and can be recovered from the urine of the child at birth. It can also be demonstrated in the amniotic fluid. It is therefore reasonable to suppose that it may have

a toxic effect on the foetus. Several writers and many clinicians have noted that after the administration of quinine, in the sort of dosage mentioned above, the foetus is prone to pass meconium during labour, and it sometimes dies *in utero* for no apparent reason—other than exposure to quinine. As a result of extensive clinical and pharmacological investigation of 805 cases of quinine induction, W. J. Dilling, A. A. Gemmell, and Eileen S. Sadler (*J. Obstet. Gynaec. Brit. Emp.*, 1929, 36, 352; 1930, 37, 529) concluded that 6 foetal deaths (0.75%) were probably due to the quinine, and another 11 deaths (1.36%) were doubtfully caused by it. However, they pointed out that an equal number of unexplained foetal deaths occur in any series of normal labours in which quinine is not administered. Therefore it has not yet been proved scientifically that quinine can cause foetal deaths. Nevertheless, as a result of clinical experience, most obstetricians are convinced that quinine does sometimes kill the child. Some believe that it can have other non-fatal ill effects, such as damage to the auditory nerve. The majority, therefore, rarely use quinine in an attempt to induce labour except when the foetus is already dead, and this type of induction is hardly ever practised now in many of the large maternity hospitals.

Even though it be accepted that large doses of quinine can kill or harm the foetus *in utero*, it remains doubtful whether it can cause neonatal death. The period of greatest danger—i.e., when the concentration in the maternal and foetal tissues is at its highest—is 6 to 12 hours after the first dose of quinine. Quinine sometimes persists in high concentration in the foetal tissues for a much longer time than in the maternal, and it has been identified in small amounts in foetal and placental tissues even 80 hours after the first dose. Although it is right to suspect that quinine may have been responsible for the deaths of these two babies, it is unjustifiable to come to any conclusion unless post-mortem examinations were carried out.

Sensitivity to Soap

Q.—A patient has had attacks of dermatitis affecting the face, hands, and arms for about two years. So long as she does not use soap she is quite free from dermatitis. Will she ever be able to use soap with impunity, and is there any method of treatment that would help to make her skin insensitive to the effects of soap?

A.—This patient's skin may be sensitive to one or more of the ingredients of soap. If it was toilet soap that caused the first attack it is unlikely that free alkali was the original irritant, which might have been either the perfume or a sodium salt of a fatty acid. If, however, the original attack was traced to the use of a household (including "soft soap") or medicated soap the possibilities are wider. A trial might be made of the patient's skin reaction to the use of a non-scented shaving soap, which might be tolerated. There is always the possibility if soft, or softened, water is used for washing that the soap lather is not being adequately rinsed off, and this may be the cause of the skin irritation. If this is the case a rinse of a weak solution of magnesium sulphate would assist in the removal of the soap from the skin.

INCOME TAX

Deductions for Use of a Car

Changes in the income-tax code are usually effected by means of the yearly Finance Acts, but last year a special Act—the Income Tax Act, 1945—was passed which will materially affect the deductions that can be claimed by those who own and use "plant and machinery" for trade or professional purposes. So far as the medical profession is concerned, "plant and machinery" is represented in the main by the car, or cars, used in the work of the practice or for carrying out the duties of a medical employment. By Section 18 of the Finance (No. 2) Act, 1945, the relevant provisions of the earlier Act are brought into force as from April 6, 1946. Accordingly the changes made will affect the calculation of profits, or of the net earnings of employment, only as regards periods beginning on or after that date. Practitioners assessed under Schedule D, on the usual basis of the profits of the previous year, will find that it does not make any difference to the tax payable for 1946-7; but it will affect individuals assessed under Schedule E on the current year's basis. Even in the latter case it seems unlikely that any definite and effective claims can be made on the new basis until the position is known for the whole of the year to April 5, 1947. The changes made may be summarized briefly.

(1) A new allowance called an "initial allowance," is instituted, the amount of which is 20% of the capital expenditure, and this is to be treated as if it were an expense of the year in which the cost was incurred. For instance, if a practitioner bought a car for professional use at a cost of £500 on Nov. 1, 1946, he would become entitled to a deduction from his profits or earnings of £100 (20% of £500) in reckoning his professional income for a period which includes that date. The "initial allowance" will be deducted, as the present "depreciation allowance" is now, in arriving at the written-down value on which the depreciation allowance is calculated for a subsequent year. The allowance will also be given in respect of a car bought on or after April 6, 1944, but will be treated as

if the transaction had taken place on or after April 6, 1946, and will therefore not ordinarily affect tax due under Schedule D for 1946-7, though ultimately it will affect tax due under Schedule E for that year. Any allowance for a car bought before then will be subject to an appropriate restriction if depreciation has already been allowed on the full cost before deducting the initial allowance.

(2) (a) The legal basis for calculation of the annual allowance is altered—though the new basis was in fact already in common use. The calculation is to be made not, as is legally the case at present, according to what car or cars may be owned and used during the year of assessment, but according to the position as at the date of the end of the year which forms the basis year for the assessment. Thus, if a practitioner has a car of which the written-down value on Dec. 31, 1945, was £250, it is on that amount that the depreciation allowance for 1946-7 must be calculated, even though he may have sold that car and bought another early in 1946. (b) The present method of calculating the annual allowance is unnecessarily complicated. In the first place a percentage, say 20%, is fixed which is regarded by the District Commissioners (or Special Commissioners) as reasonable, and to the amount so calculated an addition of one-fifth is made to arrive at the income-tax allowance. For example, if the written-down value of the car in question is £300, the depreciation allowance will be £60 (20% of £300) plus £12 (one-fifth of £60), making a total of £72. But in making the deduction from £300 for the purpose of the next year's calculation the £60 would be deducted but not the £12, and the figure carried forward would be £300 less £60—i.e., £240. In future one-fourth will be added to the percentage figure and the total allowance will be deducted in the "written-down" record. Thus, in the example above the allowance will be £60 + £15 = £75, and the capital figure to be carried forward will be £300 - £75—i.e., £225.

(3) The new provisions establish what are called "balancing allowances" and "balancing charges." They have been devised to meet criticisms of the present arrangements arising from the fact that the taxpayer often finds himself left with an ultimate loss on some machinery or plant for which he receives no income-tax allowance. If, for example, a car is replaced by a somewhat similar one after some years of service, the present "obsolescence allowance" gives equitable relief. But that allowance has two conditions, or rather a condition and a restriction: the car for which the obsolescence allowance is claimed must be replaced, and the amount of the allowance must not exceed the cost of the new car. A practitioner retiring from professional work is debarred from the allowance because he does not replace the car for professional purposes; and where the cost of the new car is much below that of the one replaced—if the latter had been bought at a scarcity price or the former were bought second-hand—only partial relief is forthcoming in respect of the loss on the old car. Under the new system a balancing allowance will be given whether the car is replaced or not, and will not be restricted by reference to the cost of the new car, if there is one. On the other hand, if the car is sold for a sum which when added to the amounts allowed in respect of it by way of "initial allowance" and depreciation exceeds its cost, the Revenue has the right to bring the "profit" into taxation as a "balancing charge." It seems not unlikely that there will prove to be a good many cases of this kind, where cars bought at something like pre-war prices are sold after April, 1944, but that is a temporary price which some taxpayers will have to pay for a general and permanent gain.

LETTERS, NOTES, ETC.

Nocturnal Cramp

Dr. E. LUDOWICI (Sydney, N.S.W.) writes: With reference to the question and answer on nocturnal cramp (Aug. 18, p. 240), this condition can be very troublesome. I have found that an increased amount of salt taken in the diet will avert the attacks: for the attack a quarter of a teaspoonful in water followed by a little sherry and an A.P.C. tablet is effective; extension of the leg and foot also helps.

Operations for Varicose Veins

Dr. R. K. BROOKS (Chipping Sodbury) writes: As a victim of this complaint and wondering what will eventually be my own fate, I had ample opportunity to study the subject during the war years. It was my privilege to be the M.O. to soldiers, about a company strength, throughout the war. During this time there were four changes of regiments and frequent changes of men, and so my observations were not restricted to one group of men whose category was B or C. A foot inspection or the customary F.F.I. would reveal an interesting assortment of end-results of attempts to treat varicose veins. In my opinion—and I have no hesitation in saying it—these were all failures. Whether it was the injection method, or ligation, or complete removal of the vein, all methods were unsatisfactory, and I was convinced that there was no satisfactory method of surgically treating varicose veins. The best one can do is to support the engorged vein with something like elastic stockings. A varicose vein is, after all, the normal penalty (physiological) for a two-legged animal who is getting old and is obliged to spend an

excessive number of hours on his feet. If this is so, it stands to reason that if you ligate the one vein, or produce a sclerosis, or even remove the vein, you are only hastening the varicosity of other veins in the neighbourhood. Is one better off in the end? Now, no doubt this reasoning will evoke the wrath of surgeons, but can they offer a guarantee or a better reasoning for not withholding surgical interference?

Bite of *Culex molestus*

J. T. S. writes: Should the question put to you (Nov. 10, p. 675) resolve itself in non-technical language to "Can you stop a mosquito bite from swelling and itching?"—I may be of assistance. I have lived in several parts of the world infested by mosquitoes, and have found the following simple treatment effective on myself and a large number of other people. As soon as possible after bites are noticed, scratch them half a dozen times with a fine, sterilized needle (I have merely held it in a match flame) and apply tincture of iodine. The itching stops instantly with the counter-irritation of the iodine, and the swelling and general effect of the bite disappear in about 12 hours. I cannot say whether this would help your correspondent's patient, but I have never known it fail. Obviously, the quicker the remedy is applied the quicker the cure.

Applying for a Hospital Appointment

Mr. A. WALLIS KENDALL, F.R.C.S., writes: Surely it is possible to avoid asking candidates for hospital appointments for such large numbers of copies of their applications; as an example, in an advertisement this week sixty copies are required. A copy of each application could be displayed in the medical staff room or could be circulated. By either or both methods sufficient opportunity would be given to all members of the honorary staff to gain the necessary information about a candidate before the usual personal interview. Again, the natural desire to please the electing committee leads to a competition in the elegance of production of the applications, with a great deal of expense for printing to candidates who as a class are not usually overburdened with riches. If type-written copies were asked for they would be quite adequate. Lavish demands for copies are such a certain sign of a return to peacetime conditions that it may seem a little ungracious not to welcome them. I have in mind, however, the words of the poet:

"War lays a burden on the reeling State,
And peace does nothing to relieve the weight."

British Medical Literature: Europe's Need

Dr. LADISLAV FISH writes from 5, Gurney Drive, London, N.2: U.N.R.R.A. supplies the liberated countries with drugs, instruments, hospital equipment, but nobody supplies them with books, medical literature, etc. In my experience this need is equally as important. There is no planning with regard to this, although the need is urgent—for example, it is vital for Czechoslovak medical science and practice to be in close contact with medicine of a nation whose language opens the door to the world. It greatly concerns this country, and it is in her interest that the vacuum created by the disappearance of German medical literature should be filled with British.

My experience during my work in Czechoslovakia (where I went with the 1st Czechoslovak Medical Mission from this country) includes the following. German medicine had a very great influence in Czechoslovakia before the war, and this influence changed during the occupation into complete domination. After the German defeat German periodicals and other literature disappeared, but their influence remained. The sources of information, references, etc., in published papers are mainly if not entirely German. Students, in spite of their disgust, have to study from German books because there are no others. The few older Czech medical textbooks are copied and cyclostyled by the students, who often find only a single remaining copy in the library. It is not always easy to introduce the newer methods and views in medical science and practice. The strength of German influence and its persistence become apparent in a reluctance to accept anything new or different even when the old is doubtless inferior. To change this it is necessary to supply the profession with plenty of reading material which would give enough information regarding the advances and experiences of other nations. This is a great chance for British medicine to widen her publicity. It would be too costly and difficult now to set up a central organization for the purpose of supplying the universities, libraries, etc., but I would like to suggest starting in a modest way—e.g., that the societies of the various specialties should supply reference books, periodicals, etc., both new and old, to the university department of the same specialty. As an E.N.T. surgeon I would like to appeal to British oto-laryngologists to collect a small library (not necessarily composed of new books, but mainly recent editions from the last 10 years) for the E.N.T. Department of the Charles University of Prague. It needs them urgently, and the teaching staff, assistants, and students would appreciate them greatly. Anybody who will give a book for this purpose can be certain that it will be an excellent contribution not only to Czech medicine but also to the mutual understanding of nations.

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PSYCHOLOGICAL REACTIONS IN SOLDIERS TO THE LOSS OF VISION OF ONE EYE, AND THEIR TREATMENT

BY

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AND

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The loss of one eye is not in itself a severe disability, yet, more often than is generally known, individuals who have lost an eye are unduly distressed about their defect and feel themselves handicapped in numerous activities out of proportion to their actual disablement. Their handicaps are in the main not anatomical in origin, but are due to what is commonly described as a functional overlay. The circumstances of war have given us the opportunity of coming into contact with numerous men who had recently lost one eye, functionally or in fact, and provided us with ideal conditions in which to study their reactions, and since, apart from war, the same reactions to a large extent are met with in civilian life, their record may be of not without interest. For the purposes of this study an unselected sample of 102 one-eyed soldiers was taken, of the following composition:

- 1 Disability—Eye diseases, 39, eye injury 63. Eye removed, 29, eye retained, 73.
- 2 Rank—32 N.C.O.s, 70 privates or equivalent.
- 3 Type of Enlistment—11 members of the Regular Forces, 14 Territorials, 19 volunteers, 58 conscripts.
- 4 Age—Varying from 19 to 53.
- 5 Marital Status—67 married, 35 single.
- 6 Attributability—Injury attributable to enemy action, 19, injury not attributable to enemy action, 83.
- 7 Duration of disability.

26 men were seen within six months of the onset of their eye disease or within six months subsequent to their eye injury.

15 men were classed as having subchronic, chronic, or recurrent eye diseases (still or again in a florid state).

61 men had been blind in one eye as a result of eye disease or of injury for at least six months. The latter were regarded as permanently blind in one eye.

Emotional Reaction to Monocular Eye Injury and Disease

Eye Injury.—Men who sustain a serious injury to one eye in an accident or in battle rarely lose consciousness immediately. In many cases they see a flash and feel the impact of the shell fragment like a blow from a boxing glove or like being struck by a sledgehammer. Instinctively they raise their corresponding arm in self defence. Sometimes they are completely blind for a time, sometimes in the heat of the battle, their injury remains almost unnoticed, and only blood trickling down the cheek or dropping on to their arm indicates what has happened. On arriving at the hospital a sense of relief commonly prevails; after all, it is good to be alive, they are really lucky, and it could have been much worse. Their hopes and fears rise and fall with the prognostications of their medical officers, and where excision of the eye is deemed necessary depression is usual. Lying in bed in hospital they think of their occupational prospects. As they now are their old firm may not take them back. Will they be able to support their families? It is true that they can still see, but will the other eye be affected? If so, this would mean blindness, uselessness and dependence on other people for the rest of their lives. The first look in a mirror gives them, almost invariably, another shock. But in

general they are sustained by the spirit and atmosphere of the hospital, and overriding all other considerations there is the desire to get home as quickly as possible.

Eye Diseases.—A man with an acute affection of one eye is rightly or wrongly usually attributes his disability to a strain, a blow or a cold. On admission to hospital he either dismisses the eye trouble lightly heartedly, trusting implicitly in the skill of the ophthalmologist, or he is alarmed about the possibility of its being something serious. Absence of pain, no outward appearance of disease, and iridodilator onset allayed the concern of his doctor, arouse anxiety, but encouraging remarks by doctors and nurses dispel these mutual fears. Much depends upon the doctor's attitude. If the eye specialist expresses any doubt about the full restoration of vision, dormant fears regarding blindness are greatly accentuated, and if the verdict is passed that the loss of the one eye is inevitable these fears assume quite unreasonable proportions.

In chronic cases, if after many months or even years of careful medical attention the condition deteriorates or shows no visible signs of improvement, the man is affected, as a general rule, in two extreme and contrasting ways which depend on his personality. He either hopes for the best or the best of his past experiences, or he expects the worst, regarding any relief as a further threat to his vision. Hope of complete recovery is then abandoned and the much-dreaded blindness no longer a vague possibility, looms before him as almost inevitable. Whether or not this fear is justified he prepares himself mentally to lead the life of a blind man.

Emotional Reaction to Permanent Blindness in One Eye

After the initial emotional crisis has abated few one-eyed men recover their emotional balance completely. Of 61 men in this series who were seen at a time when they had passed beyond their early mood fluctuations only 9 were in no way or but little emotionally perturbed by their disability. Among these 9 were 5 unimaginative stable dullards, not easily upset by anything. Five other men adopted an attitude of defiance towards their disability, mingled with a tendency to sulk off what they could do in spite of it. They soon learned to play games and to shoot from the shoulder corresponding to the good eye. The remaining 47 men showed evidence of understandable but irrational and therefore morbid fears concerning their social relationships, the future economic security of dependants, and the possibility of further harm to themselves. Their reactions may be classified thus:

(a) Social Anxiety (26 Men)

Depressive.—An eye affection is quickly noted. Children point at the one-eyed man and call him names. A well-meaning neighbour remarks on his hard luck and he is subjected to some good natured chaffing. If his employment is still discharging he may be repugnant to some people, but if he has a well-fitting artificial eye he is rather greatly handicapped in his working efficiency, not particularly conspicuous in appearance. Rich or poor, wrongly, wrongly, of an artificial eye commonly believe that it is too big or too small, too

glaring, too sunken, or too protruding. To some the concealment formerly provided by an eyeshade was preferable to the imperfect camouflage of the artificial eye. They complain that the winking of the eye invariably draws the attention of people and that to take the eye out in the presence of others is very embarrassing. In extreme cases the effect of their disability upon their relation to others becomes a main preoccupation. They dare not look anybody straight in the face. If they are addressed they get flustered. In the company of their friends they are not too uneasy, but to face a group of strangers fills them with terror. Repelled by their appearance, they say, people in a restaurant move away, get up, or walk out. At dances girls refuse to dance with them. Unable to stand their ordeal any longer, men of this group cut themselves off from their social contacts. "I don't fit in," they say, or "I am out of the picture and not wanted."

Resentful—Another group of men, instead of worrying inwardly and evading contact with a world now believed to be hostile, react with active and vociferous resentment. Their social anxiety has been converted into a violent protest against society in which accusations and condemnations feature prominently. Some of them simply become bad-tempered and cantankerous and "flare up" at the slightest provocation. "Words come out of my mouth which I don't really mean," said one man. These men quarrel with their friends, they are no longer capable of "taking" a joke, they hit out furiously, but more in the metaphorical than in the physical sense. Some of them threaten to use violence, and a few actually do, and as they lose one friend after another through their vicious temper they gradually drift into social isolation. Men of this type are usually disgruntled about the employment given to them after their disablement. In their opinion one-eyed men should be specially catered for. If their work does not suit them they report sick or become troublesome, losing all interest in their job and making no bones about their desire to get out of it. They believe that they would be far better off in some other sphere of activity, but view their future with gloom and bitterness, yet one main interest remains—their determination to put up a fight for a pension.

(b) Anxiety over Dependants (10 Men)

A defect of the eye impairs a working-man's earning power. Certain occupations are barred to him and some firms are reluctant to employ him. Hence a certain number of married men are seriously concerned about the effect which the loss of an eye may have on the security of their dependants. Within justifiable limits, or going far beyond them, they are afraid that they will be unable to discharge their obligations towards their families.

Members of this group were diligent, conscientious, reliable, and persevering workers before their injury, efficient and of good morale. Perhaps after a hard struggle they had managed to build a reasonably secure livelihood for themselves and they had settled down to married life. At hospital they were anxious to leave at the earliest opportunity, and on return to their old environment they carried on to the best of their ability irrespective of whether they liked the job allotted to them or not. To all appearances they had changed very little. But if the conversation were allowed to flow freely they almost invariably revealed a dread of how they would get on in civilian life. The Army gives them financial security, but this is temporary, and the thought of leaving it is an ever-present worry. "I may not be able to support my wife after the fashion I would like to," said one of them, "will I be able to give my children as good an education as I intended to, in my present state of physical fitness? Will I be able to make the money to look after them? The whole future of my family depends on my eyes." Intent on preserving what earning capacity is left to him, a man of this type, whose greatest need is security, avoids all potential dangers to the remaining eye. He keeps out of sport, reads as little as possible, does not frequent the cinema any longer, and guards his eyesight jealously. The fear haunts him that the other eye may become affected, that he may go blind, and that if this should happen he will become useless.

(c) Self-centred, Self-pitying Anxiety (11 Men)

Complaints of headache, of difficulty over judging distances, of eye-strain, of photophobia, and of night-blindness are common in one-eyed men. Of these complaints, difficulty over judging distances at hand is sufficiently explained by the nature of the defect, which owing to the need for adaptation to monocular vision, also counts for headaches and "eye strain" within some six months of the disablement. There is no physiological reason for a continuation of such symptoms beyond this period. These complaints vary in intensity and in descriptive quality. According to the colourful accounts of some of the men such difficulties seem to incapacitate them more or less completely. Their headaches—described as "terrible" or "colossal"—come on whenever they attempt work. "Any close work is pretty hopeless"; "I have to feel for things before I pick them up"; "I can't distinguish between an insect near or a bird far away"; "The good eye becomes tired easily, smart, and aches a lot"; "After half an hour's reading or writing

it gets all mixed up", "Sunlight is very dangerous to me," they say. If the sun is out they wear dark glasses or gaze on the ground. Another pair of spectacles is worn against the "harmful" effect of wind. They are "absolutely hopeless" in the dark and have to be led about. Without assistance they grope their way along or progress by feeling their way with one foot along the edge of the kerb.

In addition, most of these men are troubled by general complaints—dizziness, heart trouble, indigestion, and so on, they become easily fatigued, sleep badly, their memory has failed since the injury, and they are unable to concentrate on anything. Surely, they feel, anybody can see how ill they are, but no one will take it seriously. As in the previous type, but for different reasons, an all-pervading fear about further injury to themselves dominates their thought and actions. They have taken full flight into dependence and illness without even trying to take up the fight against their real external difficulties, which undoubtedly exist. Fear of going blind, so common in one-eyed men, assumes in them quite grotesque proportions. They do not go out during the daytime because the sun may do harm to their good eye, and they do not go out at night because they may bump into something. They do not play any game because the ball may hit them in the eye, and they do not read or go to the cinema because the strain may be too much for them. A little boy using a catapult or throwing a paper aeroplane up into the air frightens them out of their wits.

Factors Determining the Emotional Reaction

The type of emotional reaction to the loss of an eye is determined by three main factors: (1) previous personality, (2) nature of the disability, (3) nature of employment.

(1) *Previous Personality*.—Comparison between reaction types and previous personality types allows the following conclusions:

Minor or No Emotional Maladjustment.—A constructive-defiant attitude towards their disability, devoid of undue anxiety, was displayed by men of the conscientious personality type. Of those labelled as "resigned," only one had an eye excised.

Social Anxiety.—The depressive group is largely composed of men who have always been shy, self-conscious, and retiring, afraid of making themselves conspicuous and of being held up to ridicule (9 out of 14). They needed praise as a means of self-assurance and were easily snubbed. The advent of their disfiguring eye affection had tipped the balance of their emotional scales. Men who were *resentful* in their reaction derived from two different personality types, about evenly distributed. Prior to their eye affection they were either simple-minded, uneducated, blunt, outspoken, fond of drinking and gambling, and enjoyed a good "scrap," or they were intelligent, educated, and ambitious, and therefore bitterly disappointed in consequence of the frustrations imposed upon them by their disability. (The effect of uncongenial employment is dealt with below.)

Anxiety over Dependants.—With two exceptions, as already pointed out, this type of anxiety was found to occur in men with a severe—perhaps over-severe—sense of duty. They were hard workers, meticulous in attention to detail, sticklers for punctuality, and in general fully appreciative of their responsibilities and obligations. They had always kept an eye on the future, had saved some money for a rainy day, and had always been greatly concerned about their financial security and the security of those dear to them.

Self-centred, Self-pitying Anxiety.—Previous characteristics, such as over-dependence, timidity, and childish *amour propre* may have foreshadowed their self-pitying reaction to their disability in four men of this group. The others did not conform to any specific type.

(2) *Nature of Disability*.—Comparison of the reaction type with the nature of the disability shows that the removal of a eye predominantly disturbs the social relationships of an individual, engendering social anxiety, whereas retention of the blind eye predominantly rouses anxiety over dependants and over further injury.

(3) *Nature of Employment*.—After discharge from hospital the one-eyed soldier proceeds to a convalescent depot, where he is posted to a training depot. There, as a result of inevitable administrative delays, he remains for several weeks until his disposal has been decided. He is then posted to a unit where again, quite often for a period of several weeks, little use is made of him. To keep him busy he is usually employed on fatigues and odd jobs, and by the time the nature of his employment has been finally settled his morale is apt to be low. On the other hand, if the new job is to his liking his morale improves. Some men, however, are frequently moved either within their own unit or between different units because a suitable job is not readily available, or because of their constant refusal to undertake duties for which they feel themselves

the psychological distress of mutilation are essential. In those who are fit these ends are attained by physical training exercises in which, in addition to toning up the system generally, special attention is paid to re-educating the sense of equilibrium and the judgment of distances by means of parallel bars, jumping, and balancing exercises; this is implemented by organized games out of doors, particularly ball games, which are rapidly stepped up in speed, and organized indoor games such as ping-pong and billiards. The more sedentary part of the day is spent in occupational therapy; this can be of great value, the best results being obtained by weaving on a big loom and the performance of other tasks involving rapid and fine co-ordination between eye and hand."

Position in Industry.—The position of one-eyed workers in industry varies a great deal. Some firms employ one-eyed men with good success. They prove themselves efficient at most jobs, even in the metal and engineering trades. Their accident record is good; in fact, they are less prone to accident than normal-sighted persons, possibly because they are more careful. A large number of engineering firms send the one-eyed workers back to their old jobs of grinding, turning, or drilling, wherein they are invariably found to be competent, be they young or middle-aged. Other firms refuse to put the men back on the old job, arguing that it is dangerous for them to do work in the tool-room or the engine-room. They therefore put the one-eyed workers on the more menial tasks, as in the store-room or the yard. A great number of firms require applicants to pass an eyesight test and do not employ one-eyed workers at all, so that the difficulties of the one-eyed workers increase when they lose their original employment. The inevitable result is that many of them drift into other occupations which involve a loss to their wage-earning capacity, to their self-respect, and to their social value to the community. In view of the number of one-eyed men discharged from the Services after the war, measures should undoubtedly be taken to improve their occupational prospects, and propaganda instituted to impress on public and private employers their negligible loss of efficiency in most vocations.

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OCCURRENCE OF A FLAGELLATE IN THE SPUTUM OF A CASE OF BRONCHIECTASIS

BY

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It is generally recognized that only one flagellate normally lives in the mouth of man and that it is correctly assigned to the genus *Trichomonas* Donne. It was discovered and originally named *Cercaria tenax* in 1773 by O. F. Muller (*Trichomonas tenax*). Gros (1849) described an amoeba parasitic in the human mouth and named it *Amoeba gingivalis*. This was amended to *Entamoeba gingivalis* by Brumpt (1910). Tibaldi (1920) described *Entamoeba macrohyalina* from the tonsil, which is probably the same. Knowles and Gupta (1924) published an account of a bodo (? *Bodo edax* Klebs), found to be a temporary resident in the human mouth, which was similar to that often occurring in water, urine, and faeces. From time to time, also, accounts have been published of protozoa found in the human lung. For example, in 1892, under the title of *Cercomonas*—formerly employed by medical writers as a general term for any flagellates of the human intestine—a flagellate was described by Streng in the sputum and in putrid expectorations in gangrene of the lung. Leyden and Jaffe (1867) observed infusoria in the putrid sputum of persons suffering from gangrene of the lung and putrid bronchitis. Parisot and

Simonin (1921) found what they identified as *Trichomonas hominis* (presumably *Trichomonas tenax*) in the pus from the cavity and in Dittrich's plugs in the sputum of a case of gangrene of the lung in life and directly after death.

Artault (1898) described under the term *Amoeba pulmonalis* a few amoeboid formations with a nucleus and vacuole in the contents of the lung cavern, distinguishable with difficulty from leucocytes. Brumpt (1910) refers to these as *Entamoeba pulmonalis*, and both he and Wenyon state that if they are amoebae, which is not at all clear, they are probably identical with *E. gingivalis*.

Previously it had not been our experience to find protozoa in respiratory secretions in such numbers as to excite attention. In the case described below the sputum of the patient swarmed with flagellates—a condition which may be of enough interest to merit recording. The details are as follows.

Summary of the Case

The patient, an Indian male aged 23, was admitted to hospital with a history of fever and rigors. Blood examinations showed the presence of *Plasmodium falciparum* and *P. vivax*. In spite of the usual antimalarial treatment his pyrexia continued and increased. He started to expectorate a considerable amount of foul-smelling sputum, which separated into three layers on standing. His respirations were laboured, and numerous crepitations were to be heard over the bases of both lungs. A lung abscess was diagnosed on Oct. 26, 1943—a fortnight after admission. Sulphonamide therapy was begun the following day, resulting in a rapid decline of his pyrexia; but it was without effect on his respiratory distress or the quantity and character of the sputum. The first specimen of sputum was received in the laboratory on Oct. 29, and when examined showed the presence of numerous flagellates and spirochaetes in addition to the customary fauna. In the case of subsequent specimens precautions were taken to avoid any risk of extraneous contamination. Examination of the sputum on four successive days revealed the persistence of these organisms. Gradually they became less numerous, and on the sixth day of the administration of sulphydryl they had entirely disappeared. The patient, now afebrile, worsened, and died on Nov. 12, 1943. Necropsy showed that both lungs were considerably fibrosed, with numerous irregularly shaped cavities filled with a foul-smelling gelatinous secretion. The general picture was that of long-standing bronchiectasis of the cylindrical variety. This was borne out by histological examination of the lung tissue.

Morphology of the Flagellate.—An attempt was made to ascertain the structure of the flagellate with a view to classification, but with only limited success. The flagellate, a pear-shaped organism measured 10–15 μ in length and 5–7 μ at its broadest point. At the narrowed anterior end it possessed two equal and anteriorly directed flagella about 10 μ in length. The flagellate showed great variation in shape, and in that respect appeared almost amoeboid in character. Frequently the posterior end became narrowed and elongated to form a caudal process. Progression, though mainly flagellar, appeared at times to be maintained by a combination of flagellar and amoeboid movements. If mucus was present there was tendency to burrow through it rather than to avoid it. Posteriorly vacuoles could be seen containing masses of debris, bacteria, and spirochaetes. Sometimes collections of debris, etc., could be seen adhering to the caudal process (cp. Jepps, 1923; Kofoed and Swezy, 1924: *Entamoeba gingivalis*). The nucleus was not evident in the unstained flagellate, but with Leishman's stain, and also with a combination of eosin and iodine, it was possible to make out the anteriorly situated nucleus. Iron-haematoxylin staining was attempted, but the first few preparations were not satisfactory, and unfortunately the flagellate died out before suitable preparations could be obtained. For the same reasons other means of investigation have not been carried out.

Discussion

There is little reason to doubt that the flagellates described above are nothing more than commensals living saprophytically on the decaying contents in the bronchiectatic cavity, and have apparently no pathological significance. It is of interest, however, to note that only the cases mentioned above have so far been recorded.

Two questions arise: first, what these protozoa were, and, secondly, how they obtained access to the lung.

Identity of the Protozoa.—From the examination of the dark-ground smears it was seen that they were either a *Trichomonas*—probably *tenax*—or *Dimastigamoeba gruberi*. Reference has previously been made to *Trichomonas tenax*. The following is a brief history of *Dimastigamoeba gruberi*. The family of

Dimastigamoeba includes the amoebae which are able in certain conditions to develop flagella and behave as flagellates. Schardinger (1899) isolated one of these from human faeces and named it *Amoeba gruberi*. From time to time similar amoebae developing flagella have been isolated and given various names by workers (Wasielewski and Hirschfeld (1910) *A. limax*, Alexeieff (1912), *A. punctata*, Martin and Lewin (1914) *Vahlkampffia soli*), and it is probable that they all belong to the same species. This species has since been shown to occur commonly in the soil and water and to be of the genus *Dimastigamoeba* founded by Blockman in 1894. This Rhizopoda illustrates very clearly a close relationship with the Mastigophora and could well be so classified. Wenyon (1926) describes the appearance of *Dimastigamoeba gruberi*. He states that on solid or liquid media the organism remains in the amoeboid state but that if a sudden change is made, if, for example a scraping from an agar plate is mixed with two or three drops of water—then in two or three hours an enormous number of flagellates appear, which after about 24 hours return to their amoeboid or cystic forms. When flagellation is complete the organism becomes pear-shaped, the more pointed end bearing the flagella. The nucleus normally approaches this end of the body, but may be at the thickened end. There is a slight cytostome and two blepharoplasts from which the flagella arise. A contractile vacuole is generally present in the thickened part of the body. The length varies from 10 to 30 μ . (See Diagrams 1 and 2)

Access of Protozoa to the Lung—Protozoa may reach the lung from (a) the buccal cavity, (b) the intestine (c) the blood stream.

(a) **From the Buccal Cavity**—It is conceivable that the flagellate might have originally been an inhabitant of the mouth and then passed into the lung, as presumably, in the case of *Trichomonas tenax* and *Entamoeba gingivalis* described above, but it is interesting to note that *Dimastigamoeba gruberi* has never been observed as a mouth commensal, nor were the flagellates found in the saliva when this did not contain the mucopurulent matter coughed up from the lungs. Minute animalcula could also be inhaled direct into the lung through the mouth, but a more feasible explanation may be obtained from a consideration of the mechanism of expectoration. Thus organisms taken into the mouth by food or water or inhalation may temporarily inhabit the buccal cavity perhaps in the encysted form. A patient in a weakened toxic condition brought about by chronic invalidism may not at times have the adequate propulsive force to ejaculate completely a large mass of viscid mucopurulent sputum from the trachea into the buccal cavity. In these circumstances part of the sputum may momentarily pass through the epiglottis and by nature of its elasticity and weight be retracted back into the trachea. To carry the speculation a stage further, the sputum may descend by force of gravity back into the bronchiectatic cavity, taking with it organisms from the pharynx.

DIAGRAM 1

FLAGELLATE FORMS OF
D. MASTIGAMOEBIA GRUBERI.

BY WENYON

THE INTESTINAL PROTOZOA OF MAN
THE FLAGELLATE FORM OF
D. MASTIGAMOEBIA GRUBERI

BY DOUGL & O'CONNOR

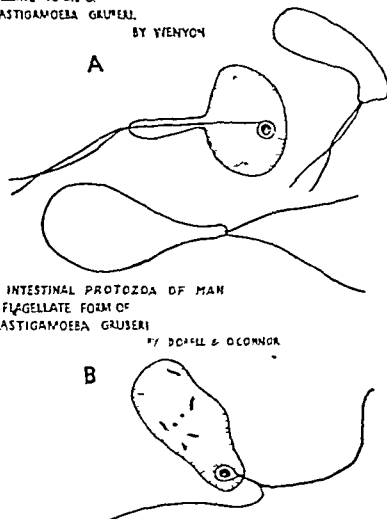
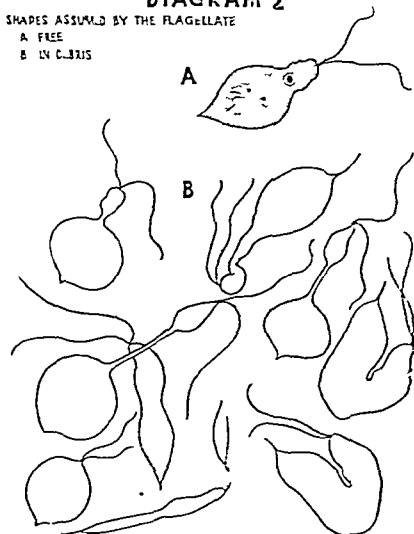


DIAGRAM 2

SHAPES ASSUMED BY THE FLAGELLATE

A. FREE
B. IN CLUSTERS



They are perhaps the commonest of free living amoebae, and occur in soil and water everywhere.

In the present case it is probable that only amoeboid forms were present in the lung. After death the bronchiectatic cavities were searched for flagellates but these were not found. At the time it was thought that they had been destroyed by the course of sulphapyridine, but if these were *Dimastigamoeba gruberi*, another point must be considered—that is, that after death the protozoa were present only in the encysted or precystic form, and were not recognized as we had not then considered the possibility of a *Dimastigamoeba gruberi* infestation. Before death however, the amoebae in the mucopurulent material, on being coughed up from the cavities, became mixed with thin bronchial secretions and saliva. This change of medium, temperature, etc., probably caused them to become flagellates. At this time they were found in abundance in the sputum, but after this had stood for several hours they were no longer present. This would fit in with the change that normally takes place in the flagellate form of *Dimastigamoeba gruberi*, which always reverts back to the amoeboid or cystic state after some hours.

(b) **From the Intestine**—Unless this was by the blood stream (see below) or by the laryngopharynx, it was ruled out by the necropsy, which showed no direct connexion between the intestine and the lung.

(c) **By the Blood Stream**—This route cannot be ruled out entirely as Knowles, Acton, and Gupta (1929) refer to an *Enteromonas* and an *Octomitus* which had penetrated the wall of the gut and reached the blood stream. They also found *Trichomonas hominis* from films of the spleen and liver of the white rat. In none of these cases were any macroscopic injuries found in the gut wall, but it is important to note that these were all post mortem findings.

Summary

A flagellate was found in the sputum of a case of bronchiectasis in an Indian male aged 23.

This was shown to assume a great variety of shapes and to progress by a combination of amoeboid and flagellar movements.

It was pear shaped, 10-15 μ in length, with two equal flagella at the narrow end.

It is considered that this was either *Trichomonas tenax* or the flagellate stage of *Dimastigamoeba gruberi*, which had entered the

lungs by the mouth and had there found in the mucopurulent material of the bronchiectatic cavities an ideal medium, in which it had multiplied rapidly.

Various modes of entry are considered.

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ABACTERIAL PYURIA

BY

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Abacterial pyuria is a designation applied to a group of cases which present a characteristic clinical picture and give a magical response to correct and adequate therapy, but the aetiology of which is still unknown. The recent article on the subject by Donovan (1945) has revived interest in a disease which, as he says, appears to be not sufficiently known to medical men as a whole. The two cases here described, which occurred in my practice a few years ago, may prove of interest.

Case I

Mrs. C., Irish, aged 33, 3-para, complained of frequent and painful micturition and terminal scalding but no haematuria. There was no fever or any constitutional disturbance. Duration, eight months. She had arrived in Nigeria twelve months previously to join her husband. Some eight weeks previously she had been admitted to a colonial hospital, where she stayed about one month, and had had a fairly thorough urological examination and treatment, but with only moderate relief. The medical officer who had treated her confirmed that she had had a full examination, including a microscopical and bacteriological investigation of the urine, which showed pus but no tubercle bacilli. A few bacilli belonging to the *B. proteus* group had been suspected. The treatment given was the one for cystitis, including the use of a sulphonamide preparation. *B. proteus* disappeared from the urine, but the general relief obtained was only mild. She was discharged from hospital, and proceeded to another station to join her husband. There, four weeks later, her symptoms recurred with tormenting severity, and I was called in.

Examination.—The patient was a highly intelligent woman, and she narrated her history with precision and clarity. Her condition was good: no abnormality was found in the general system. A catheter specimen of the urine was reported upon as follows: "Reaction, faintly alkaline; appearance, hazy. Albumin, trace; pus, ++; blood cells, +; vesical epithelial cells, ++; tubercle bacilli, negative; ova, terminal-spined, of *Schistosoma haematobium*, negative." Cystoscopy and other specialized forms of urological examination were not performed owing to lack of facilities.

Treatment given consisted of restriction of diet, abundant bland fluids orally, alternate three-days administration of acid and alkaline mixtures containing large doses of hyoscyamus, hot applications to the abdomen, hot enema, and hot hip-baths. Sulphapyridine is also used. The result was only slight relief. At my wife's end, I referred the patient back to the colonial hospital where she had formerly received treatment, and from there she was invalided home in order to receive further treatment.

Case II

Mrs. A., a Nigerian aged 22, 1-para, was seen in Feb., 1940, six months after Case I. Amenorrhoea had been present for 18 weeks. She complained of severe hypogastric and perineal pain, a frequent desire to micturate, and agonizing pain over the bladder during micturition. Haematuria occurred thrice, including an occasion in the hospital. The duration of the condition was 12 months. Dysuria was occasionally so severe that the patient would roll on the ground in agony.

Examination.—The patient's general condition was good. Pelvic investigation confirmed pregnancy and its duration, and negative a retroversion of the gravid uterus. Prolapse, tender caruncle, and vulvitis were absent. There was no Neisserian infection. Fever and rigors were not present. The laboratory report on the urine was as follows: Cloudy; reaction, alkaline; no albumin; pus, ++; blood cells, ++; epithelial cells, ++. No organism in film. Repeated examination for ova of the tropical parasitic trematode *Schistosoma haematobium* was negative. Cystoscopy was not done.

Treatment was given as in Case I, including the intramuscular administration, thrice weekly, of antihomaline, in spite of the negative laboratory report of schistosome infection. There was no relief after three weeks' intensive treatment.

At this juncture an issue of the *B.M.J.* (Feb. 3, 1940) arrived by ocean mail; and on glancing through it I was struck by the curious title of an article—"Abacterial Pyuria," by Mr. Thomas Moore. I read the article through at once, and found that the symptoms and signs shown by my present and previous cases were identical with those of the case reported in Moore's instructive paper. That day I administered N.A.B. 0.3 g. intravenously. The result was almost magical. The following day there was a remission of all the symptoms. It seemed too good to be true, but it was true. I gave altogether four N.A.B. injections intravenously—twice weekly for two weeks. The first dose was 0.3 g., but other doses were 0.45 g. each. A few months later, at full term, the woman was normally delivered of a healthy male child.

I saw the patient again, early in 1945, when she reported complete freedom from the complaint since her treatment.

Commentary

The two cases here reported occurred in Nigeria; both were women—one a European, the other an African. Both were parous, one being actually pregnant when first seen and tracing the onset of her symptoms to some time before the pregnancy. The symptoms in both women were severe, but it would appear as if the severity was greater in the pregnant one. This might have been due to the heavy, rising, antelexed uterus pressing somewhat on the inflamed bladder.

Sex Incidence.—The series of cases under discussion would appear to support Moore's statement that the disease is more common in men. His case, reported in 1940, occurred in 1939 in an unmarried woman. The two cases described above occurred in women both of whom were married and parous. Donovan's five cases reported recently were in men, and he was constrained to remark, "I have not met with the condition in the female."

Age Incidence.—In Moore's case the woman was 52 years old when first seen. The ages of my two patients were 33 and 22 years. The ages of Donovan's five cases ranged between 35 and 52 years. The series of cases under discussion is obviously too small to work upon, but it would seem to show that the condition is found between the ages of 22 and 52 years, and that persons in the fourth, fifth, and sixth decades of life are more prone to attack. In the present combined series three cases occurred in the fourth decade (33, 35, and 40), three occurred in the sixth decade (51, 52, and 52), and two in the fifth decade (49 and 50).

It is significant that no case below the age of 20 years has been recorded. The greatest incidence in this series occurred during that period of life when the urethro-vesical area is perhaps more exposed to various forms of physical and organismal traumata, and when there is often some amount of retention of urine in the bladder—either voluntary or pathological—leading to congestion of the bladder mucosa and predisposing to microbic attack.

Facilities for cystoscopy, excretion urography, ureteric catheterization, and guinea-pig inoculation may not be available, but a thorough urine examination should always be done. The reaction of the urine may be neutral, alkaline, or acid. It should be remembered that "an acid urine implies infection with the *B. coli*, *B. tuberculosis*, or the gonococcus" (Beaumont, 1937). In the two cases under review the urine was cloudy in appearance and alkaline in reaction. The two-glass test is often helpful. It was carried out in Case II only, and both glasses were equally cloudy.

One important point is to determine the presence or absence of tubercle bacilli. The organisms must be carefully looked for in the urine. This is done by centrifuging and staining a 24-hours specimen of the urine. In a case of urinary tuberculosis the organisms are nearly always present, but repeated

examination and the use of the guinea pig may at times be necessary. Pus blood cells and vesical epithelial cells are usually present in the urine. In the Tropics schistosome eggs must be sought for in the urine for blood and pus may accompany painful micturition in bilharzial disease.

The prognosis in abacterial pyuria appears to be quite good. No mortality has been reported. In one of my two cases the patient was still free from symptoms five years after treatment.

The aetiology of the condition is unknown and is merely speculative. Moore and Donovan favour the virus theory. Lydon (1945) however stated that he had had the opportunity of having several slides stained and examined by experts in virus work but with negative results.

In regard to treatment it is noteworthy that intense sulphonamide therapy brought no relief in either case nor in Donovan's cases. Anthiomaline which was used in Case II had no influence on the disease.

The introduction of prontosil caused a startling fall in the mortality from haemolytic streptococcal infections. This gratifying result led to the trial of the preparation in affections due to organisms belonging to the same group—the gonococcus meningococcus, etc. The result was also satisfactory. Further research work yielded compounds (the sulphonamides) derivatives of prontosil, possessing a greater potency and efficacy. These compounds had a curative effect on the same types of micro-organisms. In other words a certain preparation destroyed or restrained the activity of a microbe which belonged to a group of organisms having certain characteristics in common. It was reasoned that as that preparation destroyed or inactivated the one organism it was likely to do so with the others of the same group. And to a great extent that was what happened. Now, N.A.B. has a high therapeutic index in syphilis, yaws, rat bite fever, relapsing fever (house borne and tick-borne), Vincent's angina, etc. These diseases are caused by microbes of the spirochaete group. N.A.B. causes a similar rapid disappearance of symptoms and signs in abacterial pyuria.

Spirochaetes as a rule are rapidly destroyed by the administration of arsenic and it is practically true that, in the present state of our knowledge, there is no other group of micro-organisms so readily and rapidly destroyed or inactivated by N.A.B. or any other similar arsenical preparation as the spirochaetal group.

The certainty of cure, by N.A.B. of abacterial pyuria and particularly the rapidity and completeness of the cure—just as obtains in those affections caused by spirochaetes—would lead one to suppose that an organism particularly susceptible to an arsenic compound was concerned in its causation, and that the organism probably possessed similar biological characteristics to those of the group concerned in the aetiology of syphilis, yaws, etc. It may not be amiss therefore to postulate that the cause of abacterial pyuria is an organism pertaining to the spirochaete group, which organism has so far eluded capture owing probably to a slight morphological peculiarity. The result of a Wassermann test in this disease would be of particular interest.

The mode of infection of the causative organism whatever it may be, is also speculative. Direct contact is possible. The husbands of the two women whose cases are here reported declared that they had not at any time suffered like their wives and they actually appeared to be in good health. I examined the husband of Case II for evidence of specific or Neisserian infection with negative result, but the man admitted a previous gonococcal infection which had received proper treatment. These facts prove very little for a detailed urine examination or a serological test of the men had not been made. It was possible that an organism in an attenuated form had been present in the men and had under favourable conditions in the women incidentally assumed a pathogenic character.

The causative organism of abacterial pyuria may be a virus. This is an open question. But it is significant that there is no virus disease which has yet been shown to benefit by N.A.B. or any other known preparation of arsenic. Paradenitis, varicella, vaccinia, varicella morbilli, etc. are virus diseases. They are not influenced by N.A.B. which has a magical effect in abacterial pyuria but the sulphonamides which do not benefit abacterial pyuria, often exert a favourable influence in virus infections.

One other point. There is a clinical entity known as Hunner's ulcer. It is also sometimes called submucous ulcer of the bladder or referred to as intramural cystitis. The ulcer if ulcer it may be called is situated mainly in the submucous and muscular coat and there is often little to see on cystoscopy except a bleeding pin point spot (Bailey and Love 1938). The clinical feature of this disease and the pathological changes in the bladder are practically identical with those found in abacterial pyuria. In either the aetiology is not known. The treatment of Hunner's ulcer is difficult and may require surgical intervention. I do not know if N.A.B. or any substance closely resembling it has ever been tried. The result of a Kohn or Wassermann test in both conditions should prove of interest.

Are both conditions—abacterial pyuria and Hunner's ulcer—one and the same disease?

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TWO CASES OF AMOEBIC GRANULOMA

BY

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Amoebic dysentery with frequent relapses is one of the commonest causes of repatriation on medical grounds of Service personnel from the Eastern theatre of war. Amoeboma is an infrequent complication of amoebiasis that may be mistaken for neoplasm. There seems to be no reason why such cases should not be met with in Britain in the post-war years.

Before this war case reports of amoebic granulomata appear to have been comparatively few in the English language. Zachary Cope (1920) refers to cases in which amoebiasis was mistaken for carcinoma. In 1931 Gunn and Howard, in reporting three cases of amoebic granuloma were able to find only six previous references in the literature. They pointed out that the signs and symptoms may be identical with those of neoplasm. The pre-operative diagnoses of their cases were: (1) carcinoma of the transverse colon in a man aged 37; (2) carcinoma of the caecum in a man also aged 37; and (3) carcinoma of the colon in a man aged 41. Two of these patients died as a direct result of operation. Two of the cases were due to war service overseas one of these occurring as many as twelve years after return to the homeland. Yeomans (1936) describes a case of amoeboma occurring in the rectum and another case simulating carcinoma of the colon. He emphasizes that radical treatment by surgery is almost invariably fatal without anti-amoebic treatment. Naunton Morgan (1944) describes a case of amoeboma disappearing after a month's treatment.

Case 1

The patient an Indian sepoy aged 27, was admitted to the V.D. ward of an Indian military hospital as a case of syphilitic condyloma of the anus. He gave a history of having a penile sore seven months previously; this had been diagnosed as syphilis. Penicillin treatment had been started but, after eight or nine injections of neosphenamerine and bismuth treatment had been allowed to lapse. He had had the present symptoms of a "growth" in the anal region for two months before reporting it. He had also had several previous attacks of malaria and dysentery, but none within the last two years.

On examination there was a warty lumpy mass extending for about an inch (2.5 cm.) around the anal margin. The surface was iridescent reddish in colour, and exuded a thin discharge. There was no thickening of surrounding tissue and the anal margin itself was not involved. General examination revealed only the scar of the old penile sore and some degree of anaemia. The Wassermann reaction was positive on three occasions. Examination of the discharge for *Treponema pallidum* was positive. Antisyphilitic treatment was begun.

After a complete first course of treatment the condition was slowly worsening. The surface of the mass was breaking down and the whole was gradually extending both outwards and inwards so as to involve the anal margin. Just after the beginning of his second course of treatment the patient was sent to see a surgeon who reported that there was a large infiltrating mass involving the anal

canal and that the condition seemed likely to be carcinoma of the anus. Biopsy was done immediately and the pathologist reported an inflammatory condition with no evidence of neoplasm. Swabs taken from the surface at this time showed a heavy mixed bacterial infection of the mass.

The patient was seen by a physician, who suggested the possibility of amoebic granuloma. Further examinations of the discharge and stools were made, with negative results. Despite this, treatment was started with 1-gr. (65 mg.) emetine hydrochloride injections daily. After the fifth injection the mass began to retrogress rapidly, and by the tenth day it was dry and half its original size. After 10 gr. (0.65 g.) had been given the emetine was discontinued. In three weeks healing was almost complete. Re-examination a month later showed no evidence of the disease.

Case 2

This patient, a merchant seaman aged 36, complained of an anal tumour of a month's duration. The tumour had first been noticed as a small protuberance from the anus which the patient had thought to be a haemorrhoid. His attempts to replace it had resulted in considerable trauma and bleeding. After this, he stated, the tumour had remained stationary in size for eight or nine days; since then it had grown rapidly. He gave a history of many attacks of dysentery, the most recent being three months previously. He had no symptoms of dysentery at present, but was liable to relapses at any time.

On examination there was a raised mass about an inch and a half by one inch (40 mm. by 25 mm.) involving the posterior anal margin and spreading backwards. The mass was hard, grey, not tender, and had an ulcer crater exuding a dark thin pus. Examination of the pus revealed numbers of active amoebae. Several examinations of stool showed no amoebae, but cysts were found on each occasion.

Treatment was carried out as in Case 1, and results were equally successful and rapid.

Discussion

The situation of the tumour in the two cases is unusual, the most often recorded region for amoeboma being the colon. It is interesting to note the pre-existence of local tissue damage in each case—in Case 1 a syphilitic lesion, and in Case 2 a probable trauma. The response to treatment was in both cases excellent, but it is not always so. Naunton Morgan states that the results of anti-amoebic treatment depend on the duration of the tumour and the resultant degree of fibrosis. Reed and Geiger (1943) state that "operations involving the gastrointestinal tract, when amoebic lesions are present untreated, are likely to prove fatal." They also state that carcinoma is among the sequelae.

The difficulty of diagnosis if cases should occur in this country is obvious. The history of overseas service or amoebic dysentery is essential to the diagnosis, for unless this is obtained it is improbable that investigations for signs of amoebiasis would be made. Naunton Morgan points out a pitfall in the diagnosis: carcinoma and amoeboma may coexist.

Summary

Two cases of amoebic granuloma—an infrequent complication of amoebiasis—are described. Both cases responded well to anti-amoebic treatment. The possibilities of misdiagnosis as neoplasm are emphasized. Amoeboma may occur years after the last recognized attack of dysentery.

My thanks are due to Lieut.-Col. R. L. Haviland-Minchin, I.M.S., for diagnosis of the first case and for much helpful information.

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CRUSH SYNDROME AND PLASMA JAUNDICE IN PREGNANCY

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Both crush syndrome and serum jaundice are conditions which only recently have they come into the limelight. They occurred together in the case reported below and failed to interfere with an early pregnancy.

Case History

The patient, a 21-year-old primigravida in the third month of pregnancy, was admitted to this hospital on New Year's Day, 1945, after being buried under masonry for 12 hours when her home was blasted by a rocket. On admission she was cold and shocked, with a blood pressure of 80/50 mm. Hg and a rapid and thin pulse (130). Bruises and abrasions were found all over the body and limbs. In addition the right ear and left labium majus were oedematous and tender. There was no bony injury anywhere, but the patient was unable to feel or to move her left foot and toes (which had been caught under a beam), and both the plantar and dorsal aspects showed dry indurated areas. These had a leathery feel, and the skin was adherent to the underlying tissues. A little later an attempt was made to mobilize the skin in these areas so as to increase its blood supply.

Immediately after admission to a warm bed she was given 1/4 gr. (16 mg.) of morphine and an intravenous drip of plasma was set up. By the evening the pulse rate was 148, temperature 99°, and the general condition unchanged. No urine had been passed, and at 3 a.m. on the following morning 6 oz. (170 c.cm.) of deeply blood-stained urine was obtained on catheterization. Restlessness during the night necessitated a further injection of 1/4 gr. of morphine.

On Jan. 2 her general condition seemed slightly improved after the administration of 3 pints (1.7 litres) of reconstituted plasma. The temperature was normal and the pulse rate 120, with better volume. Fluids were well tolerated, though nausea and occasional vomiting persisted. The left arm and leg were swollen and aching; they were held immobile, but passive movements were painless. The right ear was badly swollen and blistered, with a clear discharge. Various other complaints were due to bruises of the head and trunk. The fluid output, however, was ominously unsatisfactory; on this day it amounted to 5 oz. (142 c.cm.) only. Rectal and intravenous drips were set up, glucose solution being given by the former and 3.8% sodium citrate by the latter. This was later changed to 4.2% sodium sulphate in an effort to promote diuresis. Biochemical examination of the blood gave the following results: Blood urea, 62 mg. per 100 c.cm.; alkali reserve, 64 vols. CO₂; blood phosphorus, 7.04 mg. per 100 c.cm.; and plasma chlorides (as NaCl), 490 mg. per 100 c.cm.

The patient was distinctly worse on Jan. 3. Colour and pulse were less satisfactory, and there was much sickness. Very little urine (3 oz.: 85 c.cm.) was passed, and what was passed was deeply blood-stained. She was becoming waterlogged, especially the left side of face and body, also the limbs on that side. She took fluids by mouth, but complained of nausea and general listlessness. The swollen parts were not painful. In an effort to increase urinary output it was decided to continue the intravenous drip, but to substitute hypertonic glucose-saline for the sodium sulphate solution.

By Jan. 4 the drip had slowed down considerably and was discontinued, the patient now having had altogether 11 pints (6.25 litres) of fluid by that route, of which only a negligible amount had been excreted. Nevertheless she complained of a dry mouth and was taking fluids fairly liberally. On this day she passed no urine at all, and in the evening 4 oz. (114 c.cm.) of urine was found in the bladder on catheterization. The left side of the face, the left leg and arm, also the vulva, were now grossly oedematous. The blood urea rose to 100 mg., but the patient remained mentally alert.

During the next three days the patient's condition remained unchanged. There was no more sickness, and her colour, pulse, and mentality were remarkably good. The entire left side of her body, which had evidently been crushed more than the right, remained very swollen, and the limbs were put on back splints to prevent wrist- and foot-drop. Vague abdominal discomfort was felt and there was some difficulty in swallowing. She took fluids quite well by mouth, so no further intravenous administration was resorted to. On Jan. 5 she passed 6 oz. (170 c.cm.) of urine, on the 6th a total of 8 oz. (227 c.cm.), and on the 7th 14 oz. (397 c.cm.). Mr. Clifford Morson, the urological consultant, for this reason advised against renal decapsulation, which had been considered.

From Jan. 8 there was definite improvement in the general condition, coinciding with an increased fluid output. Oedema was still pronounced, being most troublesome in the vulval region. The left arm could now be moved a little, and sensation was not affected, while the left leg was immobile and anaesthetic from the knee downwards.

U.F.A.W. (the Universities Federation for Animal Welfare) has issued a new prospectus from 284, Regent's Park Road, Finchley, N.3. In spite of the bombing of its office and the death of the secretary it appears to have made considerable progress during the war, and has attained to a recognized position in the scientific world. The new president is Prof. Edward Hindle, F.R.S., and the vice-presidents include seven Fellows of the Royal Society and three Members of Parliament for universities.

Progress was steady during the next few weeks. The oedema gradually subsided, and as much as 8 pints (4.54 litres) of urine was excreted in a day, the kidneys evidently recovering. The patient was sick at times, but this was thought to be due to the pregnancy, which was progressing satisfactorily. Electrical treatment was given to the left leg, and throughout February this was the patient's only remaining disability. On Feb. 11 she was seen by Mr. R. Blunden, who reported: "Left leg paralysed below knee, both anterior and posterior muscles. Anaesthesia distal half of foot much less than on admission. Skin in good condition. Quadriceps functioning well. I recommend toe-raising spring and double irons to below knee, with chuck to prevent plantar flexion at ankle to more than 90°, but to allow dorsiflexion."

On March 31—i.e., exactly three months after her admission—the patient was noticed to be jaundiced. She had not been feeling so well for two days; there was nausea, but no other symptoms or signs. Bile pigments were present in the urine for a short time, and the icterus began to fade within a few days. There had been no instance of jaundice among the patient's relatives and friends who had come to visit her, and this must undoubtedly be considered a case of plasma jaundice. Biochemical examination of the blood at this stage led to the following results, which represent a small degree of liver damage:

Colour index	1.11
Red blood corpuscles	3,950,000 per c.mm.
Haemoglobin	85%
White blood corpuscles	11,400 per c.mm.
Polymorph neutrophils	60%
Lymphocytes	35%
Large mononuclears	3%
Platelets	Normal
Sedimentation rate, 1 hour	34 mm. (Wintrobe)
Cell volume	40%
Van den Bergh reaction:	
Direct	Weakly positive
Indirect	2 mg. bilirubin per 100 c.cm. (4 V.D.B. units)
Takata-Ara reaction	Weakly positive
Formol-gel test	Negative
Alkaline serum phosphatase	16 units
Blood urea	26 mg. per 100 c.cm.
Serum proteins, total	6.2 g. %
Albumin	4.0 g. %
Globulin	2.2 g. %
A/G ratio	1.8/1

When the patient was discharged on April 27 her general condition was excellent. The urine was normal, B.P. 125/75 mm. Hg, and the height of the uterus indicated a 6-months pregnancy. Some oedema of the left labium majus had persisted, the left arm had completely recovered, but the left leg remained a little swollen, paralysed below the knee, and anaesthetic in the foot. During the remainder of her pregnancy the patient attended the antenatal clinic periodically, but there was never any abnormality. She went into labour spontaneously on July 16 and had a normal delivery of a healthy male infant weighing 6 lb. 6 oz. (2.9 kg.) on the following day. During the puerperium, which was uneventful, she was again seen by Mr. Blunden, who found: "Quadriceps working. No muscles acting below knee, and there is anaesthesia of foot and front of leg, 1½ in. (3.2 cm.) wasting of thigh, and 1½ in. (3.8 cm.) wasting 4½ in. (10.5 cm.) below joint line. Response to galvanism present; no response to faradism."

Discussion

There has been considerable interest in the crush syndrome since Bywaters drew attention to it in 1941. This was the first account in this country, though Bywaters (1942) himself pointed out that the condition had previously been described by German authors. It occurs exclusively in persons who have been buried for several hours, with special pressure on a limb. The majority of the reported cases ended fatally, necropsy revealing more or less extensive local necrosis of muscle and degeneration of renal tubules. So long as this damage is of a minor degree—as was probable in the case described—recovery seems to be possible. The urinary output is the best indication of renal competence. In those who die, vomiting becomes persistent; the blood urea rises; urine is scanty or absent; and they eventually pass into uraemia.

The oedema of the damaged limb is tense, rarely pitting, and usually progressive. It is, as a rule, accompanied by paralysis, anaesthesia, and impaired circulation, so that in some of Bywaters's cases the affected part was incised to relieve the tension. On the assumption that autolytic products liberated in the dead or dying tissues are responsible for severe constitutional disturbances, amputation has been performed; but to have any chance of success this course would have to be adopted very early, and at that time shock usually prevents major surgery.

In an endeavour to cause a diuresis, intravenous fluid was given, and continued, with some trepidation, even when the output became practically negligible and the patient waterlogged. Plasma was used at first, and was later replaced by alkaline solutions and saline. The need of the body for alkali and chlorides, indicated by the acidity and low chloride content of the urine, has been noticed by other workers (Blackburn and Kay, 1941; Bywaters and Beall, 1941).

Jaundice, occurring about 90 days after a plasma transfusion, is now a familiar event. There was no other instance of jaundice either in the ward or among the patient's friends and relations, so that the aetiology cannot be doubted in this case. Moreover, the illness was of a lighter and more transient nature than is usual with infective hepatitis.

Finally, it is of interest to note that neither the crush syndrome nor the plasma jaundice had any effect on the pregnancy, which continued normally. The patient ultimately had a normal confinement, and the baby seems to be none the worse for his antenatal experience. The patient herself is now left with a paralysed and anaesthetic foot, and, in view of the slow progress (if any) over the past few months, one wonders whether it will ever recover.

My thanks are due to those of the consultants, and of my colleagues on the resident staff, who gave me the benefit of their advice in the treatment of this patient. I should also like to record my indebtedness to the laboratory technician—Mr. P. Chappell—who carried out the various investigations with keenness and enthusiasm; to the nursing staff, without whose devotion this patient would not have recovered; and, above all, to the patient herself for her endurance, co-operation, and never-failing confidence, although so desperately ill.

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BACTERIOLOGY OF SEPTIC FINGERS

BY

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The following is an account of an investigation planned to discover the rate of secondary infection in infections of the finger and hand, incised and treated in a casualty surgical department; and, at the same time, to assess the incidence of the various pathogens as primary infecting agents.

Methods

The cases were in no way selected, and consisted of a consecutive series of septic lesions of the hand requiring incision, and not severe enough to warrant admission to the wards. The majority of the cases were paronychia, pulp infections, and web-space infections, though there were a certain number of simple subcuticular abscesses, etc., in various parts of the hand and fingers. The fingers were operated on in the casualty department; the surgeon never wore a mask, and used ungloved hands. The dressings were changed either in the main casualty room or in a small side room by a student or nurse, using the fingers: a "no-touch" technique was not employed. Masks were not used by those doing the dressings. Inquiries showed that usually, but not invariably, the nurses "scrubbed-up" before changing a dressing, but at times they passed from case to case without washing their hands. It was not uncommon for patients themselves to remove their dressings.

No attempt was made to adopt a standard treatment for the cases under observation, the surgeon in charge altering the treatment as and when required. Eusol-and-paraffin was the common dressing; sulphathiazole paste, proflavine, magnesium sulphate, were all used frequently. Many of the patients received physiotherapy, which involved quite prolonged exposure of the wound without a dressing; after this treatment the dressing was renewed.

A swab was taken from the lesion at the time of incision, and further swabs, so far as was possible, at two-day intervals until the finger was healed. Cases were considered to be healed when it was no longer necessary for them to wear a dressing and continue to attend hospital. The swabs were inoculated

on to two 3% horse-blood agar plates and incubated for 18 hours at 37° C.—one aerobically and the other in a CO₂ jar, as it has been shown (Rose, 1942) that CO₂ in the atmosphere increases the frequency with which small numbers of β -haemolytic streptococci may be isolated when growing in company with a heavy growth of *Staph. aureus*, etc. From over 600 swabs β -haemolytic streptococci were twice isolated from the CO₂ culture when they could not be identified on the normal aerobic plate. All staphylococci isolated were tested for the production of coagulase: the "slide-test" technique (Cadness-Graves *et al.*, 1943) was used as a routine, but if this was negative the organism was subcultured in broth and a tube test was carried out; if this test was positive such organisms were recorded as being coagulase-positive. No strains of *Staph. aureus* which were coagulase-negative were encountered, and vice versa, so that in what follows *Staph. aureus* may be taken as synonymous with coagulase-positive staphylococci and *Staph. albus* with coagulase-negative ones. All suspicious streptococci were tested for the production of soluble haemolysin, and if this was positive their Lancefield group was determined by Fuller's formamide method.

Owing to the extreme variation in the patients' times of attendance, and other uncontrollable factors, it was not possible to adhere strictly to the routine of swabbing each finger on alternate days. However, it was decided not to accept any case in which more than five days elapsed between two swab-bings, although we accepted one case which took 46 days to heal and in which no swab was obtained between the 16th and 23rd days. Similarly, cases were rejected in which more than five days elapsed between the last swab and healing. In two cases an adequate incision had been made before the patients attended hospital, but they are included, as in both cases a pure culture was obtained from the first swab.

Results

In order to obtain 100 acceptable cases swabs had to be taken from 155 patients; the initial swab from the entire series showed *Staph. aureus*, either alone or accompanied by some other organism, to be present in 89.02% of cases, and β -haemolytic streptococci similarly in 7.7%. In 13.5% more than one organism was isolated from the initial swab. It is of interest that in three of the cases from which β -haemolytic streptococci were isolated from the finger lesions the patients had coincident sore throats from which β -haemolytic streptococci of the same Lancefield group were obtained, and in the one case investigated the two organisms were of the same Griffith type. From the initial swab of the 100 fully investigated cases *Staph. aureus* was isolated from 93% and β -haemolytic streptococci from 5%.

Altogether 499 swabs were examined from the hundred completely investigated cases; the greatest number from one case was 32—from a pulp-space infection which took 95 days to heal. Of these hundred cases 18 became secondarily infected before healing, four of them with two organisms. Thus on 22 occasions a secondarily infected organism was isolated, and their distribution is shown in the accompanying Table. Of these

Table showing Incidence of Secondary Infecting Organisms

Organism	A	B
β -haemolytic strep.	4	3
<i>Staph. aureus</i>	6	3
<i>Staph. albus</i>	5	2
Non-haemolytic strep.	1	0
Epithelioids	3	0
" "	1	0
"-yaneus	1	0
<i>M. catarrhalis</i>	1	0
Total	22	8

A, Total. B, Established infections. All four strains of haemolytic streptococcus isolated belonged to Group A.

22 organisms 14 were recovered on one occasion only, and in none of the four doubly infected cases were both organisms isolated more than once. This leaves 8 cases (8%) which developed established secondary infection, the responsible organisms being shown in the table. Six out of the seven cases in which *Staph. aureus* was not present initially

developed infection with this organism, though in three it was isolated on only one occasion.

The average time between incision and healing in cases not developing secondary infection was 11.12 days, and in those developing such infection 20.88 days. Owing to the large variation between cases and the comparatively small number studied these figures cannot be considered significant.

Discussion

Beyond stating that infections of the hand are commonly due to *Staph. aureus*, with an occasional haemolytic streptococcus infection, the textbooks on surgery of the hand do not go into the bacteriology of such lesions. Florey and Williams (1944) and Williams and Miles (1945), who investigated septic fingers and hands from different aspects, give figures for the incidence of streptococcal and staphylococcal infections. But in many of the cases of Florey and Williams certainly, and in some of those of Williams and Miles apparently, the patients were admitted to the wards, which suggests that the lesions were more serious than those investigated here. In the present series all cases needing incision were investigated, including many minor subcuticular lesions, etc. Florey and Williams confined their attention to definitive conditions such as paronychia, web-space infection, septic lacerations, etc., and Williams and Miles did the same, though adding a final category of miscellaneous septic conditions, many of which apparently did not need incision. Thus for two reasons comparison between the infecting organisms in the three series is of little value, and apart from these two papers recent literature does not contain any work on this subject.

With regard to the incidence of secondary infection, it is doubtful whether the figure of 14% represents the true state of affairs. At the time this work was being carried out it was not possible accurately to distinguish one strain of *Staph. aureus* from another, so that in those lesions initially containing this organism it was impossible to determine whether or not they later developed superadded infection with another strain. But in the 7 cases in which *Staph. aureus* was not at first present it was later isolated from 6—a fact which suggests that many of the other 93 cases in which it was present must have developed a secondary infection with a different strain of *Staph. aureus*, and that the true level of secondary infection is considerably higher than 14%.

Florey and Williams record a secondary infection rate of 19% in their series of 212 cases of infection of the fingers, hand, and arm; but again any comparison between this and the rate discovered here is invalidated, owing to the different nature of the lesions and the fact that many of Florey and Williams's cases were treated as in-patients. There does not appear to be any published work dealing with secondary infection in casualty departments. It is obvious that the figure of 14% cannot be interpreted as representing the level of secondary infection in all wounds treated in such departments: the fingers under consideration, with their daily dressings and gaping incisions, offer greater chances of secondary infection than clean incised and sutured wounds healing by first intention which form a large percentage of the cases treated in these departments.

A secondary infection rate of 14% is much lower than the shown by Miles *et al.* (1940) to exist in open wounds treated in the wards, where it was in the neighbourhood of 50% nevertheless, if it can be shown that 14%—or, as is likely a figure somewhat in excess of this—represents the average incidence of secondary infection in septic fingers, it is obviously important that the subject should be investigated further, with a view to determining to what extent such infection adversely affects the progress of the disease. In addition, it is apparent that in the casualty department in question, at any rate, the surgical and dressing techniques might be considerably improved in the light of recent knowledge (M.R.C. War Memoranda Nos. 6 and 11). There is now a large volume of evidence to show that the secondary infection rate in wounds can be materially reduced by means of a rigid aseptic technique and the intelligent use of wound antiseptics. As Paterson Ross (1941) says, "The same considerations apply to dressing wounds at first-aid posts and in the out-patient departments of hospitals—really a much bigger problem and harder to deal with than

ward dressings—and also to dressing wounds which are already grossly contaminated.”

My thanks are due to Prof. J. McIntosh for his help in putting this article together; to Dr. C. J. C. Britton for his advice and encouragement; and to the staff of the casualty department for their willing co-operation.

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Medical Memoranda

Repair of Femoral Artery after a Bullet Wound

The following is an interesting case thought to be worthy of publication.

Pte. A. of an Airborne Division was wounded on April 7, 1945, by a bullet which passed through his left thigh from back to front. He was admitted to a casualty clearing station in a Schloss near the Rhine, after a long journey and some delay caused by the very rapid advance in which his unit had taken part.

On admission his left thigh was nearly twice the size of the other. His foot was stone cold, and he said it felt as if it was frozen. No pulse was palpable at the knee or foot. Behind was a small entry hole in the mid-thigh, slightly medially, while in front was an exit hole about 14 in. (3.8 cm.) across, surrounded by bruised skin. The bone was not broken.

Under general anaesthesia, administered by Capt. L. W. Spratt, R.A.M.C., an operation was performed about 47 hours after the patient had been wounded. The limb was thoroughly cleansed and the large exit wound was excised, enlarged, and explored. The femoral vein was found torn in half and surrounded by huge blood-clots. It was ligated. The femoral artery was torn round three-fifths of its circumference, and also contained a clot. Since this wound made access to the femoral canal rather difficult, a new incision was made 3½ in. (9 cm.) long in the line of Hunter's canal. The femoral artery was clamped above and below its site of injury, and the clot removed. End-to-end anastomosis was performed, using an 00 suture of catgut. The suture was small continuous-suturing, evertng the endothelium. A portion of the long saphenous



FIG. 1

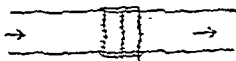


FIG. 2

vein was excised and opened up longitudinally. This was used as a cuff round the femoral suture line, and sutured above and below it. The clamps were removed. Pulsation restarted, and could be felt in the femoral artery distal to the suture line. Next the adventitia was stripped from the vessel for a distance of 14 in. (3.8 cm.) above and below the suture line to obviate local spasm. The femoral artery was then buried in the sartorius muscle after a bed had been made there for it. The wounds were dusted with penicillin-sulphanilamide powder, and dressed with tulle gras, gauze wool, and bandages. By the time the bandages were in place the foot was warm and pulsation in the dorsalis pedis artery could be faintly felt. No heparin was given, as none was available.

The next day sensation and movements of the foot and toes were normal. Seven days later, when the patient was evacuated to a base hospital, the wound was healthy, sensation was normal in the foot, and he could bend his knee and waggle his foot. A follow-up card was sent with him. On Aug. 15 I received the follow-up card with the following information upon it, for which I am very grateful.

"Park Preswet Vascular Unit, Basingstoke, Hants.—The above patient arrived here on July 3, 1945, and we were impressed by his good condition. Mr. B. C. Maybury considered the result to be far better than a primary ligature. On April 17 it had been noted that distal pulses were absent. The artery had probably thrombosed, but on admission here had either recanalized or collateral circulation had developed. B.P.: R. leg. 155/85; L. leg. 130/78. Pulses were present. Power of leg good. No ischaemia of muscles. No intermittent claudication."—(Signed) D. O. Williams, Asst. Surgeon.

The patient is now undergoing rehabilitation at a convalescent depot.

J. A. VERE NICOLL, F.R.C.S.D.,
 Major, R.A.M.C.; late Surgeon to a Field Surgical Unit.

Reviews

EXAMINATION OF THE BONE-MARROW

Die Untersuchung des Knochenmarkes. Die Hämatologie im Lichte der Sternalpunktion. By Dr. Med. Stefan J. Leitner. (Pp. 355; illustrated. Swiss francs.) Basle: Barm Schwaab and Co., Verlag Klotzberg 27.

Although a relatively simple method of trephining the sternum was introduced by Seyfarth in 1925, it was the invention of the sternal-puncture needle by Arinkin in 1929 which made the examination of the bone-marrow in life generally practicable. So rapidly has the technique developed that this latest monograph comprises nearly 400 pages, of which 50 are devoted to the list of references to the literature. The book is based on a personal experience of 2,000 sternal punctures in more than 700 patients, and is well produced. There are six small colour plates, and the text is illustrated by photomicrographs. An untouched photograph may be true to life, but as an illustration it cannot compete with an artist's drawing or painting. The author begins by describing the normal appearance and distribution of the marrow cells, and he emphasizes the value of studying the occurrence of mitosis. The disturbances of erythropoiesis, leucopoiesis, and thrombopoiesis in various blood disorders and general diseases are then described in detail. A number of technical applications are considered, such as the administration of infusions and transfusions by way of the marrow, and the value of sternal puncture in the diagnosis of infectious disease. It appears that sternal puncture may be of assistance in the diagnosis of tropical diseases, including typhus and typhoid, but it contributes little to the diagnosis of sepsis or tuberculosis. Marrow withdrawn by sternal puncture has also been used for microchemical investigations and tissue cultures. Dr. Leitner has undoubtedly succeeded in producing a competent and comprehensive account of the examination of the bone-marrow in life. The obvious applications of sternal puncture are in the diagnosis of the atypical megalocytic anaemias and the leucopenic or aleukaemic leukaemias. It is also of value in the differential diagnosis of the haemorrhagic diseases, and the selection of patients likely to benefit from splenectomy. But, above all, sternal puncture has familiarized the present generation with the morbid histology of the blood and has taught us to regard a blood disorder as a biological process and not a static picture.

HEALTH INSTRUCTION

Health Instruction Yearbook, 1944. Compiled by Oliver E. Byrd. Foreword by C. Morley Sellen, M.D. Pp. 354, 13s. 6d. California: Stanford University Press, London: Oxford University Press.

This yearbook consists of abstracts of 305 articles appearing in various American periodicals in the years 1943 and 1944. It is intended for health instructors and students of current health problems, and not for technically trained persons. As its author, Prof. Oliver E. Byrd, points out in his preface, it does not attempt to give a complete summary of health literature, but it is designed to be an annual publication, so the series will become useful for reference purposes. Though the volume under review is inevitably disjointed, it forms a much more readable account of health instruction than might be surmised from the method of its compilation. This is owing to the fact that the author has classified his information in 20 fairly well defined chapters, and he has usually abstracted, at some length, the introductory remarks in the various articles dealt with.

The first two chapters relate to health as a social problem, and the next chapter to health in relation to nutrition. They are followed by chapters on the effects of exercise and body mechanics, and on mental health and disease. The longest and most interesting chapter in the book relates to infection and immunity, with extensive references to penicillin. The commercial production of this substance in America may be gauged by the fact that the output increased more than twentyfold between June and December, 1943, while in March, 1944, it was twice the 1943 total. By then there were 18 plants for its manufacture in the United States and two in Canada.

Another topic dealt with at some length is the Kenny method for treating infantile paralysis. In a chapter on habit-forming substances we learn that the yearly *per caput* consumption of cigarettes in the United States is now 1,880, and is 60 times greater than in 1900. The consumption of alcohol is likewise rising rapidly, being 17% greater in 1943 than in the previous year. In the chapter on "Safety" we learn that nearly 100,000 persons are killed each year from all types of accidents, and 10,000,000 are injured. Factory accidents increased twice as fast in proportion to the extra number of persons employed, and they have been a major source of impairment of war production. A long chapter on health in relation to physical environment discusses frost-bite, immersion foot and trench foot, and, at the other extreme, the reactions to desert climates and heat-stroke. Three of the subsequent chapters deal with family health, school health, and occupational health, and there is a final chapter on "Trends and Probabilities," which refers in some detail to the White Paper on Britain's National Health Service, and discusses related problems in Canada and the United States.

PROBLEM FAMILIES

Problem Families: An Experiment in Social Rehabilitation. Edited by Tom Stephens. (Pp. 72; illustrated. 2s. 6d.) London: Pacifist Service Units, 6, Endsleigh Street, W.C.1. 1945.

This pamphlet is an account of some of the most difficult, unpleasant, and thankless work ever undertaken by social reformers. In every large town there exists what Charles Booth called the "submerged tenth"—a kind of social sediment of persons and families, either mentally defective or subnormal in some other way, living from hand to mouth in filthy hovels, a prey to disease, crime, and vice. These apparently irreclaimable outcasts are the object of some admirable case-work done by three small groups of voluntary workers—the Pacifist Service Units in Liverpool, Manchester, and Stepney—who have tried to bring them whatever help could be devised, to enable them to reach satisfactory living conditions, and to restore them—or elevate them for the first time—to self-respecting citizenship. General improvement in living conditions passes such families by, for their peculiar characteristic is their inability to use the facilities and services which are made available for them. Most of the 62 families studied by the units had been given up by other bodies as hopeless. The majority are housed in old insanitary property or unfurnished rooms, the neglect and disrepair of which are largely due to misuse by the tenants. Parents, children, and babies sleep huddled together in one filthy bed. The most obvious common feature of these families is the disorder of their lives—time and duty mean nothing to them. The children are sent to school late, unwashed and ill clad, and run wild in the streets when they are out of school. The cost of these families to the community in social service is quite disproportionate to their numbers, and they produce most of the juvenile delinquency and dirt diseases. This book is not a survey of the problem, which has never been properly studied, but a moving account of some real work at its centre.

The units, each consisting of a field-work leader, a secretary, and a team of case-workers, have struggled not only with the families but with their own lack of means and help and with the efforts of the Ministry of Labour to direct them to other work. The pamphlet tells the story of their results, and that they should have done so much is miraculous. The book is illustrated with six well-chosen photographs which bring out dramatically the squalor of these people and their surroundings. It provides an overwhelming argument for a purposeful dealing of this lamentable problem by the agencies of central and local government, who have hitherto managed to evade it.

PAEDIATRIC RADIOLOGY

Pediatric X-ray Diagnosis. A Textbook for Students and Practitioners of Pediatrics, Surgery and Radiology. By John Caffey, M.D. (Pp. 838; illustrated. \$12.50 or 75s.) Chicago: The Year Book Publishers; London: H. K. Lewis and Co.

Those who are especially interested in paediatrics are fond of asserting that it is not a specialty but rather an application of the principles of general medicine and surgery at a special age period. In x-ray diagnosis this is well illustrated, for the essential problems and difficulties are occasioned by the age

of the subjects and the rapid changes caused by growth and development. Dr. John Caffey, who is the associate professor of paediatrics at Columbia University, is also associate paediatrician and radiologist to the Babies' Hospital, New York. He has written a textbook called *Pediatric X-ray Diagnosis*, which he claims is the second only of such books in the English language. It is based on fortnightly conferences at the Babies' Hospital during the last twenty years, and Prof. Rustin McIntosh has read and criticized the entire manuscript, so that the standard of the whole book is high and clearly based on wide experience. The subject-matter is arranged anatomically in six main sections: head and neck, thorax, abdomen, pelvis, extremities, and vertebral column. The paper used allows of reproduction in the text of the illustrations, over 700 in number, and the choice has been well made, arrows and diagrams being used whenever necessary to bring out important points. There is a good index.

Students and practitioners of paediatrics, surgery, and radiology will find this a valuable work of reference. Its appearance fifty years after Röntgen's discovery is a remarkable example of the developments of this indispensable aid to diagnosis.

Notes on Books

The fifth edition of P. N. PANTON and J. R. MARRACK's *Clinical Pathology* (London: J. and A. Churchill; 21s.) has been revised with the assistance of H. B. May. There is a new chapter on anti-bacterial chemotherapy, and various new methods are described, particularly in haematology and chemical pathology. This well-known little book serves as an attractive introduction to the various branches of its subject, and will assist practitioners as a reference book in connexion with pathological investigations. The sections on bacteriology and morbid histology, though excellent as far as they go, need for the student's purposes to be supplemented by the use of other textbooks on these subjects.

The fourth edition of J. A. KOLMER and FRED BOERNER'S *Approved Laboratory Technic* (London: D. Appleton-Century Co.; 50s.) appears after an interval of four years, and has been extensively revised. This comprehensive and profusely illustrated work describes a great variety of methods, and the clinical pathologist faced with an investigation with the details of which he is unfamiliar will find it a valuable work of reference.

Vol. III of *Selected Papers from the Royal Cancer Hospital (Free)* and the *Chester Beatty Research Institute* comprises reprints of 39 articles by members of the staff which appeared in various medical and scientific journals during the years 1941 and 1942. It runs to 350 pages and includes many illustrations. In a brief foreword the Governors of the hospital acknowledge generous financial support from bodies both in this country and in the United States, without which the researches described would have been impossible. The British Empire Cancer Campaign has made substantial grants every year since its foundation in 1924. Gratitude is expressed to the Sir Halley Stewart Trust, the Medical Research Council, and the Laura de Saliceto Fund of the University of London; also to fellow-workers in cancer research in the U.S.A.—namely, the International Cancer Research Foundation, the Anna Fuller Fund, the Jane Coffin Childs Memorial Fund, and the Finney-Howell Foundation. Copies (price 16s.) may be had from the Secretary of the Royal Cancer Hospital, Fulham Road, London, S.W.3.

Néphropathies et Néphrites, Leçons Cliniques, by F. RATHERY, is published in Paris by Librairie J.-B. Baillière et Fils, 19, Rue Hautefeuille. These clinical lectures were given in 1937-8, but they were not published till 1941 and have only now made their way to this country. They deal with a variety of topics from the role of sodium chloride in nephritis to carcinoma of the kidney, and they make pleasant and informative reading for the student of renal disease. Until recent years, at any rate, the French approach to nephritis has been more dynamic and functional than ours, and it is well depicted in these lectures.

Methods for the further reduction of smoke in towns and its prevention in new building areas are detailed in a booklet which the National Smoke Abatement Society has prepared for local government authorities. It is pointed out that legislation in respect to smoke has so far been punitive and concerned only with mitigating a nuisance already committed. Responsible opinion is now in favour of legislation that is preventive and concerned with conditions resulting in smoke. The booklet urges that plans and specifications of all proposed new fuel-burning plant should be approved by a competent authority before installation, and local authorities should set an example by ensuring that their own premises, and premises under their direct control, are rendered smokeless.

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PRINCIPLE AND UNITY

Medical men at the moment have a natural impatience with the absence of information about medico-political developments. It is rather like waiting to hear the result of the final examination. Mr. Bevan has made his statement about the buying and selling of practices. His draft proposals have been submitted to the principal interested bodies. The irksome question of compensation is now under discussion, and at the same time the Spens Committee is completing its investigation into the incomes of general practitioners. The Negotiating Committee, representative of all groups of medical men and women, has been hard at work examining the Government's proposals and thrashing out the question of compensation. Why cannot we be told what is going on? is the question that naturally comes to all those who personally have so much at stake, and so many immediate and remote decisions to make—whether to retire in the assurance that practices will be sold either to an individual successor or to a Government which will pay full compensation in hard money, or whether, for the young man, to buy a practice now or wait in suspended idleness. If there is a silence on these matters it is a silence imposed by the necessities of the situation. The Government's provisional plan cannot be discussed because it has been submitted as a confidential document on which the Negotiating Committee, among other bodies, is asked for its observations and comments. The committee will no doubt ask the Minister a number of questions on a great many points of the plan, and will criticize many aspects of it in the light of the principles published in the *Journal* of Dec. 15 (p. 833). These criticisms and questions will also be based on previous decisions taken by the profession, and, in the case of the B.M.A., on policies laid down by the Representative Body. The Negotiating Committee has no mandate to go further than this, and cannot commit the profession to the plan in part or in whole. It can but criticize and comment and then wait to see whether the Minister will take notice of its representations when he presents a Bill to the House of Commons. At this point the medical profession will have to examine the contents of the Bill in a critical, thoughtful, but dispassionate spirit, and decide what its attitude is to the Bill as a whole and to its various parts. The task of the Negotiating Committee will be to collect the opinions of the profession, to analyse these, to sift out the implications of the Bill, to formulate what comes out as the considered judgment of the profession, and then to decide with the majority what action to take. After all, unless the profession decides to operate the projected service, legislation will remain a dead letter.

In this very critical phase of the history of medicine the profession is faced with two distinct dangers, and it will be according to how it faces these and masters them that it will be in a position to guide its own destiny in working

out a comprehensive health service in co-operation with a Government recently elected by the people of this country. The first danger is that the profession will fail to be really united on the basis of common objectives and on agreement on the means of reaching these. The second is that the spirit of demagoguery will prevail, and that in the confusion of emotional tongues the small voice of reason will be drowned beyond hope of resuscitation. There is a real risk that shibboleths and slogans will be substituted for reason and fact, that many of us will behave as thalamic rather than as cerebral animals. Nothing can do greater disservice to the real interests of medicine than the use of emotive words and phrases, and indulgence in the language of the hustings. To bandy words like "Fascist" and "Communist," "reactionary," and "revolutionary," or to indulge in vituperation against persons, institutions, or parties, will belie our claim, and our just claim, to be considered as a learned and liberal profession, whose thought and way of life are based upon science and the humanities.

The expression is often enough heard that we are a divided profession, and that our divisions are obscured by a polite convention not to refer to them. The Minister himself has hinted that our divisions are deep, and as an experienced politician he may be expected not to ignore the divisions if they may help him in achieving what he believes to be desirable for the health service it is his task to provide. *Divide et impera* is a familiar maxim for those in power. We must recall that the Minister has an obligation to fashion a national health service. It is a policy that was agreed on by all parties in the Coalition Government, and successive plans were made by and negotiations conducted with first a National Liberal, then a Conservative, and now a Labour Minister. The profession cannot put the clock back or stop it from ticking on—even though to some it may now seem like an alarm clock timed to go off at any moment in the next few weeks.

A disadvantage under which the profession labours is that there are so many diverse activities and interests within it. It is, in a way, compounded of many professions. Although all the various professional groups are united by a common educational background and a common aim to relieve the sick and the suffering and to promote conditions of health, there are many sharp antagonisms within it, and many different ways of life. There is, for example, a great difference in the way of life and work between the hard-worked panel doctor in a poor industrial district and the successful consultant in London, between the general practitioner and the medical officer of health, between the medical superintendent of a municipal hospital and a research worker in a clinical unit, between the medical administrator and the industrial medical officer, between the ship surgeon and the medical statistician. It is, in fact, one of the highest attractions of the profession of medicine that it offers such a rich variety of life for so many different types of men. But this very diversity makes unity difficult. It seems at times that each group, each unit, and even each individual, wants a medical service to suit it or him. As Sir George Stapledon said about another matter in a recent letter to the *Times*, "It will be well if those responsible never for a moment permit themselves to forget that

regimentation is foreign to the British character, for at heart we are a race of pirates, individualists, adventurers, and inspired amateurs." This is something the Minister must take into account if he is to secure the co-operation of the medical profession, and it is something the profession itself must take into account if it is to secure the unity which alone will lend wisdom and direction to its decisions and actions.

It is safe to prophesy that, whatever provisions the coming Bill will contain, some members of the profession will be dissatisfied. And it is clear that no counter-proposals will secure the assent of every doctor in the *Register*. For example, the small but active group represented by the Socialist Medical Association will be content with nothing that stops short of the socialization of medicine, and we may assume that their political aims—if not their present programme—coincide with those of the present Government. In opposition to this will be those who in politics are conservative. But probably the mass of doctors are non-political in attitude and want only to get on with their work in their own way with the least possible interference from anyone else.

On what basis, therefore, can we seek unity? It cannot be on a basis of expediency and stratagem, but on the basis of principle. The Negotiating Committee has given a clear lead by enunciating certain principles and by publishing them. These have been accepted and approved by the profession with scarcely a voice of dissent, and it is appropriate to repeat here the principles which stand out as embodying what is sincerely held by the overwhelming majority of doctors in this country.

I. The medical profession is, in the public interest, opposed to any form of service which leads directly or indirectly to the profession as a whole becoming full-time salaried servants of the State or local authorities.

II. The medical profession should remain free to exercise the art and science of medicine according to its traditions, standards and knowledge, the individual doctor retaining full responsibility for the care of the patient, and freedom of judgment, action, speech, and publication, without interference in his professional work.

III. The citizen should be free to choose or change his or her family doctor, to choose, in consultation with his family doctor, the hospital at which he should be treated, and free to decide whether he avails himself of the public service or obtains independently the medical service he needs.

IV. Doctors should, like other workers, be free to choose the form, place, and type of work they prefer without Governmental or other direction.

V. Every registered medical practitioner should be entitled as a right to participate in the public service.

VI. The hospital service should be planned over natural hospital areas centred on universities, in order that these centres of education and research may influence the whole service.

VII. There should be adequate representation of the medical profession on all administrative bodies associated with the new service, in order that doctors may make their contribution to the efficiency of the service.

These are not just idle words thrown together to create an impression of general high-mindedness. They are the reagents with which we must test the Government's mixture. Each item of the Bill must be examined in the light of these principles, and so must the Bill as a whole. If there is any fundamental departure from these principles,

then resistance to what offends against them will be firmly based. To resist on any other basis would be folly. Conversely, if the Government can convince the profession by reasoned argument and agreed adjustment of differences that these principles will not in fact be infringed, then the profession will not wish to withhold its co-operation in the task of remoulding the medical and health services of Great Britain.

COMPENSATION

The Negotiating Committee has met the Minister of Health been informed of his proposals, and been invited to comment on them. Since meeting the Minister it has met three times to consider his proposals and prepare its comments on them. It will meet the Minister again next week and convey its views to him. Simultaneously, discussions have been going on between a special subcommittee of the Negotiating Committee and officials of the Ministry of Health on questions of compensation. Neither the Negotiating Committee nor the Compensation Subcommittee can commit or has committed the profession to an acceptance of the Government's view that the buying and selling of practices shall cease. This question is on for the profession to decide when it sees the Government's proposals as a whole and the compensation and other proposals indicated. Subject to this important reservation discussions on the details of compensation have been proceeding, and it is probable that a statement of the Government's intentions will be made at an early date. The announcement will take the form of a statement of the Government's proposals. The reply of the profession will be made on the plan as a whole soon after the Bill published.

SULPHONAMIDE CONTROL OF STREPTOCOCCAL EPIDEMICS

War entails the crowding together of great numbers of men, and crowding favours the spread of infection. In 1918-19 haemolytic streptococcal infections caused 242,000 casualties in the American armed Forces, and 56,000 men were crippled with rheumatic fever or acute rheumatism. At the onset of World War II greater precautions had been taken against respiratory infections. Nevertheless in 1919 the haemolytic streptococcus caused 47,000 infections in the United States Navy, and in 1943 the rate continued to rise among the large numbers of new recruits stationed at the great training camps. In November, 1943, a "Streptococcal Control Programme" was instituted, and its methods and success have recently been described by Coburn.¹

Owing to the military needs of the moment many recognized methods for the control of streptococcal epidemics—e.g., isolation of carriers—were impossible, and from the start emphasis was placed on continuous chemoprophylaxis. This was effected by giving every man 1 g. of sulphadiazine daily. At first only half the men in each camp were treated in this way, and the other men were retained as controls. But in a few months the success of the measure was so clear that the treatment was extended to all the occupants of the camps. Altogether 600,000 men were given prophylactic sulphadiazine in this way for a total period of 3,000,000 man-weeks. The treatment was maintained for most of the winter, when the risk of infection was high. Haemolytic streptococcal infections were

¹Bull. N.Y. Acad. Med., 1945, 21, 281.

greatly reduced, and the hospital admission rates for respiratory diseases fell from 5 to 18 per thousand men per month in the different camps to less than 1 per thousand. Illnesses due to scarlet fever, to tonsillitis, or to rheumatic fever were all much diminished. Instead of the carrier rate for haemolytic streptococci among new recruits becoming almost 30% it remained constant at its previous level of about 10%. The success with other infections depended upon the sulphonamide-sensitivity of the relevant organisms. The meningococcus was highly susceptible, and meningococcal meningitis was practically abolished. The pneumococcus varied in sensitivity in different camps: in some the disease rate fell by 50 to 80%; in others it was unchanged. Virus diseases, such as influenza and measles, were unaffected. The daily dose of 1 g. of sulphadiazine resulted in a mean blood concentration of about 2 mg. per 100 c.cm. This dose was slightly more effective in preventing infection than a dose of 0.5 g. daily. Toxic reactions were much less frequent than had been feared; about 0.5% of the men had mild dermal reactions during the first three weeks. Severe reactions, such as granulocytopenia or exfoliative dermatitis, occurred in only 39 men out of the 600,000—less than 0.01%. These severe reactions were reversible provided that the patients were not given further sulphonamide treatment. Before this was realized there were 13 deaths due to sulphonamides. Later penicillin therapy was instituted for such cases, and there were no further deaths. These casualties should be balanced against the greater number of deaths which might have been caused by streptococcal infections if the disease rate had not been controlled. Mass chemoprophylaxis did not induce sulphonamide-hypersensitivity among the men, nor did it produce sulphonamide-resistant strains of streptococci. Altogether this experience forms one of the most successful medical operations of the war.

Its applicability to peacetime practice is less straightforward. The conditions under which it was so successful were peculiar in many ways. These training camps formed closed communities, shut off from the rest of the world except for the continuous addition of non-immune recruits. The population consisted of young men from different localities, each exposed to many infections not previously encountered. Because of crowding in the barracks, swimming instruction in indoor baths, etc., the risks of transmission of infection were much greater than is usually the case. Finally, a high proportion of the respiratory infections were due to the haemolytic streptococcus, an organism particularly sensitive to the action of sulphonamides. In peacetime sulphonamide prophylaxis will be most effective in relatively closed communities—e.g., residential schools or large mental hospitals. Factories or offices appear unsuitable because the worker mingles with all sorts of other people for the non-working part of the day. Secondly, this measure should be limited to epidemics known to be due to a sulphonamide-sensitive organism; the sulphonamide-sensitivity of the predominant organism should be examined as early as possible. Sulphonamide prophylaxis is also justified for persons who have suffered from rheumatic fever. These people are so susceptible to infection by haemolytic streptococci, and the consequences of such infections, which reactivate the rheumatic process, are so harmful, that the risk of toxic reactions might well be taken in order to avoid the much greater risk from further attacks of rheumatic fever. Special supervision should be provided for all these groups to detect and to treat any untoward reaction to the drug. Further details about the indications for such chemoprophylaxis, and its general conduct, are given in a recent Medical Research Council memorandum.²

ATOMIC RESEARCH AND MEDICINE

In his recent address to the Manchester Joint-Research Council Sir John Anderson mentioned the usefulness to medicine of work on the atomic bomb. The technique employed to produce the new element plutonium gave a ready means of procuring a vast range of new radioactive substances. Radio-phosphorus, radio-iron, and radio-sodium, for example, could now be administered in proportions too small to be harmful, and their radio-active properties could be used to determine their exact behaviour in humans and in animals. Work of this kind has been done in many laboratories in the United States during the last five years.

One of the striking developments has been the discovery of the mechanism of transmethylation by Vincent du Vigneaud at Cornell University Medical School in New York. His work leads to the general conclusion that all C-CH₃ and S-CH₃ groups in the tissues of the body originate in the methyl groups of choline, betaine, and methionine.^{3,4} He studied the effect on the growth of rats of adding homocystine to a methionine-free diet. Some observers had found that homocystine enabled rats to grow, but du Vigneaud was unable to confirm this. He showed that something in the B complex was necessary as well as homocystine, and finally choline was discovered to be the missing substance. In the presence of choline, homocystine was transformed to methionine, and this effect of choline was because of the methyl groups it contained; tri-ethylcholine had no such effect. Thus the inference was that the growth which resulted from feeding both homocystine and choline was due to the transference of a CH₃ group from choline to homocystine to yield methionine. Proof of this was obtained by preparing choline in which the hydrogen in CH₃ groups was replaced by heavy hydrogen (deuterium). This product, deuteriocholine, was fed to rats together with homocystine; du Vigneaud then sought and found the deuterio-methyl group in the methionine of the tissues. He has shown in the same way that the methyl group of creatine comes from choline or methionine; deuterio-choline given to rats led to the appearance of the deuterio-methyl group in the creatine of the muscles and also in the creatinine of the urine. This observation has since been extended to man by feeding heavy methionine and examining the creatinine in the urine. The administration of heavy methionine to rabbits leads to the appearance of deuterio-arsenine in the muscle tissue. Dr. George Whipple and his colleagues^{5,6} have used ferric sulphate, ferric chloride, and ferric ammonium citrate containing radio-active iron; the amount present might be 1 part in 2,000 million. They have given a single dose of this so-called "tagged" iron to dogs depleted of iron. This leads to a rise in the proportion of red cells containing tagged iron which reaches a peak between the fourth and the seventh day, after which the proportion declines. If red cells are broken down by giving acetyl phenyl hydrazine it is found (by following the tagged iron) that the iron set free is almost wholly used to make fresh red cells. In dogs with a biliary fistula very little iron is found in the bile; the amount may rise from 0.2 mg. to 2 mg. for a day or two and then diminish, the total iron excreted in the bile being about 15 mg. The total breakdown, however, has been about 450 mg. The formation of liver glycogen in the rat after the administration of lactic acid has been studied by Baird Hastings at Harvard.^{7,8} There are three carbon atoms in lactic acid, and samples of lactic acid

³ *J. Biol. Chem.*, 1939, 131, 57.

⁴ *Ibid.*, 1941, 140, 625.

⁵ *Ibid.*, 1940, 134, 555.

⁶ *Amer. J. Physiol.*, 1942, 135, 600.

⁷ *J. Biol. Chem.*, 1941, 137, 557.

⁸ *Ibid.*, 1942, 142, 371.

have been prepared in which each of these three carbon atoms in turn was radio-active. Thus it has been possible to find to what extent the three carbon atoms respectively contribute to the formation of liver glycogen.

These examples of the use of radio-active elements can be multiplied many times. Thus observations in which radio-active iodine and radio-active phosphorus have been employed have been made by several workers. It is clear that the method provides a new approach to the discovery of the stages of numberless biochemical transformations.

A MODERN VIEW OF GOUT

Most physicians in this country would describe gout as a disease of the past, like chlorosis and abdominal aneurysm, and it is therefore interesting to read an American monograph which strongly controverts this and other views about the disease.¹ Talbott claims that gout is not rare, accounting for 5% of all patients suffering from disease of the joints, and there is no significant reduction in incidence from generation to generation. He uses the word "gout" as a parent term with three clinical subdivisions: acute gouty arthritis, intercritical gout, and chronic deforming gouty arthritis. This implies that gout, in the sense of a disturbance in the metabolism of uric acid, may be latent or subclinical, and family studies show that this is indeed the case. A high proportion of the relatives of patients with gouty arthritis have an abnormal amount of uric acid in the serum, although they themselves may not have suffered from joint symptoms. Gout is in fact a hereditary disease, and as it occurs twenty times as often in males as in females it may be a sex-linked characteristic. Cases of gouty arthritis develop in gouty families primarily because of the hereditary predisposition, while social factors, environmental influences, and dietary indiscretions are relegated to a position of secondary importance. There is no support for the view that gout is confined to the upper social strata or that it is a disease of persons who are habitually intemperate, whether in regard to alcohol, sexual activity, or food. In estimating uric acid it is important to use plasma or serum rather than whole blood; with this precaution values over 6 mg. per 100 c.cm. of serum are found in 96% of cases of gout, whereas they are extremely rare otherwise. Chemically it is more accurate to speak of urate than uric acid, as the acid cannot exist in a free state in the body fluids. Studies of the renal clearance by modern techniques show that there is no significant difference between gouty and non-gouty subjects in the ability of the kidney to excrete urate. The corollary appears to be that the disease is due to an increased formation of urate in the body. This metabolic error probably exists from birth, but gives rise to symptoms only in later life and in a small percentage of those with the defect. The renal damage which is so common a feature of advanced gout is the result of the excretion of insoluble urates which are precipitated in the tubules and damage kidney. In fact the gouty kidney might well be compared with the sulphonamide kidney.

The nature of the acute attack of gout is not clearly understood, but it is probable that crystals of sodium urate are deposited from the synovial fluid on to the surface of the cartilage. Although the attacks are often attributed to eating and drinking, there is little scientific evidence that this is the case, though some patients learn to recognize that specific articles of food or drink may bring on an attack. On the other hand it has been shown that certain drugs may be responsible, such as liver, vitamin B,

salycan, insulin, and ergotamine; so also may acute infections, trauma, and surgical operations. Many atypical and aberrant forms of gout have been described, but these are for the most part mythical maladies. In fact, gout, like malaria and influenza, has often served as a cloak for ignorance; but the biochemical test for the uric acid in the blood has removed any excuse for confusion. The specific remedy for gout is colchicine, which is both highly successful in effect and mysterious in mode of action; it does not increase the excretion of urates. Talbott emphasizes how important it is for patients to take colchicine early and in adequate dosage when they experience the symptoms which they have learned to recognize as the prodromata of an attack. He advises a tablet of 0.5 mg. colchicine alkaloid every 60 or 90 minutes until relief has been obtained, or 16 tablets have been taken, or gastro-intestinal irritation prevents further dosage. Usually joint pain begins to subside in 12 hours and relief is complete in 24 to 48 hours. Small doses of colchicine are useful in the intercritical periods but here salicylates also have a useful place. Salicylate and diodone increase the excretion of urates by competing as it were, for the activity of the tubule cells; salycan and cinchophen act by depressing the function of the tubule cells and preventing reabsorption of urates. Talbott recommends colchicine and salicylates as the basis of medical treatment, and condemns the use of cinchophen as unjustifiably dangerous. His monograph is beautifully illustrated though one would have liked to know the magnification of the photomicrographs, and in its clear style and presentation it is a noteworthy contribution to the literature of gout, a disease which has always had an attraction for the medical stylist.

THE CHRONIC SICK

In all the hospital surveys, issued in conformity with the Ministry of Health decision in 1941 to examine the hospital services of the whole country, the one unanimous recommendation concerns the chronic sick. All the surveyors seem to have been impressed by the deplorable lack of accommodation or the poverty of the accommodation for this unfortunate class of people. There are exceptions in progressive towns, but in general the oldest and worst buildings seem to be assigned to these patients. Most of the surveyors recommend strongly that no chronic sick person should be admitted primarily into a hospital or institution designated for the sole treatment of such cases. Some of them want to do away with the term "chronic sick" altogether, because the label becomes tantamount to "incurable." One proposal is that the provision for the chronic sick should never be divorced from the general hospital, but that these patients should be housed in separate blocks within its curtilage. It is suggested that in some areas most of the public assistance institutions should be scrapped and rebuilt. The number of chronic sick is variously given; one estimate is 2 per thousand of population. But however many there are this does seem to be the Cinderella of hospital administration, and the subject will need special attention in the Government's plans.

We much regret to announce the death of Sir Comyn Berkeley, consulting obstetric and gynaecological surgeon to the Middlesex Hospital and Chairman of the Central Midwives Board; also, on the same day and at the same age, of Sir John Broadbent, Bt., consulting physician to St. Mary's Hospital and for ten years Dean of the Medical School.

¹ Talbott, J. H., *Gout*, Oxford University Press, New York, 1945.

PREMEDICAL ZOOLOGY: A DIFFERENT VIEW-POINT

BY

D. W. EWER, M.A., Ph.D.

The problem of the early biological instruction of medical students has been the subject of a recent interesting and stimulating article by Drs Abercrombie and Johnson.¹ With their ideas on how to train young students in scientific method no one will quarrel. Many of their ideas about the reform of the zoological syllabus of the first M.B. examination are, however, more controversial. Their central theme is that the proper study of the elementary medical (and zoological) student is man, and that zoological instruction given during the first year at university or hospital should be redesigned along these lines.

The need for the extension of biological teaching in schools is now generally accepted and there can be little doubt that for those who do not intend to pursue biological studies further the biology of man must receive first consideration. For those who are going to dedicate many years to the subject the anthropocentric approach may not be the best starting point. The medical student will devote two years to the unrestricted study of human anatomy and mammalian physiology and will subsequently study the human body in disease. Since all his later student years are to be dedicated to the study of biology from this limited view point the need for giving him during his first year as broad a background as possible is imperative.

Man's Place in the Evolutionary Scheme

The zoological training of the first year medical student has to be considered with two factors in mind.

(i) The course must lay a scientific foundation for a highly detailed study of human anatomy and physiology. It must therefore include a general outline of mammalian anatomy (including histology) and physiology, and also, since it is widely used for physiological experiments, the anatomy of the frog, the use of the microscope and of the scalpel must also be known.

(ii) The medical student will usually not have an opportunity for the further study of zoology. The course must therefore make it clear that one scientific approach to human anatomy and physiology lies in an understanding of man as the product of long evolution and as adapted to a particular habitat. At the same time the scientific principles underlying the study of the relationship of man to his civilized environment, to his parasites and his food supply, must be made plain.

These considerations closely define the nature of the course which is required. The central theme must be that of evolution rather than man. Nothing in fact, could be more unfortunate scientifically than to inculcate in the mind of the young student the idea of man as the measure of all things. It is true that man may be better in this role than the traditional frog but, as Prof Cole's recent *History of Comparative Anatomy* shows clearly, this approach is scientifically barren, and biological thought without the guiding principle of evolution becomes pointless and undirected.

The existing syllabus was no doubt framed with the idea of illustrating evolution. The method used is to give a short description of the whole animal kingdom illustrated by a detailed study of a few animal types. Unfortunately the account of the anatomy of the types has tended to become an end in itself, and the underlying principles, hard enough to appreciate anyway in such a broad survey, have been lost. The method is a failure, and has led to the student cult of the reproductive organs of the earthworm whose ending no one could lament.

Outline of Vertebrate Evolution

It is clearly necessary to reform the course. How, then, in greater detail should this be done? A start should be made with a survey of the animal kingdom in relation to habitat and structure. This must not, however be allowed to descend to the level of a catalogue of aesthetically pleasing or economically important animals. It must show clearly how, say, arthropods differ from molluscs and echinoderms. The principle of increasing complexity of structure must be stressed but no time should be spent on the detailed anatomy of

particular invertebrates. Then, by reference to the fossil record the general outline of vertebrate evolution should be shown as demonstrated on the one hand the fact of evolution and on the other the biological position of man as a recent product of a long process. The course should then give a detailed account of the evolution of the vertebrates as a dynamic story showing the fish as the starting point, how and why the vertebrates came on land, the real problems they had to solve and how these were solved increasingly effectively by amphibians, reptiles, and mammals.

This treatment differs from that of Drs Abercrombie and Johnson very radically. They believe that the principles of comparative morphology are the "least important branch of zoology when man is the centre of interest." Surely it is these principles which can help to lighten the long study of zoographical anatomy. To omit these, the greatest unifying principles of biology, is to encourage an empirical and unscientific frame of mind. It is because these principles are so well illustrated in any account of the evolution of the terrestrial vertebrates that particular emphasis has here been laid on this question.

If the principles of comparative morphology are rejected a new unifying idea has to be sought. This is found by Drs Abercrombie and Johnson in a "central theme, such as the maintenance of constancy of the internal medium in the land habitat." This theme is to serve as the leitmotiv to a study of the physiological anatomy of man against a background of other animals.

It is submitted that this central theme is asking the student to run physiologically before he can walk. The maintenance of the constancy of the internal environment is effected by the integrated regulations of certain functions. Before these regulations can be understood the methods of working of the component parts must be thoroughly grasped, and in some cases a very detailed knowledge is required. The elementary student must be given elementary facts, and would surely be better served if he is shown the fundamentals of certain types of physiological mechanisms such as locomotion, digestion, respiration and excretion if he is shown the living organism as a physiological unit and as an attempted adaptation to a particular way of life. The essentials of the various mammalian physiological mechanisms and their anatomical basis can undoubtedly be better understood when they are seen in relation to the evolution of the terrestrial vertebrates, rather than when odd animals are occasionally introduced to clarify particular difficulties which may arise in human anatomy and physiology.

The treatment of vertebrate embryology should go hand in hand with that of anatomy and physiology, and the adaptations of the embryo to a terrestrial existence should be shown. At the same time the significance of recapitulation and its usefulness in understanding the morphological events of ontogeny should be explained.

The course of study should then proceed to consider the possible mechanisms of evolution, genetics should be shown in its relation to natural selection. The question of nature and nurture can be amply discussed in this connexion as well as the evolutionary consequences of tool using and civilization. Here also logically belong a discussion of adaptation and ecology including food-chains and the pyramid of numbers together with a consideration of the effect of human interference on animal populations. The problems of the biology of parasitism should be presented against this background, emphasis being laid on how control measures are dependent on a knowledge of the biology of the parasites and their hosts rather than on over-detailed accounts of the morphology of different stages in the parasite cycle. Finally a brief account of the historical development of biology should be given so that its relations with medicine and the other sciences may be seen. These latter details agree closely with the proposals of Drs Abercrombie and Johnson in content except that the emphasis on evolution rather than on man is still stressed.

Social Aspects of Science

During recent years there has grown up an increasing body of opinion which believes that the interest of the student in science can be enhanced if the social applications and origins

¹ Abercrombie M. and Johnson M. L. *British Medical Journal* 1945 2 522.

of the subject are emphasized. This view is doubtless quite correct, but is open to abuse and misinterpretation. For example, it is not necessary or desirable to teach only the latest discoveries in any field. Physics is not best approached through atomic bombs, or biology through D.D.T. In dealing with embryology Drs. Abercrombie and Johnson suggest that the course should consist of "development, omitting details of morphological embryology." This is a vague formula, but when taken together with their dictum that "comparative morphology is the least important branch of zoology," one wonders whether the morphological details are to be replaced by a discussion of the results of experimental embryology. Interesting and important as these are, they are certainly incomprehensible without a detailed morphological background. Students may perhaps learn the catchwords, but their knowledge will be shallow.

Again, the introduction of the social aspects of science cannot eliminate the necessity for application and learning on the part of the student. The multiplication tables still have to be learnt even if their historical background is explained; they are no easier to learn because of it, but the incentive to learn may be greater. Such an approach must not be allowed to become one in which learning the social background replaces learning the facts; mathematics, chemistry, and zoology must not be allowed to degenerate into history and sociology.

Finally, such an approach must not be used as an excuse for learning something different simply because it is easier. This appears to be the attitude of Drs. Abercrombie and Johnson. In defence of their anthropocentric orientation they stress the point that "the material [presented] will be more readily learnt and retained than will that of traditional zoology." Note that the contrast is between traditional zoology and human biology, not between the traditional presentation of zoology and a presentation with a more human appeal. Drs. Abercrombie and Johnson in fact favour human biology rather than zoology as a part of the early training of the medical student because, *inter alia*, they find that human biology is easier to learn than zoology. To learn Spanish is probably easier than to learn Greek; both may be necessary, but they are not the same thing. This appeal to ease of learning must be disallowed, though it is incidentally interesting to note in this connexion that the B.B.C.'s biological course for schools, prepared by Miss Honor Wyatt, has for several years now been based on the story of vertebrate and human evolution.

Another argument pressing the claims of human biology is that it will forge a real link between the first M.B. and the subsequent course, so that there will be "less danger that the biological principles which the course illustrates, and the scientific attitude it is supposed to inculcate, will be jettisoned." It is not clear why Drs. Abercrombie and Johnson consider that the inculcation of the scientific attitude ends with the first M.B. That, however, is beside the more important point that this link depends in reality on the fact that the biological principles which Drs. Abercrombie and Johnson would introduce into the first M.B. are those which the students will have with them always. I suggest that the link should in fact be forged from the other side and that more material from comparative anatomy and physiology could advantageously be incorporated in the second M.B. courses.

Conclusion

In the final analysis, however, we return to the problem of whether there is a need for a zoological course for first-year medical students or whether they should rather be given an outline of human biology, including instruction in human anatomy and physiology, presumably by competent human anatomists and physiologists and not by zoologists, whose knowledge and experience on these matters are generally limited to their reading of textbooks. It has been urged above that the contribution of zoology to the intellectual armament of the medical student is the evolutionary outlook towards biology. This, zoology alone can give, and if this, the most embracing of all biological generalizations, is worth fully understanding, the medical student must have a zoological course. To sum up:

(i) The main contribution of zoology to the intellectual training of the medical student is the idea of evolution.

(ii) The zoological course of the first M.B. should be designed to show man's place in the evolutionary scheme.

(iii) This can most easily be done by laying the main emphasis on the evolution of the vertebrates.

(iv) A course in human biology is not a substitute for a course in zoology, nor is ease of learning a criterion by which the desirability of teaching a subject can be judged.

ORGANIZATION FOR TREATMENT OF CANCER

Some three years ago, as a sequel to the passing of the Cancer Act, the National Radium Commission issued a pamphlet *Organization for the Treatment of Cancer*. The Commission did not attempt to frame an exact constitution, nor did it lay down any specific pattern for future organization. It confined itself to an examination of the defects of existing facilities for dealing with the disease, and put forward suggestions for the improvement of these, dealing, however, with general principles only; for example, the importance of early diagnosis, the need for consultation between a team of experts before treatment is planned, the desirability of pooling resources, and the cardinal position occupied by research. The Royal Cancer Hospital (Free) found itself in general agreement with the Commission, having already been working for some years on the lines recommended. It was thus encouraged to develop its plan. Some two years later a second pamphlet, known as *The A B C Scheme*, was published. This went into greater detail, and suggested a specific allocation of responsibility for the diagnosis and treatment of cancer in a region comprising London and the Home Counties.

A Co-operative Plan

In the absence of any indication as to the official attitude towards these proposals, and as to the probable future national organization under the Cancer Act, the Governors of the Royal Cancer Hospital, acting on the advice of their medical committee, decided to expand the internal organization of the hospital, and to proceed with its plans for collaborating with a number of other special hospitals in cancer diagnosis and treatment.

This decision was prompted partly by a desire to place the exceptional resources of the hospital for diagnosis, treatment, teaching, and research at the disposal of the patients and staffs of other hospitals, and partly by a desire to obtain a larger number of cases of the less common forms of cancer both for purposes of research and in order that current methods of treatment might be tested, developed, and improved. Negotiations were therefore opened with the following hospitals, most of which had been co-operating with the Royal Cancer Hospital in an unofficial manner for a number of years: the Brompton, the Chelsea, the Gordon, the Princess Beatrix, the Royal Free, the Royal London Ophthalmic, the Royal National Nose, Throat, and Ear, and the West End Hospital. A general procedure agreeable to all was evolved.

Outline of General Procedure

The patients referred by the co-ordinated hospitals are examined at a consultation clinic at the co-operating hospital by a team comprising a physician and/or a surgeon and a radiotherapist, often with a clinical research assistant in attendance. The main lines of treatment to be adopted are laid down, and the full resources of the whole group of hospitals are available for the patients. Surgical treatment is usually carried out at the co-operating hospital, but patients may be transferred freely from one hospital to another for surgery, radiotherapy, or chemotherapy, according to the location of the equipment indicated or to the facilities most suited for the purpose.

In order still further to promote harmony and good will certain subsidiary arrangements have been made as follows. All beds in the Royal Cancer Hospital have been pooled, and all members of the cancer team—physicians, surgeons, and radiotherapists—have equal privileges in the admission of patients. Members of the staffs of some of the special hospitals co-operating have been appointed to the staff and medical committee of the Royal Cancer Hospital. This arrangement is reciprocal. A Co-operating Hospitals Committee has been set

up under the chairmanship of Lord Horder to co-ordinate the cancer work in the group of hospitals and to advise as to its future expansion

Functions and Form of the Service

Such then, in outline, is the (Experimental) Cancer Service evolved by the Royal Cancer Hospital in accord with the general principles enunciated by the National Radium Commission. It is designed to perform a dual function. First in relation to the sufferer, by placing freely at the disposal of the staffs and patients of co-operating hospitals all resources of experience, skill and apparatus in the group. Secondly in relation to research, by furnishing the clinician and research worker with a volume of material of all types of cancer, and especially of the more uncommon types dealt with in numbers by the special hospitals. This allows of the investigation of the course of malignant disease in various stages of development and in every part of the body. Incidentally the service is also invaluable from an educative point of view in that it provides data for refresher courses and for the advanced instruction of post-graduate students.

In form the organization fulfils the essential requirements of a co-operative cancer service. It might well be taken as a pattern for remodelling some other cancer services since it provides for the examination, diagnosis, and planning of treatment of the patient by a team of experienced men, and offers to patients of the group the advantages of being treated at a well-equipped irradiation centre by experienced radiotherapists. Moreover it provides adequate samples of malignant disease for investigation and research. The number of new cases seen for diagnosis and treatment per annum by the services has already passed the 2000 mark (which approximately represents the normal incidence of cancer in a population of two millions). Further expansion is at present limited by the number of beds that can be made available.

An important feature of the service is that it has no geographical limits, but is designed to deal with all forms of cancer, including the more uncommon forms which are selected for specialized treatment at the special hospitals, whatever the origin or domicile of the patient may be.

TRANSFER OF ASLIB MICROFILM SERVICE

Since the information contained in scientific and technical periodicals is often of vital importance to research, the cutting off, in the early days of the war, of normal supplies of European journals presented grave problems. To meet these difficulties Aslib (the Association of Special Libraries and Information Bureaux), with the help of the Royal Society, the Rockefeller Foundation, and British industry, organized a microfilm service in April, 1942, to supply, in microfilm or paper enlargements, copies of scientific and technical periodicals published in Germany and countries occupied by Germany during the war years. The service was used by the British and American Governments, by more than 300 scientific institutions and research stations in Great Britain and the Empire, and, under a special agency arrangement, by several hundred institutions in the United States. The library of master negatives accumulated for the purpose contains some 14,000 separate issues of approximately 500 titles equivalent to a total of over a million copies.

The Aslib Microfilm Service also undertook, on behalf of the British Council, the supply of microfilm copies of British periodicals to China while that country was cut off from ordinary surface transport. The proportions of this scheme grew until during the last year some 170 periodicals were regularly microfilmed and six positive copies of each were flown to China. Chinese scientific and cultural organizations, with the help of 100 microfilm projectors set up in about a dozen reading centres, have been able to keep in touch with developments in the outside world.

The end of the war reduced the demand for the special functions the Aslib Microfilm Service had been set up to fulfil and it became evident that the demand for documentary reproduction as an aid to science and learning though potentially great, needed further time for development in Great Britain. A scheme for the rehabilitation of medical libraries in Europe

was then brought forward by the Royal Society of Medicine. Aslib has agreed, therefore, to the transfer of the Microfilm Service to medical uses and, by arrangement with the Royal Society of Medicine, the Aslib Microfilm Service became on Jan. 1 an integral part of the Central Medical Library Bureau of the Royal Society of Medicine. Requests for copies from existing master negatives and for copies of individual references should be addressed to Aslib, 52, Bloomsbury Street, London W.C.1.

RESEARCH IN BLOOD DISEASES

The trustees of the Lady Tata Memorial Fund invite applications for grants and scholarships for research in diseases of the blood with special reference to leukaemia, in the academic year beginning on Oct. 1, 1946. Grants of variable amount are made for research expenses or to provide scientific assistants to senior workers. Scholarships are awarded as personal remuneration; their normal value has been £400 per annum for whole time research, with proportionate adjustment for work on a part-time basis, where this is approved. The grants and scholarships are open to workers of any nationality, and in any country in which it will be possible to make payments in the coming academic year. The available information on this point, regarding particular countries outside the British Empire, will be supplied to intending applicants on request. Applications must be submitted before March 16, 1946, and the awards will be announced by the trustees in June. Further particulars and forms of application may be obtained from the Secretary of the Scientific Advisory Committee, c/o the Medical Research Council, 38, Old Queen Street, Westminster, London, S.W.1.

SHORT-SERVICE COMMISSIONS FOR SPECIALISTS

A CALL FOR VOLUNTEERS.

The Central Medical War Committee has been informed that, on the recommendation of the Medical Personnel (Priority) Committee, it has been decided that specialists and graded specialists, recruited to the medical branches of the Forces, will now be accepted for short-term employment for eighteen months if they were born before July 1, 1915. The commissions held will be known as "specialist short-service emergency commissions." They will be granted to those specialists and graded specialists (born before the above date) who are called up under the compulsory recruitment procedure and to those above military age (born before July 1, 1905) who offer their services voluntarily.

The Central Medical War Committee is instructed to carry out specialist recruitment to the extent necessary for the replacement of serving specialists who are due for release in Class A or recommended for release in Class B and who cannot be released unless substitutes are provided. The Committee has been making every effort to increase the yield of specialist recruits but with only limited success and already there are a considerable number of Service specialists whose release in Class A is being retarded. The Committee therefore appeals for offers of voluntary service, and hopes that specialists above military age who might hesitate to offer their services for an indefinite period will be prepared to accept the new short-service commissions. Officers holding these commissions will be returned to the United Kingdom before the end of their 18 months' service, and will be eligible for 28 days' leave on full pay on completion of their service.

Volunteers should communicate with their Local Medical War Committees, or, in the London area, with the Committee of Reference at B.M.A. House, Tavistock Square, W.C.1. The need is urgent, and it is hoped that there will be an immediate response to this appeal in order that serious hardship to the Service specialists due for release may be prevented.

The short-service commissions will not be granted to general duty officers, but doctors will no longer be recruited compulsorily for general duty unless they were born on or after July 1, 1915. Civil direction is now applied only to men doctors below the age of 31. Women doctors are no longer liable to direction.

APPOINTMENTS UNDER CONTROL COMMISSION FOR GERMANY

An announcement in our advertisement columns this week invites applications from medical officers of health for service under the Control Commission for Germany. These officers, who will for the present serve at H.Q. of Corps, Districts, and Provincial Detachments, will be responsible for carrying out the policy of the Commission in the supervision of the German local organizations in charge of the health of the civilian population—including the medical examination and "dusting" of returning refugees—and for the health (including hospital care) of displaced persons, for which U.N.R.R.A. teams will come under their supervision. It will be their work to build up the German health services from the chaotic state in which they were found after capitulation, and their duties will be concerned with: repair and rebuilding of hospitals; staffing and organization of hospitals; reopening of medical schools and bacteriological laboratories; reorganization of nursing services and health visiting and welfare services; reopening of maternity and child welfare clinics and tuberculosis sanatoria; immunization and vaccination; bacteriological tests of water supplies; and sewage disposal. They will advise on and direct the notification of births and deaths, the control of infectious diseases, and the supply of drugs. They will supervise the B.R.C.S. and, generally, the plans for dealing with epidemics, stores, hospital expansion, etc.

Nova et Vetera

MEMORIES OF CLIFFORD ALLBUTT

Many recollections of Sir Clifford Allbutt by his old students were given at a meeting of the Section of the History of Medicine of the Royal Society of Medicine on Nov. 7. The occasion was the fifth of a series of papers on Cambridge medical history by Sir Walter Langdon-Brown, who, in this last of the series, took Clifford Allbutt as the exemplar of the transition from 19th to 20th century medicine. Unfortunately Sir Walter's state of health did not permit him to read the paper himself, and it was read in his absence by his successor in the Regius Chair at Cambridge, Sir Lionel Whitby. One perhaps forgotten episode in Clifford Allbutt's life was his three years as a Commissioner in Lunacy, when he settled in Kensington among an artistic coterie which included G. F. Watts, Lord Leighton, Burne-Jones, and others. Next door to the Allbuts at that time lived Mrs. Russell Barrington, nicknamed the "Duchess of Kensington," who made Clifford Allbutt the hero of her novel *St. Luke of the Nineteenth Century*. It has often been stated that, at a much earlier period than this, George Eliot drew the portrait of Lydgate in *Middlemarch* from Clifford Allbutt; certainly she knew the Allbuts well.

Sir Walter Langdon-Brown recalled the inaugural lecture at Cambridge in 1892: "His handsome, dignified, well-groomed appearance made an instant appeal. Still more impressive was the substance of the lecture, blending science with the humanities, which gave me a new outlook. It was really a decisive influence in my life." Speaking of Allbutt's last years, he said that, apart from the handicap of deafness, he never, even physically, seemed to grow old until quite shortly before his death. He would refer humorously to age as "that state of mind which seems mellow wisdom to its owner, but appears to the younger generation as senile obstinacy." Sir Walter thought it would be a misfortune for Allbutt's memory if Orpen's portrait of him in the Fitzwilliam Museum should come to be regarded as an authentic likeness, for it was almost a caricature. When taxed with this Orpen said, "Well, to tell the truth, I was not interested in the old man"—a criticism of the artist rather than of the subject. It was extraordinary, said Sir Walter Langdon-Brown, how Allbutt managed to keep up with the doings of his old alumni. Any one of them who did a good piece of work would probably receive a letter in a curious script which, when deciphered, would prove to be a charmingly phrased note of appreciation from the Regius Professor. His fastidious taste in literature made him a stern critic of his own writings. The fact that they read so smoothly

and pleasantly was because he always wrote three drafts before sending them to the printer.

Allbutt's philosophical attitude was exemplified in a letter written to Sir Walter not very long before his death in which he said that he knew rather than felt that he was approaching the end of a long life. The last time they dined together Allbutt said, "It isn't dying I mind; what I fear is incapacity"—a disaster which he was spared. He was a deeply religious man and preached not infrequently in St. Edward's, the little church in the market-place at Cambridge. He was greatly attracted towards the Society of Friends, but he was accustomed to say, "How can I leave the Church [of England] in which I was born, baptized, and married, with which all my life has been inextricably bound up—tendrils everywhere?"

After the paper other members of the Section spoke of their own contacts with Clifford Allbutt. Dr. Ashworth Underwood mentioned his wonderful library, and deplored the fact that his books had not been brought together as a great memorial. Dr. Alison Glover, who said that he believed he was the oldest student of Allbutt present, recalled his constant kindness, his advice when he presented his M.B. thesis—"My boy, read Macaulay"—and his appearance—the aquiline nose, the piercing eyes, and the great dignity. This impression was carried further by Dr. R. J. V. Pulvertaft, who likened Allbutt coming into the classroom to Moses coming down from the mount. Another who claimed the honour of being a student of Allbutt, though too old actually to learn from him at Cambridge, was Dr. Parkes Weber; he was only in time to read his M.D. thesis before him. Comparing Allbutt with Osler, he found the latter a little more stimulating, though Allbutt took just the same kind of interest. One of the points to be stressed was his extreme kindness, even when he criticized.

Sir Henry Tidy said that it was almost indecent for an Oxford man to break into these proceedings, but he actually met Allbutt before he went to the Regius Chair at Cambridge. He was then a comparatively young man, though, with his beard, he appeared to be of patriarchal age to a young boy; but always he had the extraordinary ability of making himself seem to be of the same age and standing as the person with whom he was talking. The pomposity of age was never his, and he combined dignity with an extraordinary feeling of friendship. Dr. H. P. Bayon recalled an occasion when, reading a paper, he described typhoid as a "clinical entity" and elicited the remark from Allbutt, "My dear fellow, never mention anything as an entity which you cannot put on a plate on a table." A letter written by Allbutt in 1922 was produced by Dr. H. J. Norman, in which Allbutt said of his contemporary Maudsley, "I could never read his books for long nor often, for what we may, for brevity, call the spiritual side of his mind's eye was almost quite blind, so that his books are depressing and arid." He also wrote of Maudsley, "Though a most successful man, I think he said that old age was the most dismal part of life. . . . Most of us old chaps who keep fairly well find it the happiest time." The train of reminiscence was brought to an end by Sir Lionel Whitby, who knew Sir Clifford Allbutt in his later years: "His manner of teaching was that of stimulating the student to observe for himself, not the method of direct demonstration. . . . He would ask you to describe exactly what you found, and that, I have always felt, is the true way in which to teach students medicine."

The July issue of the *Bulletin of the Medical Library Association* contains a useful bibliography, compiled by Dr. J. M. Schneek, on bibliotherapy and hospital libraries (350 items).

In honour of the four-hundredth anniversary of Conrad Gesner's bibliography, *Bibliotheca Universalis*, the New York Academy of Medicine library has held an exhibition of books on medical bibliography to the end of the eighteenth century.

The Museum Book Store Ltd., 45, Museum Street, London, W.C.1, have acquired the library of the late Prof. Hans Sachs, the eminent serologist, and would send particulars to anyone interested in purchasing. The collection includes long runs of *Centralblatt für Bakteriologie*, *Zeitschrift für Immunologie*, etc., numerous books, and a collection of offprints and "separata" from periodical and serial publications which total over ten thousand items in 119 labelled boxes.

Reports of Societies

PUERPERAL BACTERAEMIA AND SEPTICAEMIA

A discussion on this subject took place at the meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on Jan 18, Prof F J BROWNE presiding.

Mr. JAMES WYATT introduced the two openers whose contributions were based on work in the puerperal unit at the North-Western (L.C.C.) Hospital Hampstead where cases of puerperal infection have been concentrated since 1927. In 1936 a laboratory was established in the grounds of the hospital with Dr Cruickshank in charge and since that time every case has had a full investigation.

Bacteriological and Clinical Pictures

Dr R CRUICKSHANK said that bacteraemia had more than one definition. It might mean a transient invasion of the blood stream by bacteria from a local focus. But the type of bacteraemia into which most of his cases fell was a more persistent condition, which it was often difficult to distinguish from septicaemia. In many cases of puerperal infection there was a local focus from which a seeping or spilling took place into the blood stream and the resulting bacteraemia was of a more persistent type than was ordinarily found. His material was derived from over 2,000 cases in all of which blood cultures had been taken, usually on the morning after admission to the hospital. He divided them into post-abortion and post-partum pyrexia, 760 patients in the course of eight years had shown the former condition and 1,265 the latter. The number of cases of septicaemia relative to those of bacteraemia was much heavier in the post-abortion group. The first important factor was the age of the patient. A considerably higher incidence of septicaemia was shown in the age groups over 35. There appeared to be certain factors which predisposed to blood stream infections by organisms present in the genital tract. In the post-abortion group it did not seem likely that it was trauma to the genital tract which was the principal cause, the important factor was retained products. In the post-partum series a high incidence in primiparae indicated that trauma was important in the blood stream infection. There had been a decided fall in incidence since the introduction of sulphonamide treatment except in septicaemias in the post-abortion group. A fairly high frequency of infection with *Staph aureus* was demonstrated in the post-partum series, *B. coli* exhibited little tendency to produce septicaemia.

Dr A M RAMSAY said that bacteraemia was predominantly a feature of focus borne infection. Cases which had no clinical or bacteriological evidence of infection constantly showed what he had termed a reactionary pyrexia, he did not know the reason for it. The problem arose as to whether retained products should be left *in situ* on the ground that by undue interference infection would be spread. In the puerperal unit a careful *in media* had been adopted in that respect and the products were removed gently if it was possible to do so. Another point was the necessity for some objective criteria by which the degree of infection might be assessed before chemotherapy was instituted if a positive blood culture were found and chemotherapy then instituted one felt that one was cutting short an incipient septicaemia which might not be the case. The mortality rate from puerperal septicaemia was definitely falling before the era of the sulphonamides.

A Question of Nomenclature

Mr G F GIBBERD read into the openers' remarks a plea that blood stream infections should be classified into three groups: (1) a group which could be ascribed to an individual inoculation, (2) a group which gave the clinical picture of bacteraemia based on the fact that there were very few organisms in the blood that they were non-persistent and that the patient did not feel very ill, and (3) septicaemias in which many organisms appeared in the blood for a good many days and the patient

felt very ill. He believed it was a grave mistake to put patients into this grouping. Everyone would agree as to the first group. It could not be fair to regard a patient as seriously ill because she had organisms in her blood after a deliberate trauma. It was an advantage to separate the bacteraemia following a non-repeated trauma. But all the other cases should be put into one group and if there was objection to the word "septicaemia" some other term should be found. Septicaemia implied to the lay mind a very serious illness. Prof Ryle was so much upset on being called to see people who relatives thought them to be dying because they were said to have septicaemia that he declared that a distinction must be made between septicaemia and a condition in which bacteria were in the blood. Bacteraemia said Prof Ryle was not a clinical diagnosis but a laboratory finding, but he was immediately in difficulty because he had to invent a clinical disease in the case of people who had bacteria in the blood and were not very ill, and he called it "bacteraemic fever," which did not clear the issue at all. The speaker could not accept the view that those who were not ill were essentially different from—though they were more lucky than—those who were very ill. Dr Cruickshank had said that he regarded bacteraemia as a spilling over into the blood stream from a focus of infection but so was septicaemia. If the name must be changed let it give place to 'blood stream infections' arbitrarily divided into mild and severe. They should not bear the names of two different diseases.

Dr A J WRIGLEY said that they were asked as clinicians to say what they would do in the case of a woman who had had an abortion and was running a temperature. He had tried to recall a single case of a patient who was ill and who following the gentle removal of some retained products had become very ill and died. He could not do so. Dead tissue in the uterus would inevitably give a culture medium for anaerobes but no great trouble or illness need be expected unless the local resistance of the patient had been greatly lowered by tissue damage or loss of blood. The *Wichitana* organisms often appeared if looked for and one anticipated a very serious illness yet this did not develop.

Mr ALECK BOURNE agreed with Mr Gibberd that it was a dangerous thing to suggest that there was a difference between bacteraemia and septicaemia. A bacterial count might rise from 20 to 2,000 in 24 hours and he could not classify a case as bacteraemia if he had no means of knowing whether, on the following day, it might not show a virulent septicaemia. Those who had the management of these cases must be allowed to treat them according to clinical indications. Dr J V O'SULLIVAN spoke to the same effect. Dr CARLILE said that his work was in the depth of the country, where laboratory report arrived after the battle was over. It was of great importance to decide which were trivial temperatures and which were those demanding serious attention. For many years he had had two criteria which so far had never failed him. The first was headache and the second was a subjective sense of temperature instability, the patient feeling intermittently hot and cold. When he found these conditions with a rise in temperature he took drastic measures.

Dr MALCOLM DONALDSON said that he was taught as a student that septicaemia was a condition in which the organisms increased and multiplied actually in the blood though whether it was possible to discover that they did so he did not know. Prof F J BROWNE said that he had never made a distinction between puerperal bacteraemia and puerperal septicaemia. They were the same thing, and he thought the openers had introduced an unnecessary complication. The discussion was continued by Dr J M ALSTON, Dr MARY KENY, Dr FLEW, Dr J S McVINE, and others.

Openers' Replies

Mr JAMES WYATT said that he agreed with Mr Gibberd and Mr Bourne that the clinical picture was the important thing, and it was interesting that there did occur from time to time a temporary growth of organisms. They were still in doubt as to whether this temporary invasion was due to the virulence of the organisms or the lowered resistance of the patient, no doubt that would one day be determined. His own experience

was that the two factors of major importance in dealing with puerperal cases were the pulse rate—which was more important than the temperature chart—and a characteristic dry and furred tongue.

Dr. CRUICKSHANK said that he was quite unrepentant. He still thought "persistent bacteraemia" a good term, and he believed that the followers of the most conservative branch of medicine—the surgeons—were on his side. Some would suggest "mild blood stream infection," but why use four words instead of two? This term "bacteraemia" did describe the type of the infection. So long as the infection remained local, spilling over into the blood stream, it was a bacteraemia, but as soon as there was a generalized instead of a local infection (he did not think the organisms multiplied in the blood stream itself, but they did multiply in many foci of the body) it became a septicaemia. Septicaemia was a condition in which there was a progressive increase in the number of organisms in the blood stream.

Dr. RAMSAY said that there was no doubt that the diagnosis of septicaemia was essentially a clinical one. They had as a unit been doing routine blood culture on all cases since 1936, and therefore they had findings as regards blood cultures which anyone not doing such routine work would not get, and they could not honestly include all these cases as septicaemias. The qualitative count was a rough guide.

THE PHILOSOPHY OF MEDICINE

An introductory lecture entitled "The Search for a Philosophy of Medicine" was delivered on Jan. 22 in the Pollock Memorial Hall, Edinburgh, by Dr. DOUGLAS GUTHRIE, Lecturer on History of Medicine, University of Edinburgh. The chair was occupied by Principal Sir John Fraser.

Dr. Guthrie referred to the age-long quest for a theory or basis of medical knowledge and to the sects and "systems" which had been evolved from time to time in answer to this inquiry. The physicians of the Hippocratic school were the first to recognize disease as a natural phenomenon, neither sacred nor magical, and since their day medicine had been a battleground for all manner of theorists who were unwilling to follow the simple Hippocratic rules. Throughout a long career medicine had stood midway between science and philosophy and had been deeply influenced by current views in both those departments of knowledge. The philosophy of Descartes led to the appearance of a mechanical school of medicine, the iatrophysicists and iatro-chemists of the seventeenth century. It was Sydenham who showed a better way, by insisting that medicine could never become entirely scientific. There would always be an "art" of medicine, that elusive and unknowable factor which must be simply accepted.

The two great trends of present-day medicine, socialization and specialization, had added considerably to the complexity of the problem. Practice tended to outweigh theory, and the cultural basis of medicine was apt to be lost in a mass of technical detail. There was great need for a restatement of fundamental truths; in other words, for a philosophical approach to the study of medicine. The best, and indeed the only, means of finding such a basis was through a study of the past—the difficulties of the pioneers, the rise and progress of medicine from the earliest times to the present day.

HOSPITAL PHARMACY

At a meeting of the Society of Medical Superintendents (London and Home Counties Branch) Mr. R. H. HENRIKSEN, President of the Guild of Public Pharmacists, spoke on "Hospital Pharmacy." He recalled the events leading up to the formation of the Pharmaceutical Society in 1841 and the granting of its Royal Charter in 1843, and gave a brief survey of the statutory duties imposed on the Society by the Pharmacy Acts of 1852, 1868, and 1898, and the Pharmacy and Poisons Act, 1933. The Society maintains two Registers—one of chemists and druggists, and the other of pharmaceutical chemists, admission to each being confined to those who have passed the appropriate examinations and complied with other conditions. Only persons whose names appear in one of these Registers may use any of the following titles: Member of the Pharmaceutical

Society, pharmacist, dispensing chemist, dispensing druggist, chemist and druggist, druggist, or (if used in connexion with a retail business) chemist. The titles pharmaceutical chemist and pharmacist are reserved for use by those whose names appear in the Register of Pharmaceutical Chemists.

Mr. Henriksen next considered the functions of the Pharmaceutical Society, with particular reference to its research laboratories and college, which is a School of the University of London, and described the training of the pharmacist. Discussing the proper functions of the hospital pharmacist, he pointed out that many hospitals did not in fact utilize fully the services of their pharmacists, owing to lack of adequate accommodation, equipment, or staff. Since every advance in medicine meant more work for the pharmacist it would be essential, to ensure a satisfactory hospital pharmaceutical service, not merely to restore staff and equipment to pre-war levels but to reach the much higher standards now necessary, and attention must be given to the serious problem of bringing into hospital service an adequate number of the highly trained pharmacists who were showing an increasing tendency to take up other fields of work because of the better salaries, conditions of work, and prospects offered in other branches of the profession.

The chief points in the report on the development of the tuberculosis services which was presented to a recent meeting of the Joint Tuberculosis Council were: (1) tuberculosis work should be organized regionally, joint boards having executive powers being set up for the purpose; (2) the areas served by the boards should be approximately the same size as the new regions under the projected National Health Service, but local administrative units should serve a population of about 250,000; (3) the environmental and preventive aspects of tuberculosis work should not be divorced from the clinical; (4) the senior clinical tuberculosis officer for each region should have right of access to the joint board; (5) there should be opportunities for promotion which would provide incentive for the best clinicians to devote themselves to the work; (6) the clinician in tuberculosis should be recognized as a specialist and accorded appropriate rank and pay. At the same meeting the council approved the final draft of a memorandum of advice on Mantoux conversion of hospital and sanatorium staffs. Copies of this and of the Development Committee's report may be had from the hon. secretary of the Council, Dr. Norman England, 1, Becket Street, Oxford. Dr. D. P. Sutherland, Manchester, was nominated as next year's chairman.

A new medical society has recently been formed in Buckinghamshire called the Mid-Bucks Medical Society. The first meeting of this society took the form of an inaugural dinner at the *Bull's Head*, Aylesbury, at which some 60 founder members attended. An address was given on the purposes and functions of medical societies by the President, Major-Gen. Sir Heneage Ogilvie. The chairman of the Society is Dr. J. W. Craig, of High Wycombe, and the treasurer and secretary Mr. W. D. Lovelock-Jones, of Amersham.

U.N.R.R.A.'s DENTAL WORK

U.N.R.R.A.'s dental consultant in London is Lieut.-Col. G. A. Nevitt, Public Health Service, U.S.A. With his assistance the Health Division has arranged for the following dental services to be provided. All displaced persons either in refugee camps in the Mediterranean area (Palestine, Egypt, and Italy) or in displaced persons camps in Germany and Austria who desire dental treatment may obtain extraction, insertion of permanent fillings, treatment of diseases of the mouth, and replacement of missing teeth where such replacement is essential for the maintenance of health and efficient mastication. The dental service for displaced persons in Palestine and Egypt has been in operation for over two years. Dental care for about a million displaced persons in Germany is now one of U.N.R.R.A.'s problems. A programme for these people has been in operation for more than six months, and there are six U.N.R.R.A. dental administrators (dentists with public health experience) in Germany, assisted by displaced persons with dental experience, and where these are not available German personnel is employed. Dental aid is being given by U.N.R.R.A. in Greece; 100 complete dental units and supplies have been dispatched, and more will be sent later. Six dental scholarships have been arranged for Greek dentists for post-graduate work in America and Great Britain, and it is hoped to provide similar services in other places where U.N.R.R.A. works. Lieut.-Col. Nevitt is preparing to go to Poland on a combined lecture tour and survey to advise on the dental situation and the necessary programme for dental work.

Correspondence

Cardiac Massage

SIR—Mr Hamilton Bailey (Jan 5 p 29) does well to insist on the vital importance of speed in commencing the treatment that really matters in cases of cardiac failure during operation and on the futility and danger of wasting time on artificial respiration. When however, he couples the injection of adrenaline with artificial respiration as merely another means of wasting precious time I must venture to join issue with him. I consider it a positive cancer. We take infinite trouble when injecting a local anesthetic in a patient with toxic goitre to avoid injecting the least quantity of adrenaline into a vein for fear of causing the heart to stop in ventricular fibrillation, and yet we are urged by some authorities to inject heroic quantities of this highly dangerous drug into a heart that has already stopped. In my view any success that may have attended such treatment is due to the mechanical prick of the needle stimulating the ventricular wall combined with a failure to inject any adrenaline into the cavity of the ventricle. Believing this, I have long abandoned the use of adrenaline as positively dangerous but I regard the insertion of a needle into the wall of the ventricle as the quickest method of inducing the arrested heart to resume its beats. The needle need not be a hypodermic one, a long fine skin needle is equally effective. It can be thrust into the ventricle through the chest wall, or through the diaphragm if the abdomen is already opened, without more than a few seconds' delay. If the puncture fails cardiac massage through the diaphragm can be started at once, but I have found more than once that the prick has been enough to start the heart beating again without any need for massage. Where as in thyroid operations one has no intention of opening the abdomen this is an obvious advantage—I am, etc.,

Manchester

JOHN MORLEY

Paralytic Ileus

SIR—As one who has been keenly interested in the prevention and cure of post-operative complications during the past fifteen years may I make some comments on paralytic ileus, which has recently been under consideration. It is indeed encouraging to see that general interest has advanced beyond treatment to the preventive stage. Mr J T Chesterman and Dr W J Sheehan are to be congratulated on their paper (Oct 20, 1945 p 528) which has reawakened interest in this most important condition. The periodic exchange of views on these old but consistently recurring problems does nothing but good in helping to clarify our ideas.

I cannot help feeling that while their practice of using morphine as a preventive of paralytic ileus is sound their explanation of its action (Mr J T Chesterman Nov 24 p 740) is not the whole story, for they and Prof J H Burn (Nov 3, p 622, Dec 8, p 817) are almost exclusively preoccupied with its local action on the bowel. Let us first of all consider some of the causal factors in paralytic ileus. The predisposing factor is the nervous patient, the highly strung, imaginative, sensitive patient, the frightened patient, the patient whose increased sensitivity is not combined with and tempered by an equal increase in courage. The dim-witted fowl or bovine country clod never develops ileus, not having enough imagination to realize what is happening or to be afraid. Nor does the highly intelligent and sensitive but highly courageous individual usually, though he might be very frightened. The exciting causes are pain especially if severe and prolonged without relief or remission, infection, especially if intraperitoneal and in the mid- or upper abdomen, dehydration by vomiting or sweating or deprivation; physical exhaustion and starvation, exposure to the elements, and, most important poor anaesthesia and bad surgery. The latter group includes rough handling of tissues, especially viscera, extensive cooling and drying of peritoneal surfaces, severe loss of blood before during or after operation. The precipitating cause is the failure to prevent slight and early post-operative distension from developing into frank paralytic ileus.

While Mr Chesterman and Prof Burn have quoted conflicting views on the local action of morphine on the bowel, I feel that they have both almost completely ignored the central part of effect of this most valuable drug. Surely as nervousness and fear fatigue and pain are such important factors in the production of ileus, the liberal administration of morphine will be most beneficial in its prevention and cure. In planned operations it is essential to ensure sound sleep and alleviation of apprehension prior to operation. Apart from fear there is little else we can do about the predisposing factors. As regards the existing factors, pain must be controlled as far as possible before, during and after operation. It is very wrong for the doctor or nurse to withhold morphine for it is needed on the specious grounds of the risk of drug addiction. This will not develop with the generous use of morphine for the first few days following operation. Once the surgeon has done his best operatively, sleep and freedom from pain are of inestimable value in promoting speedy recovery. The other exciting factors must be dealt with so far as possible before operation, and perhaps during and afterwards also. Good anaesthesia with careful and gentle handling of tissues are of supreme importance. As regards the precipitating cause, eternal vigilance and prompt action are the answer here. To delay until the ileus is well established is to court disaster. While morphine may have some local action in preventing and overcoming ileus, I have used it more for its central effect in association with physostigmine, which is advocated by Prof Burn. But I have found synthetic physostigmine (prostigmin) more effective, and during the past ten years have had only one failure with the scheme of treatment I described earlier on (*Lancet*, March, 1940). This combines physiological stimulation with the "morphine and rest" scheme. My system is to inject prostigmin 1 ccm (0.5 mg) subcutaneously repeat it in half an hour and follow with an enema capon's in another half-hour. The prostigmin sensitizes the bowel and the enema pulls the trigger with a resultant expulsion of flatus fit to blow the house down. Then morphine (or omnopon) is given to ensure a sound sleep for several hours after which the patient looks and feels quite a different being. As Prof Burn and Mr Chesterman mention prostigmin may produce nausea and vomiting even abdominal colic, and sometimes some collapse with fall in blood pressure. For the nausea and colic Prof Burn advocates a smaller dose. I have tried giving 0.5 ccm (0.25 mg) doses of prostigmin at quarter hourly intervals in debilitated patients, thus, avoiding the untoward secondary effects, but usually with less success in overcoming the ileus. Anyhow these unpleasant reactions are short lived and seldom severe and of only minor importance compared to the benefit gained as regards the ileus. To prevent collapse in ill patients coramine or anacardone (mefenhamidum B.P.) is administered when necessary. The prognostic sign relied upon beforehand is not so much the degree of distension or size of the abdomen as the tension of the distended abdomen—i.e. the more tense the more serious and the more difficult to treat successfully. Also the success of treatment is caused not so much by the amount of faeces and flatus passed as by the increased softness of the abdomen afterwards.

It may be as Mr Chesterman says that prostigmin used thus does not produce "any true peristalsis" or "lasting increase of tone" though it temporarily causes "marked intestinal contractions" for it is sometimes found necessary to repeat the course of treatment daily, or perhaps more than once each day for several days. (After that enemata alone usually suffice.) And perhaps he will attribute the success that has invariably followed (except for one case) to the associated use of morphine, in spite of the evidence quoted by Prof Burn. But I know that my scheme has worked successfully during the past ten years. My use of morphine is in agreement with Mr J J Robb (Dec 29 p 938) who says "My own belief in morphine not as a specific but as an almost essential adjunct in the treatment of ileus, remains unshaken."

Perhaps brief reference might be made to the other forms of treatment still described in many textbooks though archaic and mostly quite ineffectual in true paralytic ileus. Associated aperients and/or enemata are usually quite useless. Passage of a flatus tube, still the delight of some sisters and nurses, cannot do more than deflate the rectum and lower pelvic colon at most, and carries grave risks of perforation of the distended

and thinned bowel wall, the acute kinking of which prevents its further passage. Repeated fractional subcutaneous injections of pituitrin and/or eserine (physostigmine) have been equally inefficient, in my experience, as prophylactic or cure. Pituitrin by intravenous injection produces violent contractions of the bowel by direct stimulation of plain muscle, but also most severe and dangerous collapse of the ill patient. Fortunately ileostomy is seldom done nowadays, for rarely can more than a foot or two of bowel be deflated, and the struggle to close the abdomen over the still-distended gut is most shock-producing to the patient. Among more recent methods of treatment, gastric suction through the Miller-Abbott tube has its supporters. But I feel that it deals with only one manifestation of the paralytic ileus—the regurgitation of small-bowel contents to the stomach, and vomiting. Admittedly this fluid is most toxic to the patient if absorbed, and its removal is both a boon and a blessing. Furthermore, with gastric suction going on, fluid can be taken by mouth to help overcome the tendency to dehydration and to act as a gastric lavage. Also, and most important, such gastric suction saves the patient the distress and fatigue of vomiting. And one must replace the fluid and chloride by intravenous saline administration to prevent dehydration and alkalosis. But in true paralytic ileus I do not believe that peristalsis will begin spontaneously after the stomach has been emptied, and so carry the tube down to the jejunum and ileum.

So one has still to deal with the functional intestinal obstruction, which, in my experience, is best done by the combination of prostigmin, an enema, and morphine.—I am, etc.,

Mount Vernon Hospital,
Northwood.

ALAN SHORTER.

Transverse Abdominal Incisions

SIR,—In the *Journal* of Jan. 12 (p. 63) I am reported to have stated at the meeting of the Section of Surgery of the Royal Society of Medicine on Jan. 2 that "the transverse incision had the disadvantages that it took a long time to make . . . and left a weak abdominal wall, so that hernia was prone to arise afterwards." I should be grateful if you would permit me to contradict this statement, as it is contrary to my experience and my teaching concerning this valuable type of abdominal incision.

There is obviously no standard method of opening the abdomen, and the choice of incision must necessarily depend upon many factors, such as the organ to be investigated, whether the disease is acute or chronic, whether speed is essential or not, the age and build of the patient, the accuracy of the diagnosis, the presence or absence of scars or herniae of previous operations, and so forth. In my opinion vertical incisions would appear to be indicated in the abdominal surgery of infancy, when the diagnosis of the case is uncertain, where for one reason or another speed is imperative, and for acute perforations and peritonitis. Transverse or oblique incisions are, however, to be preferred for operations upon the gall-bladder and bile ducts, pancreas, spleen, and colon, for recto-sigmoid resections, for minor pelvic operations, for appendicectomies, and for such procedures as gastrojejunostomy and partial gastrectomy.

Transverse incisions are of two distinct types: (1) muscle-dividing, such as Maylard (1907), and (2) muscle-retracting, such as Pfannenstiel (1900). Transverse incisions have the following advantages when compared with vertical incisions: (1) The scars are less visible, as they are made in Langer fissure lines; (2) exposure and drainage (when required) are both better, and less retraction is necessary; (3) closure of the wound with interrupted silk sutures is easier and more secure; (4) chest complications are rare; owing to the comparative absence of pain with such wounds the patients are not afraid of cough and are able to get out of bed a day or two after a major operation; (5) ventral hernia is seldom encountered.

It is nevertheless true that transverse and oblique incisions through the abdominal wall take longer to make and to close, and that bleeding is more profuse and troublesome than is the case with vertical incisions. There is, however, no truth in the statement that sectioning one or both rectus muscles is followed by some anatomical or physiological impairment of the abdominal musculature, as I have been able to satisfy myself that the muscles when healed simply present an extratendinous intersection without any functional disablement.

The criticism that should infection follow the use of transverse or oblique incision such complications as dehiscence of the wound, eversion, and ventral hernia are relatively common events is certainly not substantiated by a careful follow-up of my own cases or by a study of the published figures. V. L. Rees and F. A. Collier (*Arch. Surg.*, Chicago, 1943, 47, 136) in 225 consecutive epigastric incisions had only one case of herniation and no case of dehiscence. A. O. Singleton (*Proc. Inter-State post-grad. med. Ass., N. Amer.*, 1944, p. 101), in his review of 9,000 consecutive abdominal operations, found that in the first group of 3,147 cases in which transverse incisions were employed there was only one case of wound disruption (0.031%) and 29 herniae (0.92%); whereas in the second, of nearly 6,000 cases, in which vertical incisions were used there were 60 wound disruptions (1.0%) and 131 post-operative herniae (2.2%).

During recent years I have employed Maylard's epigastric rectus-dividing incision (*British Medical Journal*, 1907, 2, 895), making the skin incision somewhat crescent-shaped with convexity upwards, in a large number of operations upon the stomach, duodenum, and pancreas, with the most gratifying results, and I have yet to see a case of functional impairment of the rectus muscles or of ventral hernia following the use of this valuable incision.—I am, etc.,

London, W.1.

RODNEY MAINGOT.

Post-haemorrhagic Blindness

SIR,—Sir Adolphe Abrahams's views (Jan. 12, p. 65) referring to Dr. James Black's interesting article on blindness after haematemeses coincides with personal experience on this subject. Having had occasion to consult the literature for purposes of publications to which Dr. Black so continually referred one must admit that it was not very illuminating, especially from the pathological point of view. Although many theories have been advanced—toxaemia, anoxaemia, visceral reflex action, etc.—as to the considered cause of this phenomenon, could not its production be related in some way to associated vascular degenerative change?

I do not know what the average age incidence of all recorded cases is, but it seems an unlikely development in younger people suffering from haemorrhage of any kind. No cases were recorded in the 1914-18 war (Macrae, A., *Clin. J.*, 1928, 57, 37), and Sir A. Abrahams has drawn attention to the fact that examples have not been forthcoming from military surgeons. The meridian of life or after is probably the era when this rare complication manifests itself. Dr. Black's case was that of a man aged 53, Sir A. Abrahams's were both middle-aged women, while mine was in a man of 55. One therefore wonders whether or not some simple explanation, such as loss of elasticity of the retinal vessels in association with their sudden emptying and sticking together of their walls, could not play a major part in this unusual complication.

I should like to endorse Dr. Black's final commendation as to the adoption of routine inspection of the fundi in order that all possible steps may be taken to overcome, if possible, such a tragic calamity.—I am, etc.,

Edinburgh.

C. KELMAN ROBERTSON.

SIR,—Dr. James Black's case of blindness following haematemeses (Dec. 29, p. 920) gives an interesting record of this rare event. Terson, in 1922, reviewed 250 published cases. A true perspective of the rarity of this condition was clearly shown to me when I searched through the records of the Royal Eye Hospital, London, in 1936. I was then collecting cases of sudden blindness due to the occlusion of the central artery of the retina and its branches. The records of all patients who attended at the hospital for six years (1931-6) were examined and only one case was found of unilateral blindness following a haematemeses. During the same six-year period 54 cases of occlusion of the central artery of the retina and its branches were seen at the hospital, and 205 patients who were suffering from thrombosis of the central retinal vein and its tributaries. The hospital attends, on the average, to 30,000 new patients a year. This investigation of hospital records demonstrated that only one case of post-haemorrhagic blindness was seen at an eye hospital among over 150,000 new patients. Most observers now agree that marked constriction (narrowing of the retinal arteries) is the most prominent feature of the ophthalmoscopic

picture of this disease when seen soon after the attack of sudden blindness.

Pallor of the retina, small retinal haemorrhages, and occasional retinal oedema and papilloedema are other inconstant features. In all cases optic atrophy with very narrow retinal arteries is the final late result. This ophthalmoscopic picture is so similar to the one seen in cases of occlusion of the central artery of the retina due to thrombosis or embolism of the retinal arteries that one is led to conclude that sudden spasm of the retinal artery followed by thrombosis is probably the most common cause of post-haemorrhagic blindness. In the treatment of post-haemorrhagic blindness most ophthalmologists assume that the central artery has suffered from a sudden occlusion, and the measures adopted are (1) to raise the general blood pressure and (2) to lower the intraocular pressure of the eye with massage of the eye, miotics, and paracentesis of the eye.

Subconjunctival injections of acetylcholine might also help to relieve the angiospastic condition of the retinal circulation.—I am, etc.,

London W1

J. MINTON.

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SIR.—On Nov. 29, 1944, a man aged 54 years was fastening the gates and doors of the foundry in which he was employed as night watchman. He tripped over a plank and fell, injuring his left leg. There was a fracture of the left tibia at the lower third. This was treated. On Jan. 29, 1945, while still in hospital, he had a severe haematemesis for two days and melæna for several days. He noticed his sight failing. By Feb. 13 he was completely blind. I examined him on Feb. 17 and found that he had double optic atrophy. I was asked by his employers' insurance company to report on his case as he was starting a claim against his employers maintaining that the blindness was the result of the accident to his leg. He was admitted to the Royal Victoria Eye and Ear Hospital, Dublin, for the purpose of investigation under my care.

His Wassermann reaction was negative; x-ray examination of skull revealed no intracranial lesion and the general contour of the skull was normal. The radiological findings as regards the gastro-intestinal tract indicated almost complete stenosis of the pylorus. The general appearance according to the radiologist was typical of a malignant lesion. During the week he spent in this hospital there was frequent haematemesis. He died a few days later.

The medico-legal aspect of this case is interesting. One is left wondering whether the optic atrophy had been present for some time as a result of secondaries in the brain and whether the loss of blood was the final decisive factor in producing blindness in an already defective vision.—I am, etc.,

Dublin

HARRIS TOWNIN.

Homosexuality

SIR.—Public opinion, or at least that part of it which makes any pretence of serious thinking, has been disquietened by a recent case in which a scoutmaster was sentenced to fourteen years' penal servitude for immoral conduct with boys. Previous sentences of three years and six years had also been passed upon the same man, who is now 46, so that at the end of his full term, at the age of 60, he will have served no less than twenty-three years in gaol.

The popular horror aroused by the nature of the offence is such as to overshadow certain other aspects of this unhappy case, which, in an altogether different sense, are disturbing. It is now generally conceded that the majority of cases of homosexuality yield to treatment by psychotherapeutic measures, and the symptoms, often no less distressing to the patient himself than to society in general, if not cured can at least be alleviated to such an extent as to bring them under control. This being so, surely the responsibility lies with the medical authorities of the prisons in which the patient has already served nine years of his manhood to attempt some form of medical treatment while he was under their care. A grave sexual malady cries out for treatment just as loudly as a broken leg or acute appendicitis, and, although a prisoner during the time of his

detention surrenders the greater part of his personal liberties, he retains certain civil rights, of which the right to receive adequate and skilled medical attention is among the most important. It is this which distinguishes (or should distinguish) an English prison from a Continental camp.

The prison medical service, however, has its limitations, and among these is an ignorance of sexual abnormalities, which it shares with the great bulk of the medical profession. During the course of my own somewhat prolonged student and post-graduate days I received no clinical instruction whatever on sexual matters outside the narrow confines of midwifery and gynaecology, and even there the somatic approach completely predominated over the psychological. Contraceptives and the hygiene of marriage were never touched upon, while the sexual perversions were given scant notice in a few pages of medical jurisprudence which the student was expected to read, but upon which no lecturer was ever called upon to speak. That is how matters stood some 15 years ago, but if things have moved for the better the change has not yet been reflected in the pages of the *Journal*. I cannot claim to have read every issue as thoroughly as I might, but I do at least glance through the contents; I do not recollect seeing during the last ten years a single article, letter, clinical note, or other reference to homosexuality. This statement of course is subject to editorial correction, but the fact itself is certainly not due to editorial censorship, as the publication of this letter is itself a witness. Even in the freest of free countries the *B.M.J.* stands pre-eminent as a magnificent example of journalistic freedom; its pages are open to all who write with sincerity and obey the ordinary canons of literary decency. The long and bitter discussion on artificial insemination, which followed the publication of Kenneth Waller and Mary Barton's outstanding article last year, is proof that, in the pages of the *B.M.J.*, the ban is lifted from that most taboo of all subjects, male sexuality. The complete absence of any mention of sexual inversion in the volumes of the leading medical journal in the world, not being due to censorship, can be symptomatic only of an apathy and ignorance on the part of the profession which would be classed as abysmal were it not if anything exceeded by the untutored superstitions and perverted ideas of the public at large.

Surely it is now time to remedy this state of affairs. If the general public, together with the responsible authorities in other professions, are to be guided in this matter of homosexuality, it is without doubt to the medical profession to which they must look for the lead. It may reasonably be argued that topics such as this do not fittingly belong to the student curriculum; but they are nevertheless of first-rank importance to the general practitioner, to whom these unhappy patients often turn as the one friend who they know can be trusted. When one recalls the estimate given by Havelock Ellis that in 2% of the population, both male and female, there is some degree of sexual inversion, the magnitude and importance of the subject cannot be overlooked.

Not only is there the enormity of retributive sentences being passed upon patients who should be given all the benefits that psychology has to offer; there is also to be remembered the loss of potential mothers and fathers among those whose instincts have been diverted up a biological blind alley. But far greater even than these weighty considerations is the debt owed by humanity at large to these unfortunate inverts, in this country alone numbering several hundred thousand, who owing to causes which are quite beyond their own control, being abnormal in their endocrine make-up or unhappy in the environment of their early childhood, are deprived alike by Nature and by society of the reasonable satisfaction of instincts which are the foundation of human happiness.—I am, etc.,

Hayle, Cornwall

D. STANLEY-JONES.

Physical Therapy in Mental Disorder

SIR.—It seems to me wrong to make an absolute correlation between physical methods of treatment and such methods as electro-convulsive therapy and leucotomy. The objection to these methods is not that they are physical but that they are destructive. There is no doubt that there are many physical methods of treatment which are valuable in cases of mental illness. These two methods ought rather to be referred to as

electrical and surgical destruction of the prefrontal areas. These areas of the brain are generally acknowledged to have a close relation with the development of the higher faculties of the personality. It seems that many cases of mental illness arise just through the development of finer qualities—a higher sensitivity, a more delicate conscience, for instance. The conflict between these and the more animal tendencies produces the illness. This can then be resolved into one of two directions—either a higher synthesis is achieved and the personality can continue to live at a higher and more creative level, or the lower qualities gain the upper hand. Destruction of the physical basis of the higher faculties precludes the former solution. The personality is then thrown back to the former level, or usually somewhat lower, and this is then regarded as a cure by the inaccurate observer.

Does Dr. Jan Frank (Jan. 19, p. 104) really believe that the average mental hospital doctor is really capable of discerning genius? (And why should genius be referred to as a "creative crank"? Surely the crank is the man whose only idea of curing mental illness is by pressing the button of the E.C.T. machine.) Far too often the mental hospital doctor is below the level of many of his patients in general culture and intelligence. Even if this were not the case, history has shown too often that humanity as a whole has been incapable of recognizing genius until too late. Many people of genius have had short mental illnesses, which have sometimes been a prelude to a creative period, which could not have been anticipated before or during the illness.

Why does Dr. Frank refer to the opponents of fore-brain destruction as "pure-mind" mystics"? It is just because we acknowledge the relation between the physical brain and the mind and personality that we object to the destruction of the brain. If we truly suffered from an "obsolete metaphysical assumption of body-mind dichotomy" then we could not possibly object to the destruction of the brain, because this would be quite incapable of affecting the mind. We are just as anxious as he is for the progress of clinical psychiatry, but we believe this progress is being obstructed by the present craze for destruction.

Is psychological treatment ever really conscientiously carried out in the present-day mental hospital? I worked in a hospital for 370 patients, including an unusually high proportion of early treatable cases. The medical staff consisted of two—the superintendent and myself. The former was much too busy with administration to do much therapy. With the best will in the world I could not tackle the large number of quite suitable cases adequately, even if I had worked through the 24 hours. No wonder the electric button is popular.

Our objections to these methods are based not only on theoretical grounds but on a study of the actual results. The late R. D. Gillespie, in a statistical review of electrical treatment of schizophrenia from material collected throughout the world, showed that the percentage of spontaneous recoveries actually exceeded slightly the percentage of recoveries in cases treated by E.C.T. From personal observation I was convinced that the chances of many young people making a really sound recovery in both this and the affective type of psychosis were prejudiced by electrical treatment. We frequently have the wrong attitude to mental illness: the real illness often precedes the appearance of frank abnormalities, and these should be regarded as Nature's reaction to an abnormal way of life. If the illness is simply cut short by violent methods the patient all too often has to be admitted again after a short time, whereas if the whole process is allowed to work itself out a permanent cure may be established. Mental illnesses take a much

longer course in time than most physical illnesses, and patience is needed in both their treatment and the estimation of results. Often the results of these methods are dishonestly summarized by their advocates in journals of general medicine. If one turns to the original papers one finds such results of leucotomy as a rapid dementia, epilepsy, permanent incontinence of urine or even faeces, a previously quiet patient develops disgusting habits, etc. But much more serious is the destruction of the finer imponderable qualities of the personalities, which sometimes makes one feel when faced by these victims that the true individuality, the really human personality, is no longer there.

A serious matter which has come to my notice recently is the way in which friends and relatives of the patient who object

to these methods are treated. Often they are bullied into signing a statement that they agree to any method of treatment which the hospital staff think fit. If they object to electrical treatment they are sometimes threatened with the immediate discharge of the patient—a serious matter when the relatives are too poor to afford private treatment. It ought to be possible for relatives of a patient to obtain independent consultant advice on a patient in a public mental hospital, but this is indignantly refused by the hospital staff. Lastly, it is not true that no responsible psychiatrist recommends leucotomy before all other methods have been tried. Leucotomy as a primary measure has been openly advocated by Fleming in the *Journal of Mental Science*. The time seems to me ripe for securing the protection of patients and relatives against leucotomy by adequate medico-legal sanctions, and I shall be interested to hear from psychiatrists who would like to organize against this terrible method of treatment.—I am, etc.,

London, N.W.3.

T. H. B. GLADSTONE.

Tuberculosis in Childhood

SIR,—After Prof. Moncrieff's lecture comes Dr. W. F. Gaisford's article on primary tuberculosis in childhood (Jan. 19, p. 84), and one may expect shortly other signs of the activities of the paediatricians. On reading their association's two memoranda on tuberculosis and rickets a malicious observer might remark that the association comes out in the open only when the enemy is already in retreat. For there seems little doubt that childhood tuberculosis as a cause of death is declining fast, while rickets has long ceased to be a preoccupation of the busy doctor. Dr. Gaisford refers to the meeting of the paediatricians with the Tuberculosis Association, and, indeed, it was a valuable meeting, for it showed that the two groups had differing ideas of the disease; the phthisiologists were thinking of their scores of dead and dying adults, of their hundreds of men and women struggling through months and years to regain some degree of health and confidence. The importance attached by the paediatricians to childhood tuberculosis seemed almost dilettante.

First infection, an event almost always innocuous, "tuberculosis" whose only sign is the presence of a positive Mantoux test are hardly the causes to which ought to be devoted a great deal of time, energy, and money just now. Further, the mortality and morbidity, such as they are, from childhood tuberculosis will not yield to direct assault, but will rapidly respond to the hygienic education of the infectious adult and to the amelioration of the social circumstances of the family. In my own district of 140,000 people with a tuberculosis mortality of 61 per 100,000 there is on the average one death each year under the age of 5. It doesn't seem a great problem. One sees hundreds of children with positive tests and dozens with quite large primaries, all of them apparently well. The occasional case which is clinically ill requires rest like any other ill child. One child a year dies despite, perhaps, rest and the best of home circumstances, and such children appear to be like guinea-pigs, in whom the disease follows an inevitable course. Perhaps B.C.G. would protect them.—I am, etc.,

Chest Clinic, Edgware.

STEPHEN HALL.

SIR,—Dr. W. F. Gaisford's generally helpful paper reveals that the supposed divergence of views of the Tuberculosis Association and the British Paediatric Association is due to reliance, on the one part, on well-founded statistics and, on the other part, on "clinical experience." Dr. Gaisford's contention that those who work in children's hospitals see "scores of infants dying of tuberculous meningitis" cannot, however, be allowed to pass without some comment.

The average number of deaths from all cases of tuberculous meningitis for the whole of England and Wales (and this must surely include more than "infants") has for a number of years been fewer than 2,000 per annum. How is it, then, that individual paediatricians see "scores of infants dying from tuberculous meningitis"? Are death certificates being widely falsified throughout the country in the same way that Dr. Gaisford admits omission (intentional or otherwise) of notifications of Tb.? I find it difficult to believe. There is, I think, another explanation. Children's hospitals and the children's wards of general hospitals might reasonably be expected to admit a very

large proportion of all cases of meningitis, including tuberculous. This will give the impression to those treating them that this is a very common disease; hence the error that "clinical experience" unbacked by statistical checking gives. There are not, of course, "scores of infants" dying in every hospital in the land from tuberculous meningitis, but "clinical experience" makes it appear that it is so.

I sympathize with the views of Dr. Gaisford and other paediatricians. I myself have worked in a children's hospital and know the heartbreak of seeing children die and know that one is unable to help them. But this human feeling should never cloud one's wider judgement. The Registrar-General's figures for mortality are hard facts, and are, I contend, more reliable than "clinical experience." It is neither necessary nor helpful "to make mountains out of molehills."—I am, etc.,

Stacey, E.I.

R. M. ORPWOOD,
Tuberculosis Officer.

Control of Malaria in the Tropics

SIR.—In your leading article (Dec. 8, 1945, p. 808) on the control of malaria in the Tropics the eradication of *Anopheles gambiae* in Brazil is discussed, and Dr. George Macdonald is reported as foreseeing "similar operations in Mauritius, the Seychelles, and other places where conditions are favourable." This inclusion of the Seychelles surprises me. During a visit to Mahé in October, 1943, I was given to understand that there were no anopheline mosquitoes on the islands and that malaria did not exist. Great care was being taken to fumigate all ships and aircraft arriving at the port, and unless these arrangements have broken down I should imagine that a campaign to eliminate *A. gambiae* from the Seychelles would be rather unnecessary.—I am, etc.,

Alexandria,

R. H. TOWNSEND,
Surg. Lieut., R.N.N.R.

Amoebiasis

SIR.—In Mr. J. K. Willson-Pepper's "Impressions of Surgery in West Africa" (Dec. 8, 1945, p. 812) the following passage occurs: "... In my experience of this disease [amoebic dysentery], if ulceration does not come within the range of the proctoscope it is very unlikely to come within that of the sigmoidoscope, which probably means that it is not there at all. Provided certain elementary rules are observed, the chances of an immediate and accurate diagnosis with this simple and safe instrument are extremely high. The rules are these: (1) Don't give any form of treatment to the patient for 48 hours before examination, especially any rectal lavage. (2) Don't use a proctoscope which has been clipped in any antiseptic. . . ."

The above appears to contain certain dangerous and misleading fallacies in the approach to amoebiasis. First, that in amoebic dysentery our interest in the visible mucosa begins and ends with the discovery of ulcers. Nothing could be further from the truth, for this is to ignore the equally significant and characteristic lesions of pin-point craters and "pig-skin" appearance. Secondly, as a consequence, the use of the sigmoidoscope can be supplanted by that of the proctoscope. In a very large percentage of cases, in my experience, the only visible lesions are at 5, 6, and 6½ in. (12.5, 15.0, and 16.25 cm.) from the anal margin. Such lesions, it is true, seldom take the form of classical ulcers, but I have on several occasions seen isolated yellow-headed ulcers at 6 in. (15 cm.), the remainder of the visible mucosa appearing quite normal. The suggestion is reinforced by referring to the proctoscope as "simple and safe," the sigmoidoscope, by implication, being less simple and safe. Surely, with reasonable gentleness and care, there could be no safer instrument? Thirdly (though this is perhaps hardly a fair deduction), "Rule 2" might be taken to imply that the practice of sterilizing the proctoscope by an antiseptic is not unknown. I am sure that Mr. Willson-Pepper would be the first to agree that sterilization by thorough boiling of any rectal instrument is the only possible method when dealing with a series of potential cyst-passers.

Incidentally his practice of giving no preparation for proctoscopy is infinitely preferable to the elaborate and exhausting wash-outs, etc., which are occasionally inflicted on the patient, and in my experience will give about 80% efficient preparation. But one or two weak soap or bicarbonate enemas given three hours before the examination usually yield 100% adequate

results, obviating the annoying necessity of having to send away a percentage of patients until another day.

I feel impelled to call attention to these points, and to the imperative need for the maximum competence and knowledge to be applied to the diagnosis of amoebiasis in the United Kingdom in view of the great numbers of low-grade infections which without doubt will declare themselves amongst those members of the population who have served in Eastern theatres of war. Responsibility for detecting such cases will in most instances devolve upon the general practitioner.—I am, etc.,

Northam Command, India.

C. F. J. CROPPER,
Major, I.A.M.C.

The E.S.R. Technique

SIR.—I feel that an apology is needed for once more taking the field on this subject, but Dr. H. S. Gaskell's letter (Dec. 29, 1945, p. 940) contains an error of such magnitude that it should not be allowed to pass. Thus he says "it is obvious that the higher the column of blood the greater will be the amount of clear serum to be read off." (It is not serum, of course, but let that pass.) "If you take a column 100 yards high the normal fall will be about 4 yards, whereas if 160 mm. be taken it will be about 4 mm." I can assure Dr. Gaskell that this observation, so far from being obvious, is just positively not true, as a single practical observation will suffice to show. If Dr. Gaskell were a non-swimmer he would not drown five thousand times faster in the deepest part of the Pacific than in the deep end of the local swimming-bath, though the principle is similar. In actual point of fact a normal case will give the same result almost whatever column length is used. It is only in the faster rates that a short column produces an effect on the result through the earlier onset of "packing." Theoretically a column of infinite length is ideal, but in actual practice the Westergren length of 200 mm. is the best.

It seems to me that Dr. Gaskell's instructions make rather unnecessarily heavy weather of the task of filling the pipettes. These are only more difficult to fill than an ordinary chemical pipette because they are not "throttled" at the tip. It is, however, a very simple matter to "throttle" them against the bottom of the specimen-tube when filling them and when running the level down to the mark. No chemist would think of using a wetted finger for this purpose, and surely no reputable firm sells sedimentation tubes with jagged ends.—I am, etc.,

Howard's Heath.

J. W. SHACKLE.

Spinal Analgesia in Obstetrics

SIR.—As the author of the first two papers on the use of heavy (hyperbaric) nupercaine in obstetrics (*J. Obstet. Gynaec. Brit. Emp.*, 1942, 49, 247; 1944, 51, 324), I have read Dr. Louis Resnick's article (Nov. 24, 1945, p. 722) and the correspondence which has followed with more than usual interest. I am pleased to see that Resnick was able to confirm the conclusions I came to during my experience of 200 Caesarean sections under heavy nupercaine spinal analgesia.

There have been many criticisms of the use of spinal analgesia in obstetrics, and in my first paper I quoted freely the opinions of many against its use (H. R. Spencer, DeLee, Brindeau, Brouha, Voron, Kronig, Marshall, *et al.*), and in favour (Ashworth, Luker, Lloyd-Williams, Sebrechts, Murad and Parhad, *et al.*). Voron thought there was a special bulbar sensitivity of women in labour to the action of cocaine compounds. But, as I pointed out in both my papers, nupercaine is not a cocaine compound, and is therefore not open to this objection. This fact should be borne in mind in assessing the value of nupercaine as a spinal analgesic in pregnancy. DeLee quoted Kronig as saying that "spinal analgesia is dangerous in pregnancy and labour," but Prof. R. R. Macintosh and Dr. W. W. Mushin said that it appeared to them to be a bogey to suggest that pregnancy makes a woman peculiarly susceptible to the effects of spinal analgesia (*Lancet*, Nov. 18, 1944).

Commenting on my first paper, Greenhill (*Year Book of Obstetrics and Gynecology*, 1943), said he thought I had been lucky. Bourne and Williams (*Recent Advances in Obstetrics and Gynaecology*, 1945), referring to the same paper, agreed with Greenhill as to my luck, but added, "We are driven to conclude that Thomas has obtained his excellent . . . by the good work of his surgical and his . . . but . . ."

his method is not one which it is wise to teach." Good teamwork makes for efficiency in every field, but we have never employed a specialist anaesthetist. All the spinal analgesics have been given by myself or my assistants, and the method is so simple that no fewer than sixteen successive assistants have learned it in the past eight years. Why, then, should it be unwise to teach it?

In the *Year Book of Obstetrics and Gynecology*, 1944, commenting on my second paper and on a letter from me to the *Lancet* (Oct. 28, 1944) in which I had brought my total of Caesarean sections under heavy nupercaine spinal analgesia to 241 without a fatality from the analgesic, Greenhill said:

"This is a most creditable record for spinal analgesia. . . . Thomas insists that it is just as important to distinguish among the different drugs used for spinal anesthesia as it is among those used for inhalation anesthesia. This seems logical to me because, as Thomas says, one would hardly condemn all forms of general anesthesia because there have been deaths under chloroform. . . . The point made by Thomas about the type of anaesthetic used is important, and if Thomas is right, surely all the enthusiasts of spinal anesthesia who have had any fatalities from drugs other than heavy nupercaine owe it to their patients to use this anaesthetic and no other."

For any opinion to carry weight it should be supported by figures, preferably those from personal experience. My own experience of heavy nupercaine in obstetrics and gynaecology extends from 1938 and covers the following cases: forceps deliveries, 735; Caesarean sections, 282; gynaecological, 984; total, 2,001. Among the Caesarean sections were 42 cases of placenta praevia. Included among the gynaecological cases were 35 operations of hysterotomy and sterilization at about the third month of pregnancy, at least 15 ruptured ectopic gestations, a number of therapeutic abortions, and several cases of removal of ovarian cysts complicating pregnancy, including one which contained 22 pints (12.5 l.) of fluid. There has not been a fatality, either due to the spinal analgesic or under the analgesic from any other cause whatever.

I understand that Resnick's experience now extends to over 660 obstetric and 840 gynaecological cases without a fatality, which he will doubtless confirm shortly. It would appear, therefore, that between us we can cite over 3,500 operations under heavy nupercaine spinal analgesia without an anaesthetic fatality. May I end by quoting from a personal letter from Prof. Miles H. Phillips, who, commenting on my first article, said: "I read the paper with great interest and a complete dismissal of the bias against spinal anaesthesia which dated from earlier experiences with it."—I am, etc.,

Obstetric Service, Croydon.

RUFUS C. THOMAS.

Predisposing Factors in Carcinoma of the Cervix Uteri

SIR,—When I was a student at the Middlesex Hospital I believe I remember being taught by Mr. Carnac Rivett that carcinoma of the cervix uteri never occurred in the nulliparous woman. Other authorities at least say "hardly ever." It appears, therefore, that (1) pregnancy with its great hormonal changes or (2) the subsequent labour with its mechanical trauma is the predisposing factor, or, of course, a combination of the two.

It would be of great interest to know the exact percentage of cases of carcinoma of the cervix in women who have only had children by Caesarean section. There are now probably sufficient records for this to be ascertained. If the percentage were the same as for normal multiparae it would point to pregnancy as the predisposing cause, factor (2) being eliminated. It might then be worth trying to modify or nullify the carcinoma with suitable hormone preparations. After all, the oestrogens modify rostatic carcinoma. If the percentage were less than for ordinary multiparae, it would point to the mechanical trauma of labour as the predisposing cause, perhaps some tear leading to chronic inflammation, then followed later by malignant changes. In this case more attention to the cervix after labour would be due than is given at present.—I am, etc.,

London, N 3.

A. REDMAYNE NETTLETON.

Institutional Midwifery and the Family Doctor

SIR,—It may interest Dr. R. Guest Gornall (Jan. 19, p. 108) and others to know that institutional practice of midwifery by general practitioners has been conducted for many years at the

Woking Maternity Home. Last year this hospital was used by over 30 doctors, and is open to all practitioners in the district. It might be supposed that so many different men, working with different techniques, would introduce confusion, but in practice this is not the case, and the work is done with easy harmony between the medical men and the nursing staff. Over 1,000 babies are delivered yearly, and few hospitals can show such good results.—I am, etc.,

Woking.

L. G. HIGGINS.

Stethoscope versus X Rays

SIR,—The argument of stethoscope *versus* x rays is, indeed, a very old one. Paradoxically it goes much further back than the discovery of x rays. We heard the same argument as sailing-ship *v.* steamship, horse-drawn carriage *v.* motor-car, silent film *v.* sound film, and it might have existed quite recently as sound detector *v.* radar. In each of these examples the point was not what the sailing-ship, the horse-drawn carriage, the silent film, or the sound detector could do, but what they *could not do*. The same applies to the stethoscope. We know what it can do when used with skill, but we also know what it fails to do, in spite of the greatest skill.

Argument will never settle the case of stethoscope *v.* x rays, but a practical test would. Some years ago (I believe in 1938), sponsored by the American Trudeau Society, a committee was formed to decide this issue. They selected twelve first-class chest physicians, who examined a large number of chest cases, carefully recording the physical signs. When their records were compared with the x-ray films the result was a complete rout of the "stethoscopians." Would the enthusiastic defenders of the stethoscope care to repeat this experiment in this country? It would certainly give them the chance of eating the pudding instead of talking of its magnificent flavour.—I am, etc.,

Woodford Green, Essex.

F. KELLERMANN.

SIR,—In view of the recent correspondence, conducted not without some asperity, between the radiologists and the clinicians as to the diagnostic value and merits of their respective methods, may I bring to notice the following case, which would seem to add weight to the paramount importance of clinical observation and examination as against dependence upon x-ray findings for the purpose of establishing early diagnosis of tuberculosis of the lungs.

Miss A., aged 19, developed an apparently simple lobar pneumonia three months ago. In accordance with my experience of a series of pneumonias during the past six months, resolution of the consolidation was protracted. The acute stage was dealt with on orthodox lines together with the use of sulphadiazine. Convalescence was prolonged and unsatisfactory in that, in spite of the apparent "well-being" of the patient, the temperature refused to settle down completely. There were recurrent bouts of fever lasting a day or two, which gradually settled down to a rhythmic evening rise of temperature varying from 99° to 100° or 100.4° F. or so. Stethoscopic examination gave the usual signs of a slowly resolving lobar pneumonia, to which later became added a few transitory faint scattered rhonchi over the whole chest area. No specimen of sputum had been available throughout the illness, since there was very little cough and no attempt at expectoration. My suspicions in regard to tubercle were based upon (1) the temperature chart; (2) the facies of the patient—the somewhat transparent pallor with that typical recurrent hectic flush; (3) the faint but suspicious moist sounds elsewhere in the chest; (4) the temperament—a cheerful, sweet-tempered nature and contented resignation to the prolonged confinement to bed. I stress this last clinical observation as of some importance, since it is typical of the "phthisical" patient in all stages of the disease.

Owing to the unsatisfactory progress I had the chest x-rayed with special reference to any signs of tubercle. The films were reported upon as showing a simple resolving lobar pneumonia with no signs of tuberculous disease. The white cell count taken at the same time showed a count of 8,000. About a fortnight later, since the patient's condition remained the same, except for a transitory pleurodynia on the other side, apparently diaphragmatic, I had a further x-ray examination carried out, again stressing the question of tubercle. The report showed a progressing resolution of the pneumonic patch but again showed "no evidence of tubercle." The white cell count on this occasion was 12,000. At this juncture, and at long last, the patient produced a very small specimen of sputum, the report upon which stated the presence of a considerable number of acid-fast bacilli. A second specimen of sputum produced a week later con-

tained a large number of acid-fast organisms indistinguishable from tubercle bacilli. The diagnosis was therefore established.

The point of interest is that here was a case of early tuberculosis of the lungs which x rays had failed to demonstrate. Since the main argument in favour of mass radiography is its importance as a means of the earliest possible detection of tubercle, this particular case would seem to throw very considerable doubt upon its value or infallibility and should produce a vote of "no confidence."—I am, etc.,

Oxford.

J. FRANKLAND WEST.

Diagnostic Acumen of the G.P.

SIR.—Dr. Vincent Norman (Jan. 12, p. 67) fulminates against certain comments made by specialists concerning the work of the general practitioner. Unfortunately many of the examples he quotes recoil against him. He states: "The general practitioner, who at one time did 90% of the midwifery in this country and did it well, has been told . . . that he is a careless and poorly equipped accoucheur, a positive danger to any lying-in woman, and should on no account attend a midwifery case." If Dr. Norman Roberts does not believe this he need only attend a large maternity unit and note the emergencies admitted.

Of the three maternal deaths in this hospital last year in 1,500 deliveries one patient was admitted following a cerebral haemorrhage, her blood pressure was 190, and she had oedema. She had been seen antenatally by her own doctor, a very competent general practitioner, who had examined her with care, had noted the oedema of her legs, had failed to find albumin in her urine on repeated examinations, but had not considered that a rising blood pressure, which he had taken, was of any significance in the absence of albuminuria.

Two weeks ago a patient was admitted for repair of damage during forceps delivery at home. She was found to have the whole of the posterior cervix torn off, both lateral walls of the vagina were torn from top to bottom, and the whole of the pouch of Douglas was open. She had been delivered through an undilated cervix.

A personal friend, a one-time maternity sister, wrote recently that she was to have a baby in February and was "blown up with oedema" and that her doctor would not take her blood pressure. To-day we have had a 'phone call to say that yesterday she was seized with eclamptic fits, was rushed into hospital, and had a Caesarean section. Surely even the most stubborn must realize by now that obstetrics is a specialist art and should be practised only by those with special knowledge and experience. The individual need not be a pure specialist, as many general practitioners practise a specialty with skill as great as that of the pure specialist.—I am, etc.,

Halifax General Hospital.

H. J. DENTCH.

The Disabled Persons Register

SIR.—A new "racket" has arisen in connexion with the Disabled Persons Register which I think deserves wide publicity among the profession. It would appear that certain unscrupulous employers are trying to persuade any of their employees who have a disability of any kind to enrol on the above register, thereby attempting to avoid or minimize their responsibility for taking on to their pay-roll the legal 2% of really disabled persons. One is confronted in the surgery by a patient who has hitherto been regularly employed and is presumably a valuable employee as no question has up till now been raised over occasional or even frequent absences from work. A form is presented which the manager has told him to get filled up and signed by the doctor. So far I have refused to sign this form, but I would be glad to have the views of others.

There is a certain class of case in which there is no question of the gross and permanent disability, either surgical or medical; but there is a vast mass of cases which are borderline. Is one to certify the man who has lost a finger or the man who suffers from bronchitis every winter or the man who has frequent attacks of migraine? I could go on indefinitely listing doubtful cases, and I do not see how any hard-and-fast rules can be laid down; it seems obvious that each case must be treated on its merits.

The refusal of such certificates by a practitioner may cause much unpleasantness if employers resort to victimization of the patient, and I maintain that the decision should not be imposed

on the G.P., who has enough unpleasantness to put up with these days if he is conscientious in his certification for milk and corsets and fuel, etc.—I am, etc.,

Fitzwilliam, Pontefract.

J. S. LAURIE.

Glandular Fever and Infectious Mononucleosis

SIR.—I have read with interest Sir Henry Tidy and Dr. E. B. Morley's reply (Dec. 22, 1945, p. 896) to my letter (Nov. 22, p. 743). It is with temerity that I dare to cross swords with such acknowledged authority, nevertheless my purpose in stressing the difference between the "glandular fever" case and the "infectious mononucleosis" case was to bring out the point that the latter condition possesses certain definite characteristics, which Dr. Gerald Slot and Major F. D. Hart (Oct. 13, p. 495) had not considered. That "infectious mononucleosis" is a term in general use in the North American continent, whereas "glandular fever" is mostly used on this side of the Atlantic Ocean, is common knowledge. We have had an authoritative explanation given us as to how this arose. What is not always understood is that "infectious mononucleosis" is used in North America to describe a condition generally found among young adults and exhibiting certain clinical characteristics; whereas "glandular fever" here is used to describe that condition more commonly found in children, and varying in its clinical appearance from that condition found in the States. That it is the accepted practice in this country to use "glandular fever" and "infectious mononucleosis" synonymously when in fact different clinical appearances are being described only adds confusion and unnecessary complication.

Dr. Slot and Major Hart's case occurred in a young adult of the "infectious mononucleosis" as opposed to the "glandular fever" syndrome—this they did not make clear, neither was its significance realized. It was for this reason that I criticized them. It has long been apparent that the group of clinical conditions gathered under the umbrella of "glandular fever" comprises a larger group than that differentiated by "infectious mononucleosis," if these terms are used correctly. It is also apparent that these groups need further differentiation if clarity is to be attained.

Sir Henry Tidy and Dr. Morley state in their letter: "On the Continent 'glandular fever' is often applied to the disease in children, and 'infectious mononucleosis' to the disease in adolescents and adults, but the identity of the two forms is accepted." In answer to their criticism I have searched the literature for evidence in support of my argument. I can find no more telling support than that from the pen of Sir Henry Tidy himself, in an article on infectious mononucleosis in a recent number of the *Practitioner* (1945, pp. 355, 361, et seq.).

"Glandular Fever in Children.—This is the form in which glandular fever was first recognized. It is especially common in England, in resident preparatory schools, between the ages of 8 and 14."

"Glandular Fever in Adolescents: Infectious Mononucleosis.—This is the form in which glandular fever is commonly recognized in America, usually among college students. American accounts of the disease are essentially based on this group."

Later, discussing the heterophil agglutination test, its value and application, Sir Henry states:

"The question arises whether or not two types of glandular fever exist giving respectively positive and negative agglutinations. In view of the factors mentioned above [i.e., in the article] and technical difficulties connected with the test it cannot be expected that every case or series of cases should give positive reactions. There is nothing inherently improbable in the existence of two viruses, and some of the reports are difficult to explain otherwise" [my italics].

Perhaps Sir Henry omitted to inform Dr. Morley of this opinion before they wrote the final sentence of their letter: "Anyone who reads the literature under the impression that glandular fever and infectious mononucleosis are different conditions will arrive at an unfortunate state of confusion."—I am, etc.,

R.N. Hospital, Haslar.

T. S. EINERL.

Jittery Legs

SIR.—It was with some surprise that I learned from your annotation on jittery legs (Jan. 19, p. 95) that I had for several years been suffering from a condition which had been solemnly named, not only in Latin but in French. I have always called it "creepy legs," and your second paragraph is a masterly description of the symptoms, with the milder of which I am

familiar. I think there may be a considerable psychological element present, as in my case an attack seldom begins before I have thought, "I wonder if I shall have it to-night?"

During an attack the "creeps" can be stopped by concentrating one's mind on stopping them, but as soon as the mind wanders from the subject a "creep" results. A common predisposing cause is the presence of local irritation such as the tickle of Army blankets or a gnat-bite. I have not been able to satisfy myself that any muscular contraction occurs, but after inhibition of the sensation for some time by what one must call "mental concentration" the muscles of the affected leg feel very tired. To the various contrivances suggested for stopping an attack I can add clenching the toes tightly and very vigorous—even painful—massage of the affected part, either of which may or may not have the desired effect. Although this condition has from time to time cost me many hours' sleep I have never taken it sufficiently seriously to try the effect of drugs, but now that I know it has been dignified as a syndrome I shall have to see what can be done along these lines. Since, however, the attacks are intermittent and unpredictable the assessment of the results will not be easy.—I am, etc.,

"—273."

SIR,—From my own experience of the many minor discomforts to which the flesh is heir, jittery legs is one of the most annoying. I suffered considerably in this way during my first pregnancy; the symptoms cleared up, only to recur with increasing severity during the next pregnancy, and then persisted for the following six or seven years. Medical opinions, inside and outside the family, were vague, and not helpful as regards treatment. However, I did gain complete relief from a course of iron and vitamins, which was prescribed for a definite secondary anaemia (confirmed by blood count). Once the count reached normal the "jitters" stopped.

I am writing this in case such a line of treatment would help other cases. The diagnosis of the anaemia was arrived at accidentally. I was in good general health. Having "jittery legs" sounds a stupid form of complaint, but it can be a real burden physically, mentally, and socially, and like chilblains is one of the things for which the medical profession offers sympathy but little relief.—I am, etc.,

"A DOCTOR'S WIFE."

Bitterness

SIR,—Mr. H. B. Stallard wrote a letter to the *Journal* under the above heading on Sept. 22, and I consider that the time is now ripe to re-emphasize what he then said. His letter has evoked sympathetic replies, but the matter is of such obvious importance to the reorganization of post-war medicine in Britain that no apology is necessary in bringing it up again. By not practising in Britain and therefore having no axe to grind, and further by not being myself an Englishman, I can state the facts without prejudice and without the reserve and understatement which are recognized English characteristics.

If the established doctor who has not himself served in the Forces fails really to understand at least something of what the war has meant to his colleagues now demobilized after years of service, it will be impossible for bitterness to be avoided.

And recent correspondence in medical journals strongly suggests that this is the case. There are facts that he can readily understand. He can understand the difference in income between £1,000 and, say, £3,000 a year. He can understand the financial difference in running two "homes" (life in the Army is not gratis) and also possibly retaining consulting rooms. He can perhaps understand the sordid conditions of troopship and camp. He can appreciate the opportunity the established non-serving doctor had to acquire property and to increase investments, and that the young non-serving doctor had to acquire higher qualifications. He can understand the difficulties and anxieties of a colleague returning to a complex job similar to his own but a job with which he has grown completely out of touch but from which he must earn his living in highly competitive conditions and without the financial backing that he would have accumulated had he remained in private practice. These facts the civilian doctor can understand, and it is well that he should ever bear them in mind.

But there are facts that it is not possible for him fully to understand, for the understanding of them demands personal experience. He cannot understand the endless frustrations, futilities, and "fighting-one's-own-side" that have so embittered the Army doctor. It is likewise impossible for him to understand the "being-treated-like-a-schoolboy," the lack of individual freedom, and the squashing of initiative which, combined with the above, have so influenced him against any form of State control in medicine. He may partially understand these, but he certainly cannot understand the bitterness of separation from wife and home, from friends, from his busy useful existence and established way of life—leaving all this and returning to the community discipline of school days—and this separation being often absolute for years. These can be understood only by personal experience, but it is essential that the civilian doctor should keenly recollect and make allowances for them when planning with his demobilized colleague. Without a sincere appreciation of these facts and without full consideration being given to them, bitterness either publicly stated or inwardly nurtured, is bound to ensue.

The European medical world with its shattered universities and scattered students will look to England for guidance and help in medical advance. Such England cannot give if her planning is frustrated by the bitterness of the war years. Let the civilian doctor, therefore, be certain to show his demobilized colleague, in both precept and practice, that he has a real understanding of the inequality of sacrifice and thus prevent the latter from allowing the barrier of bitterness to arise between them. There is no other way.—I am, etc.,

L. B. SOMERVILLE-LARGE,
Late Lieut.-Col., R A M C

Palmerstown, Co. Dublin.

An Association of Medical Societies of the United Nations?

SIR,—May I suggest that the medical societies of Great Britain take the opportunity of the United Nations Delegations Meeting in London to propose and to start the foundation of an "Association of Medical Societies of the United Nations," to which the individual medical societies of the various countries should be affiliated? This association could serve as a clearing house for the exchange of medical experiences in public health, medical practice, and medical research by the exchange of literature, by communication of statistical facts, and by the organization of international meetings. It may also have to take up some of the duties of the health department from the deceased League of Nations at Geneva. Another useful purpose would be facilities for the exchange of medical students, teachers, and research workers between the different countries. Further to that it will ease a decision to be taken at the appropriate time about the admission of medical societies of former enemy countries.—I am, etc.,

London. W.1.

E. M. FRAENKEL.

Czechoslovakia's Need for Textbooks

SIR,—On Nov. 17, 1939, the Charles University in Prague was closed by the German occupying authorities. This was but one of the measures adopted by them all over Czechoslovakia for the purpose of destroying the intellectual leadership of the Czech people and eliminating the university centres of resistance. The execution of professors and student leaders, the imprisonment and suffering of thousands of others, make a story already well known. The difficulties of this period of reconstruction are, however, less well publicized and thus less widely understood.

The universities opened again at the liberation. Ninety professors and ten lecturers from the Universities of Prague and Brno did not return from camps and prisons. There were fewer teachers and more students than ever. Over 60,000 students, many of whom had passed over six years in exile as soldiers fighting with the British and Russian Armies or in forced labour in Germany and Czechoslovakia, were waiting to begin or continue their university courses. In these circumstances there were many serious problems for all: ill-health, fatigue, and shortage of food and fuel, which are general problems, and others which are peculiar to students. The Czechoslovak youth tackled their own difficulties with resource, courage, and originality. There was no coal to heat their university build-

ings, lecture rooms, and hostels. Therefore teams from 1,500 students worked in shifts in the mines. There was insufficient accommodation in the lecture hall for all who wished to attend. Priorities were given by the Students' Union to resistance members and to older students. Lectures were broadcast into adjoining rooms. No new textbooks had been printed since 1939, and the Nazis had robbed the libraries of the university.

Recently, with another representative of the British Medical Students' Association, M. H. Lessof, former International Secretary, I attended the first post-war World Students' Congress in Prague. We saw and learned these facts for ourselves. We have in our possession copies of the textbooks, printed by themselves, which the students now have to use. They consist of duplicated typewritten sheets in a loose folder reproducing lecture notes and articles from professors and lecturers. In textbooks of biology and medicine, identical with those described, only the simplest diagrams can be reproduced. All of these facts, together with those circumstances of war and occupation which have for six years cut off Occupied Europe from all recent developments in science and medicine, constitute to-day a serious check and embarrassment to study.

During the war many Czech students have been in England and many more have learned English in order to listen to B.B.C. broadcasts. There is, therefore, reason to believe that textbooks sent from this country will have a greater value than that simply of a gesture of friendship. The British Medical Students' Association is, therefore, organizing a collection of medical and scientific textbooks to be sent to a students' reading-room in Prague. We wish to appeal most strongly to all who have in their possession used textbooks on medical subjects, on the natural sciences, or of general scientific interest to send them to us. We should be equally glad of copies of medical and scientific journals and of book tokens to procure new copies of standard works. The books most needed are: illustrated textbooks of biology and histology; textbooks of anatomy, anatomical atlases; books incorporating recent advances. Gifts should be addressed to:

The British Medical Students' Association,
B.M.A. House, Tavistock Square,
London, W.C.1.

We hope later to extend our distribution of books to other countries. Therefore we hope that this present appeal will arouse wide interest and support.—I am, etc.,

London, W.C.1

T. A. MADDEN,
International Secretary, B.M.S.A.

Increasing the Number of Doctors

SIR.—Dr. Maurice Shaw (Jan. 12, p. 64), referring to your comment on Prof. Ryle's letter that the proper solution of the problem of distribution of doctors is an increase in their numbers, maintains that the projected arrangements for admission of more women students to the hospital is likely to decrease rather than increase the number of doctors. I do not wish to express an opinion on this aspect of the problem, but when more doctors are unquestionably needed the risk of any decrease of numbers resulting from the measures taken calls for most careful consideration. Whether the admission of a greater proportion of women to our medical schools will result in an ultimate decrease, or lack of increase, in the number of doctors may be debatable, but at this time it surely is inadvisable to take away permission to continue practice here from the alien doctors, "enemy" and friendly, who have proved themselves during our years of desperate need. I understand the period during which these doctors may continue to practise here has been extended to the end of the year, but this is not sufficient. As I have previously pointed out, these men and women have already undergone much suffering and anxiety—the Nuremberg trials tell us how unbelievably much—and I plead that their anxiety for the future should now be put at rest by giving them permission to continue to practise here with full professional status. If this is not to be granted this decision should be made known to them so that they may plan the remainder of their broken lives. I appeal for friendly as well as "enemy" alien doctors, since owing to the revolutionary changes that have taken place in Europe many of the former do not wish to return to their native lands.—I am, etc.,

London W 8

HAROLD H. SANGUNETTI.

A Fundamental Principle

SIR.—In the letters which you have recently published on direction of doctors one important point appears to have been overlooked by all your correspondents. There are, in fact, no such organic entities as State or the "community," these being simply convenient abbreviations for all the people living in a given administrative area, such as Great Britain. From this it follows that if one group of people, such as doctors, are to be ordered about for the benefit of the State or the "community," they are in reality, merely being exploited in exactly the same way that slaves are exploited, for the benefit of some of their fellows. If it is indeed desirable to secure more doctors in certain unattractive areas the only equitable way in which the people of these areas can secure medical service is to pay for it at more attractive rates than in other parts of the country. In the conditions of medical practice and the remuneration are made sufficiently desirable there will obviously be no difficulty in securing doctors in any area, but if these conditions are not met and doctors are sent there to practise willy-nilly, then I can see no fundamental moral distinction between this and any other form of slavery or exploitation.—I am, etc.,

W. J. SUPER-MARE

CYRIL G. EASTWOOD,
Medical Officer of Health

SIR.—Mr Eric Coldrey (Jan. 12, p. 63) makes one very important point when he says how unlikely it is that high-ranking planners will ever come within their own plans. Examples from past and present are all against it. When the system of compulsory instruction was instituted in 1870 educationists realized that it was not education as understood hitherto. The proof of that is that the planners of that day who instituted the system did not have their own children submitted to it. So with the system of compulsory health insurance which began in 1912. There is plenty of evidence that behind the façade of Nazism and Communism in Germany and Russia the high-ranking Nazis and Communists had, or have, private fortunes, private houses, and private medical practice—that is, they demand what is normal and natural to any man brought up in the normal European tradition; they deny these things to the serfs alone who are their planning fodder. We are making for a society which will be rotten at the top and rotten at the bottom. It will be rotten at the bottom because there seems no limit to the conditioning of the workers, body and soul which will be attempted. The Lloyd George plan took 4d. from the worker's weekly wage. The current plan contemplates deducting 4s. to be held against the good behaviour in the future—i.e., submission to what the planning classes consider good for him.

Consider the position of an ambitious young planner in one of the Ministries, say, twenty years hence, what will there be for him to do but to propose some further conditioning of the worker, provided by further deduction from the worker's wages? For by that time the machinery of exaction and compulsion and conditioning will be working smoothly. I think that one may safely predict that the English will not breed in that captivity. (There is evidence that even among races with a long tradition of slavery, planned serfdom of the modern type is immensely destructive of nations.) A society of that kind is rotten at the top, because planners, with immense powers to condition the minds and bodies of the people, tend to respect no law but their own ambitions.

In such a society the medical profession will be very easy meat for the politicians and the high-ranking officials. If medical men surrender the position of acting as principals in a relation in which no third party—and certainly not the State—has a right to interfere, and betray the claim of the patient to be regarded likewise as a principal, they will lose status, and the teaching of all history is that loss of status is followed by loss of economic position.—I am, etc.,

Stamford Hill, N 16

E. H. STANGE.

SIR.—It would be as well to know what exactly Prof. Ryle does mean by direction of doctors. He appears now to limit it to young doctors. What about consultants and specialists? In his letter (Jan. 19, p. 105) he says: "If men will not volunteer for certain areas some will have to be posted, just as they are already posted in the Services and Colonies." He appears

to ignore the fact that under normal conditions men can at any time resign from appointments and take up other work, but under the conditions he visualizes that would be possible only if permitted to do so, as all medical practice, both at home and abroad, would be at bureaucratic disposal. His agreement that in certain areas the conditions of practice must be improved in order to attract doctors is, of course, obvious, but in giving his personal opinion that such improvement could best be made in an organized service employing full-time doctors he is evidently not concerned with the suitability for the profession of doctors who would consent to this arbitrary disposal of their lives.

It would also appear that Prof. Ryle is of opinion that such organization as is necessary when the servitude of the nation to a foreign Power is at stake is comparable to arrangements under normal conditions.—I am, etc.,

St. Mawes.

B. H. SHAW.

SIR,—“A State Medical Service. How it can be done.” After much consideration of this important subject and a perusal of many letters I have come to the following conclusion.

The only way to make such a service a success is to form immediately a non-sectarian order of monks and nuns sworn to celibacy and poverty and devoted exclusively to the practice of medicine. This accomplished, Prof. J. A. Ryle, Vicar-General of the Order, from his headquarters in the slummiest and most smoke-begrimed district of the ugliest and most uncouth city of the country—whether it be North or South or East or West, on the doorstep of Oxford or three hundred miles from it—can direct the devoted practitioners of his certificate-enveloped, red-tape-strangled art and science to wherever fate and standing committees deem them to be required, whether it be for years or for ever, or for but a day.—I am, etc.,

St. Albans.

OLIVER SLOAN.

Medico-Legal

MENTAL HEALTH LEGISLATION IN EIRE

A new Mental Treatment Act is being brought into operation early this year in Eire. It is an Act of 284 sections and repeals 19 previous enactments from 1821 to 1942; in fact, all existing Acts are repealed except those relating to criminal lunatics and to persons of unsound mind who are wards of court. It marks a departure from previous legislation and from the existing British code in several respects, notably in the machinery for admission of patients into mental institutions; the judicial authority necessary for such admissions is removed and the procedure is wholly medical.

Admission to Mental Institutions

When it is considered necessary to have a person admitted to a mental hospital, and he cannot afford the whole cost of his medical assistance, application is made by a relative or other person to the medical officer of the dispensary district in which he lives, whereupon the M.O. visits and examines him and, if he thinks proper, recommends his conveyance to the district mental hospital. Here the resident medical superintendent or another medical officer on his behalf is required to examine him, and if he is satisfied that the patient is of unsound mind he makes an order for his reception into detention. Similarly a member of the *Garda Síochána* (police) considers it necessary that a person believed to be of unsound mind should for safety reasons be placed under care may take him into custody and apply to the district M.O. for a recommendation, when the same procedure is followed. Again, if an assistance officer learns that such a person is not under proper care or control or is neglected or cruelly treated he may apply in the same way to the M.O.

In the case of a private patient whom it is thought desirable to detain in a private institution, application is made by a relative or some other person to a medical practitioner for an order. The practitioner accepting the application must arrange with another practitioner that each of them shall separately examine the person, and only if each is separately satisfied that it is proper to make an order shall an order be made. This must state that the person concerned is of unsound mind, is an appropriate person to be taken charge of and detained for care and treatment, and is unlikely to recover within six months. The facts on which these conclusions are reached must also be stated, and it must be indicated which facts

have been observed personally by the certifying practitioners and which have been communicated to them by others. It is also provided that certain persons must not make either the application or the order; these include members of the governing body of the institution, those who may have an interest in the payments to be made for the care of the person, and practitioners regularly attending at the institution. If a person, having been detained in the institution, escapes he may again be detained if retaken within 28 days.

Temporary and Voluntary Patients

Provision is also made for the admission of temporary patients—chargeable or private—into approved institutions (which may include special departments of voluntary and municipal hospitals) so that advice and treatment may be obtained without a mental hospital being entered. The district medical officer must certify in the case of the chargeable patient, and two medical practitioners in that of the private patient, that he is suffering from mental illness, that he requires for his recovery not more than six months' suitable treatment, and that he is unfit by reason of his mental state for treatment as a voluntary patient, or that he is an addict and requires for his recovery at least six months' preventive and curative treatment. This inclusion of provision for addicts is regarded by psychiatrists in Eire as a very welcome part of the Act. An addict is a person who by reason of addiction to drugs or intoxicants is dangerous to himself or to others or incapable of managing his affairs, or one who, by reason of addiction to drugs, intoxicants, or perverted conduct, is in serious danger of mental disorder.

If the chief medical officer of an institution becomes of opinion that a person detained under a temporary order will not have recovered at the end of six months he may request the Minister of Local Government and Public Health to extend the period by further periods of six months, but not to a greater extension than eighteen months—a more expeditious procedure than that followed in England and Wales under the Mental Treatment Act, 1930. It is anticipated that the vast majority of patients other than voluntary ones will be received as temporary patients.

Voluntary patients may themselves (or through their parents or guardians if they are under 16) apply to be received in an approved institution, the application being accompanied by the recommendation of a doctor who has examined them. Such patients may give notice that they wish to leave the institution within 72 hours. If while being treated they become mentally incapable of expressing themselves as willing or not willing to remain, they may be discharged into such custody as the person in charge of the institution approves. Absence on parole may be permitted for 30 days, and the period may be extended.

Mental Clinics

Other provisions are designed to simplify the transfer of patients for special treatment from one hospital to another, to allow the authorities to board-out patients, and to require private institutions to be registered by the Minister instead of, as formerly, to be licensed by judges. Mental hospital authorities are to be allowed to establish consulting-rooms or clinics at the mental hospital or elsewhere at which advice and preventive or curative treatment may be given. Private patients attending such clinics will be charged for attendance on a scale approved by the Minister. Two or more mental hospital authorities, with the Minister's consent or at his direction, may maintain jointly an institution for any class of patients who are not dangerous to themselves or to others, and a joint authority may be set up for the management of such institutions. It is hoped that this provision will be widely used in any future scheme for development and extension of mental hospitals. A former Act provided that two or more district mental hospitals might unite in providing a laboratory for pathological research. This provision was never taken up; it is now re-enacted, with the addition that the authorities must make such provision if the Minister directs. Eighteen mental hospital districts are set up under the Act, corresponding to counties or unions of two counties with their county boroughs.

Dr. Joseph Kearney, Inspector of Mental Hospitals, Local Government Department, Dublin, states that the Act has been welcomed by psychiatrists generally and has received unstinted praise from the Irish Branch of the Royal Medico-Psychological Association. He adds: “It seems justifiable to hope that when its various provisions are made effective we shall have in this country a statutory code well in advance of corresponding provisions in other countries.”

Dr. Joseph Paynter Holt, former associate professor of physiology at the University of Louisville, has joined the medical department of the Standard Oil Company (New Jersey) as a specialist in toxicology. He will be responsible for research into the biological effects of toxic substances.

Obituary

W E THOMAS MD JP

We have to announce with much regret the death of William Evans Thomas of Ystrad Rhondda Glamorganshire a veteran member of the British Medical Association who did fine work for his colleagues in Wales and had been a member of the Central Council from 1923 to 1944 and before then regularly attended meetings of the Representative Body for eighteen years. He joined the B.M.A. in 1891 and served on many committees and subcommittees at headquarters in his longest periods of service being on the Welsh Committee and the Insurance Acts Committee from 1919 to 1944. When the Association met at Cardiff in 1928 he held office as president of the Section of Medical Sociology, and no Annual Meeting seemed complete without his personal presence. Dr. Thomas graduated M.B., Ch.B. at the University of Edinburgh in 1888 and took his M.D. in 1892. He was a Justice of the Peace for the county of Glamorgan and served as High Sheriff of Merioneth in 1927-8.

Dr A T JONES past president of the South Wales and Monmouthshire Branch sends the following tribute

This country, and Wales in particular, has lost a great leader in the medical fraternity by the death of Dr W E Thomas J P of the Rhondda, South Wales. He was known and referred to by nearly everybody as WE. He came to the Rhondda as an assistant to Dr James nearly sixty years ago and succeeded to the practice at his death. He married one of Dr James's daughters. The practice grew very extensively and Dr Thomas had to engage three and sometimes four, assistants. His main surgery was at Llysgrais and he had two or three branch surgeries. He was an indefatigable worker and gave personal attention to all his patients. He loved his profession and was kind, sympathetic, and considerate to those who suffered. He was keenly interested in any advancement and development in the art of medicine. He held several appointments, such as district medical officer, public vaccinator, and visiting medical officer and surgeon to the Llynypia Hospital, which latter post he held until the County Council appointed a resident surgeon to the hospital, Dr Melbourne Thomas, who is still resident medical officer of the institution. Outside his profession he took a keen interest in social and political activities. He was a member of the Rhondda District Council, a County Councillor, and Alderman of the Glamorgan County Council. He held these posts for many years until he decided to retire and give up public work.

Dr Thomas was a good, sound practical medical practitioner. He was a member of the Insurance Committee for Glamorgan from its inception and chairman of the Panel and Local Medical Committee from the start. He was a true leader of the profession, reliable and solid in his advice and leadership, especially at the time when the Insurance Act of 1912 came into force. He took an active part in affairs of the British Medical Association, being for many years the representative of the North Glamorgan and Brecknock Division. He was also a member of the Central Council and was re-elected annually for a number of years, he attended the meetings regularly and was active in their deliberations. He was a member of the Insurance Acts Committee, to which he was elected annually as one of two representatives for Wales. He was of course elected president of the South Wales and Monmouthshire Branch, which office he filled with dignity and ability. After the completion of fifty years in practice he was elected president of the Branch for a second time in 1935. This proves the esteem in which Dr Thomas was held by the members of the Branch.

"WE" was a most loyal man and was truly sympathetic to his colleagues and friends. He was ever ready to help anyone in difficulty. Mrs. Thomas, his first wife, died in about 1932. He married for the second time and his wife has proved herself a devoted helpmeet. He lost his two daughters, one a girl of 19 and the other a girl of 14. These as I know personally were severe blows to him. He is survived by one son. Dr. Thomas had reached the mature age of 82. He had

suffered physically, for the last few months, but he was mentally alert and as a friend and admirer of his, I saw his death as a grievous loss when our profession is passing through a critical period in its history.

Dr EDWARD ANGEL GAYNES DOYLE who died in retirement at Watford Heath, Hert. on Jan 21, had been a member of the British Medical Association for 62 years. Born in 1860, he studied medicine in London at the Westminster Hospital and took the M.P.C.S. and L.P.C.P. diplomas in 1885. Dr Doyle practised for many years at San Fernando in the island of Trinidad and had held the posts of medical officer for South America and San Fernando and resident surgeon to the Trinidad Colonial Hospitals. He was president of the Trinidad Branch of the B.M.A. in 1922-5.

Universities and Colleges

UNIVERSITY OF OXFORD

The Board of Management invites candidates for the Francis Gotch Memorial Prize for the examination for which will take place on Saturday, March 2 at 2.20 p.m. in the University Department of Physics, Oxford. Candidates are requested to send in their names and qualifications to the Board of Management, University Department of Physics, Oxford by Saturday, Feb 22.

In a Congregation held on Dec 15, 1945, the degree of D M was conferred on G R Gurdlestone

In a Commencement held on Dec 22 the following degrees were conferred

M. C. — B. B. H. ^{NY}
 B. M. B. C. H. — R. P. d. d. c. West L. D. Hamilton R. Gilman H. A. S. Powland,
 M. P. d. c. H. T. ex. G. M. Woodman, Al. d. c. E. M. M. R. B. d. c. h. Pamela
 F. M. C. d. c. S. d. c. J. N. d. c. h. E. H. H. d. c. d. c. Hilar J. E. Allen, Elizabeth
 P. d. c. h. L. c. ^{NY} Helen M. W. d. c. ^{NY}

UNIVERSITY OF LONDON

D. A. Goss (Ph.D./Econ), has been appointed to the University Post in Demography, tenable at the London School of Economics and Political Science. He has worked in the Social Biology Department of the School, and in 1976-40 was research fellow of the Population Investigation Committee.

The following candidates have been approved at the examinations indicated:

C J S - Far W M L Turner H Wolfsohn Branch II (Public Health) J H H
Kall R F Welch Branch IV (Malaria and Diseases of Women) L W
Hefernan Branch I (Hygiene) W Taylor

UNIVERSITY OF GLASGOW

Intensive postgraduate courses in medicine and in surgery, consisting of clinical meetings and lectures, will be conducted from March 11 to April 13. As numbers will be restricted those wishing to attend should make early application to the Convenor, Committee on Postgraduate Medical Education, the University, Glasgow, W.2, from whom copies of the syllabus for the courses may be obtained. The fee for either course is fifteen guineas.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The following anatomy lectures will be delivered at the College (Lincoln's Inn Fields, W.C.) at 5 p.m. on each day: Feb. 4, 6, 7, 11, 13, and 14, Prof. F. Wood Jones, F.R.S., six lectures on oology; Feb. 18, 20, 21, 25, 27, and 28, Prof. A. J. E. Cave, six lectures on the anatomy of the head and neck. Fellows and Members of the College will be admitted free of charge on signing the attendance register. The fee for others is as follows: Anatomy course (Feb.) £2.2s applied physiology course (March) £2.2s, pathology course (March) £2.2s. A composition fee of £5.5s may be paid for all three courses. Tickets may be obtained on application to the secretary, of the College.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF
GLASGOW

Prof F A E Crew, M.D., F.R.S., will deliver the Finlayson Memorial Lecture on "Medico-sociological Problems of an Aged Population" in the hall of the Royal Faculty of Physicians and Surgeons, 122, St Vincent Street, Glasgow, on Wednesday next, Feb 6, at 4 p.m.

SOCIETY OF APOTHECARIES OF LONDON

At a meeting of the Court of Assistants, held recently with the Master, Dr. Hugh F. Powell, in the chair, the death of Sir Farguhar

Buzzard, Honorary Freeman of the Society, was received with great regret.

Dr. J. P. Hedley was appointed representative of the society on the General Medical Council, and Mr. L. Vernon Cargill on the Chelsea Physic Garden Committee.

A handsome bronze rhinoceros (as depicted on the society's crest) was presented by Dr. C. R. Box, and medical books and instruments were received from the estate of the late Dr. E. S. White, Liveryman.

The Diploma of Mastery of Midwifery was granted *honoris causa* to Mr. Arthur C. H. Bell, late Examiner.

The following were appointed Examiners to the society in the subjects named: *Midwifery*, Dr. W. N. Searle; *Mastery of Midwifery (Paediatrics)*, Dr. R. W. B. Ellis; *Materia Medica and Pharmacology*, Dr. C. A. Keele; *Diploma in Industrial Health*, Dr. A. J. Amor, Dr. J. C. Bridge, Prof. F. A. E. Crew, Dr. Margaret Dobbie-Bateman, Dr. M. W. Goldblatt, Dr. E. R. A. Merewether.

The Diploma was granted after examination to the following candidates: G. C. Mayer, B. Dawes, C. J. W. Soutar, T. J. Thompson, M. W. Johnston, D. Wimborne, J. C. Matthews, R. G. G. Jones, I. H. Mercer, F. J. Offord, R. A. Wilkinson, R. C. Jennings, D. D. Forbes, B. H. Pickard, P. J. Roden, J. Flintner, R. J. C. Hutchinson, R. Clitherow.

The Services

The American Bronze Star for meritorious service has been awarded to Major William Robert Henderson, late R.A.M.C., for saving American lives while he was a prisoner of war in Germany from May, 1940, to May, 1945.

Temp. Surg. Lieut. R. A. de K. Glover, R.N.V.R., has been mentioned in dispatches for good service, efficiency, and zeal while serving in H.M.S. *Easton* during operations in the Aegean from Sept. to Dec., 1944, including the landing of Royal Marine Commandos at Cape Psalis and the bombardment, in the Athens-Piraeus area.

The following have been awarded the R.N.V.R. Officers' Decoration: Surg. Cmdr. M. Godwin, and Surg. Lieut.-Cmdrs. R. F. B. Bennett, E. E. Henderson, R. D. Jenkins, D. R. Hughes, P. M. Coats, and A. I. L. Maitland, R.N.V.R.

Col. R. W. Richardson, E.D., R.C.A.M.C., has been appointed O.B.E. (Military Division), and Major (Acting) T. A. Gander and Capt. E. C. Vandervoort, R.C.A.M.C., have been appointed M.B.E. (Military Division), in recognition of gallant and distinguished services in Italy.

Capt. (Temp. Major) G. C. K. Reid, R.A.M.C., has been granted a King's Commendation for brave conduct.

Capt. J. R. S. Third, R.A.M.C., has been mentioned in dispatches in recognition of gallant and distinguished services while a prisoner of war.

The Order of the Star of Nepal, Fourth Class Honorary (with the title of Manya Nepal Tara), has been conferred upon Capt. H. N. Roy, I.M.S., and Capt. N. Uddin.

The following appointments and awards have been announced in recognition of gallant and distinguished services in North-West Europe:

K.B.E. (Military Division).—Major-Gen. E. Phillips, C.B., C.B.E., D.S.O., M.C., late R.A.M.C.

C.B.E. (Military Division).—Brig. (Local) R. K. Debenham, O.B.E., and Brig. (Acting) G. K. Fulton, M.B.E., R.A.M.C.

O.B.E. (Military Division).—Cols. (Acting) W. D. Jackson, M.C., and F. C. Miller, M.C., Col. (Temp.) A. R. Oram, M.C., Lieut.-Col.

P. Rutherford, T.D., Lieut.-Col. (Acting) H. V. Brennan, and Lieut.-ls. (Temp.) C. Bainbridge, J. C. Caird, R. S. Handley, S. Heatley,

Heiler, G. H. G. Hope, M.C., D. F. Hutchinson, G. A. Kane, A. G. R. Lowdon, R. L. Mackay, G. A. G. Mitchell, J. Neill,

G. W. Saunders, H. Sissons, J. M. Tait, and F. W. A. Warren, D., R.A.M.C. Cols. W. A. Jones and G. E. Wight, Col. (Acting)

C. Ross, Lieut.-Col.s. J. A. Dauphinee, M. R. Elliott, R. B. Kerr, and F. L. Shipp, and Lieut.-Col. (Acting) J. B. Bundock, R.C.A.M.C.

M.B.E. (Military Division).—Lieut.-Cols. (Acting) K. E. A. Hughes and R. Paul, Lieut.-Col. (Temp.) R. J. Phillips, Majors

W. H. Scriven and A. P. D. Thomson; Majors (Temp.) I. Aubrey, M.C., S. O. Ayett, R. Barraclough, J. Bleakley, P. W. H. Bleasdale,

J. A. C. Burridge, G. B. Carter, W. N. Chisholm, C. H. Davies, M. H. A. Davison, P. F. Dedow, C. M. Elliot, G. W. Hearn, G. A. Hodgson, A. E. Loden, H. H. I. Pearson, H. G. Percy, S. F. Raistrick, W. D. Richardson, G. M. Ross, C. I. Tuckett, R. H.

Webber, C. J. Wells, and K. S. Wilson; Capt.s. R. W. Clarke, P. J. Hardie, R. B. McGrigor, D. D. Muir, and Agnes D. D. Murray;

Lieut.s. R. J. Hughes, W. Mills, and J. C. E. Sundell, R.A.M.C. Majors N. J. England, D. K. Grant, H. I. Palmer, W. S. Keith,

F. J. McLean, J. B. Neilson, and A. F. W. Peart; Majors (Acting)

W. F. Bie, W. F. H. O'Neill, and R. L. Reeves; Capt.s. F. A. Jennings, H. A. Roberts, N. Kaufman, G. C. Sweet, and J. C. G. Young, R.C.A.M.C.

First Bar to the D.S.O.—Col. (Temp.) M. MacEwan, D.S.O., O.B.E., D.F.C., T.D., R.A.M.C.

D.S.O.—Lieut.-Col. M. H. Summers, T.D., and Lieut.-Cols. (Temp.) W. M. E. Anderson, A. Cowie, and E. H. P. Lassen, R.A.M.C.

M.C.—Major (Temp.) J. C. Watts and Capt.s. K. W. Beetham, L. S. Cooper, J. H. Haldane, H. M. Kershaw, G. H. McPherson, H. E. S. Marshall, J. G. Mott, C. T. H. Whiteside, and W. J. W. Wolfe; Lieut. W. J. Gallagher, R.A.M.C. Capt.s. B. L. P. Brosseau and W. M. Byers, R.C.A.M.C.

Medical Notes in Parliament

Nursing Shortage

THE EARL OF MANSFIELD in the House of Lords on Jan. 24 asked if the Government knew that a number of hospitals had been compelled to close one or more wards owing to shortage of nursing staff, and even so were unable to avoid the nurses having to work such long hours that their health suffered. He asked what the Government was doing to remedy this, and whether it was prepared at once to close redundant military hospitals and to transfer sufficient nurses to ease the situation in civil hospitals.

THE EARL OF LISTOWEL said the Government had taken certain measures to increase the supply of nurses, including the adoption from Jan. 1 of improved scales of salaries and the issue of a circular to hospital authorities urging increased employment of male nurses with special reference to those returned from the Forces and the establishment of more training schools for men. He said the powers of direction and control of engagement of nurses and other persons who had more than a year's recent nursing experience, and of midwives, were being retained for six months beyond Dec. 20, 1945, but no longer, to ensure that nurses and midwives were distributed between the health services according to need. He understood from Mr. Lawson that military hospitals were being reduced in size as quickly as equipped beds became surplus to establishment. Nursing officers were being released from the Army according to a programme based on a bare-sufficiency being retained for the nursing requirements of the Army. Over 3,100 nursing officers of the Q.A.I.M.N.S. and some 2,000 V.A.D.s had been released or discharged up to the end of Nov., 1945.

Refresher Courses

SIR ERNEST GRAHAM-LITTLE asked on Jan. 22 whether the Secretary for War was aware that medical officers about to be released from the Services required to spend some considerable time in refresher courses to fit them for undertaking civil practice; and whether he would arrange with the Minister of Health that these courses should be provided and followed by such officers before being admitted to civil practice. Mr. LAWSON answered that all medical officers released from the Army were informed of the facilities available under the Government's scheme for postgraduate training and refresher courses. This scheme, common to all three Services, was drawn up by the Ministry of Health and the Department of Health for Scotland, in conjunction with the universities and other interested bodies. Every encouragement was given to medical officers to avail themselves of these facilities before entering civil practice.

Specialists in the R.A.F.

MR. STRACHEY told Sir E. Graham-Little on Jan. 23 that in the R.A.F. Medical Branch specialists were recognized as such when they acquired a higher medical qualification in their specialty and had been recognized as competent by the consultant concerned. Specialists had been employed since the formation of the R.A.F. in 1918, though the general use of the title grew up only during the recent war. It was now used when officers so qualified were appointed to established posts for specialists. Specialist pay did not follow recognition as a specialist in the R.A.F., but specialists normally received higher rank than non-specialist medical officers. This accorded with the recommendation of the report made in 1933 by the Committee on the Medical Branches of the Defence Services. Two specialists, one oto-rhino-laryngologist and one anaesthetist, each employed in this respective specialty, had been appointed to the R.A.F. Medical Branch since VJ-Day. They were both replacing specialists released in Class B. Specialists had been demobilized in their age-and-service groups up to Dec. 31, 1945, but since then no doctors had been allotted to the Royal Air Force, and the Force had to retain seven specialist officers who

were occupying established specialist posts until the Central Medical War Committee could provide replacements. One of them was already being relieved and would now be demobilized.

Health Service Discussions

Sir HENRY MORRIS-JONES on Jan 24 asked the Minister of Health whether he had yet started consultations with the representatives of the voluntary hospitals and the medical profession on the national health proposals, and whether the result of the discussions would be made public. Mr BEVAN said he was engaged in discussions with representatives of the medical profession, local authorities, voluntary hospitals, and others, to obtain their expert advice on his proposals for the National Health Service. His proposals would be published in the usual manner by the introduction of draft legislation for the approval of Parliament.

Major HUGH FRASER on Jan. 24 asked the Minister of Health to make a more precise statement on the future administration of British hospitals. Mr. BEVAN asked the members to await the presentation to Parliament of the Government's proposals.

Doctors on Pensions Boards.—On Jan 24 Air Commodore HARVEY asked how many medical officers employed in a full-time capacity by the E.M.S. were also employed and remunerated on a seasonal basis by the Ministry of Pensions for work on boards. He asked for an assurance that this practice would cease in view of the fact that medical men released from the Services were unable to obtain part-time employment on pensions boards. Mr PALING answered that so far as he was aware no such medical officers were employed by his Department at the present time.

Notes in Brief

Arrangements are being made to release from the Forces a small number of ophthalmic lens workers in Class B.

There is no prospect of any early increase in the soap ration.

The Government has not yet determined its permanent policy in regard to flour and bread.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* infectious diseases were more prevalent during the week. The increases were: acute pneumonia 280 more cases, whooping-cough 142, scarlet fever 105, dysentery 59, diphtheria 56, cerebrospinal fever 33.

The rise in scarlet fever was general, no area showing a large incidence. The increase in whooping-cough was in the northern section of the country. Diphtheria rose by 22 cases in Northampton C.B., by 14 in Lancashire, and by 13 in Durham; the only significant fall was Nottinghamshire 17. A large outbreak of measles in Southampton Port Health District involved 79 persons. During the past three weeks the numbers of cases of cerebrospinal fever have been 38, 53, and 86, these being spread over the country.

No fresh large outbreak of dysentery was reported during the week. A further 162 cases in the Melton Mowbray area of Leicestershire brings the total for the past three weeks to 414. The other noteworthy returns were Lancashire 36, London 28, Rutland 16, Northumberland 15, Yorks West Riding 13, Essex 11.

In *Scotland* large increases were recorded in the incidence of measles (124 more cases), acute primary pneumonia (72 more), whooping-cough (62 more). The only notable decreases were scarlet fever 37, and diphtheria 15. The fall in diphtheria was most marked in the western area; in other parts of the country there was a small general rise. Scarlet fever in Glasgow fell from 94 to 68.

In *Eire* the rises in measles (50 more cases) and whooping-cough (32 more) were mainly contributed by Dublin C.B., where there were also 17 more cases of diarrhoea and enteritis.

Vital Statistics of Manchester

The provisional return for last year showed that the maternal mortality rate, 1.48 per 1,000, was the lowest ever recorded in the city. The birth rate was 18.15, and the infant mortality 56.27 per 1,000 live births, these rates being 1.70 and 2.68 respectively above those of 1944. The general death rate was 14.49, an increase of 0.29 on that of the preceding year. The death rate from tuberculosis was 0.92, compared with 0.91 in 1944.

Week Ending January 19

The returns of infectious diseases in *England and Wales* during the week included: scarlet fever 1,251, diphtheria 478, measles 726, cerebrospinal fever 62, dysentery 371. One case of smallpox was imported into Southampton. Deaths from influenza in the great towns numbered 174.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Jan 12.

Figures of Principal Notifiable Diseases for the week, and those for the corresponding week last year, for (a) England and Wales (including London) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under the 1938-1940 and 1941-1942, are for (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases, a blank space denotes disease not notifiable or no return available.

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	86	93	24	2	1	41	1	23	2	—
Deaths	—	3	1	—	—	—	1	—	—	—
Diphtheria	525	35	157	76	12	459	20	154	113	20
Deaths	7	1	2	1	—	5	1	3	5	—
Dysentery	344	28	37	1	—	202	36	82	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis, lethargica, acute	4	1	—	—	—	4	—	1	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	53	12	2	—	—	45	9	4
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	—	—	—	33	—	—	—	10	—	—
Deaths	58	7	8	16	2	52	2	9	14	1
Measles*	771	86	156	153	4	10,797	210	889	14	230
Deaths	3	—	1	1	—	18	2	2	—	—
Ophthalmia neonatorum	78	5	15	1	—	50	—	19	—	1
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	2	—	—	—	1(B)	5	—	3(B)	—	1(B)
Deaths	—	—	—	—	—	1	—	—	—	—
Pneumonia, influenza (from influenza)	1,445	84	57	11	10	1,299	72	17	5	14
Deaths	165	13	21	1	4	72	14	2	2	1
Pneumonia, primary	—	—	504	50	—	—	—	319	22	—
Deaths	102	—	17	14	—	85	—	23	23	—
Po - encephalitis, acute	1	—	—	—	—	3	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
For - typhoid, acute	10	1	1	—	—	7	—	—	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	5	11	—	—	—	4	6	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia	154	18	17	1	1	127	8	6	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	1,355	117	226	17	25	1,330	52	212	21	37
Deaths	—	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	3	1	5	13	—	5	1	3	2	1
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough*	1,190	91	99	42	7	1,676	57	258	50	4
Deaths	11	1	1	5	—	13	1	2	1	1
Deaths (0-1 year)	460	69	62	5	14	512	5	68	68	24
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	6,784	1,071	882	247	163	6,537	10,9	745	258	171
Annual death rate (per 1,000 persons living)	—	—	—	—	—	—	—	—	—	—
Live births	7,221	1,055	882	493	277	6,596	647	884	236	240
Annual rate per 1,000 persons living	—	—	—	—	—	—	—	—	—	—
Stillbirths	211	19	39	—	—	201	18	38	—	—
Rate per 1,000 total births (including stillbirths)	—	—	—	—	—	—	—	—	—	—

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

Medical News

Dr. G. L. Brown will give an address on "Some Physiological Problems of Service at Sea" before the Royal Institution, 21, Albemarle Street, W., to-day (Friday, Feb. 1), at 5 p.m. The last three of a course of lectures on "Some Recent Advances in the Physiology of Vision" will be delivered by Prof. H. Hartridge, M.D., F.R.S., at the Royal Institution on Tuesdays, Feb. 5, 12, and 19, at 5.15 p.m. (The first lecture in this series was given on Jan. 29.)

A meeting of the London Association of the Medical Women's Federation will be held at B.M.A. House, Tavistock Square, W.C., on Tuesday, Feb. 5, at 8.30 p.m., when Dr. Marjorie Warren will speak on "The Care of the Aged and Chronic Sick." On March 7 Miss Jocelyn Moore will speak on "Gynaecology in the Women's Services."

There will be a clinical meeting of the Medical Society of the L.C.C. Service on Thursday, Feb. 7, at 2.45 p.m., at Maudsley Hospital, Denmark Hill, when the members of the staff of the hospital will demonstrate cases.

Major-Gen. Sir John Megaw will deliver the Sir George Birdwood Memorial Lecture on "The Health of India" before the India and Burma Section of the Royal Society of Arts, John Adam Street, Adelphi, W.C.2, on Thursday next, Feb. 7, at 2.30 p.m.

Meetings of the West London Medico-Chirurgical Society have been arranged as follows: Feb. 15 and May 17, clinico-pathological meetings; March 15, Presidential address; and April 26, dinner-discussion. The Cavendish Lecture will be delivered in June. Details will be published later.

The Royal Society of Medicine has arranged a meeting jointly with the Scientific Film Association on Tuesday, Feb. 26, at 1, Wimpole Street, W.1, to discuss the place of films in medical education. The time-table is: 2.15 to 4.15 p.m., speakers on theory; 4.15, tea; 4.45 to 6.45, speakers on practice. The following have been invited to open the discussion: Mr. Patrick Meredith, Reader in Visual Education at University College of the South-West; Dr. H. K. Vernon, Chief Adviser in Psychology to the Admiralty; Prof. Winifred Cullis; and Dr. G. R. Hargreaves (late of Directorate of Army Psychiatry). It is hoped that many interested in technical adjuncts to medical education may be present.

A lecture on "War Experiences in Therapeutics" will be given by Prof. G. A. H. Buttle at the Pharmaceutical Society of Great Britain (17, Bloomsbury Square, W.C.) on Thursday, Feb. 14, at 7 p.m.

The Edinburgh Postgraduate Board for Medicine announces that the fourth 14-day general refresher course primarily for demobilized medical officers (Class 2) will start on Monday, March 18. Applications should be sent to the Director of Studies, Postgraduate Medical Board, University New Buildings, Edinburgh, 8.

Application is invited for Leverhulme Fellowships and grants in aid of research. These are intended for senior workers prevented by routine duties or pressure of other work from carrying out research. They are limited to British-born subjects normally resident in Great Britain, but in exceptional circumstances the trustees may waive the condition as to residence. The trustees will also consider applications from groups of workers engaged upon co-operative programmes of research, particularly from those engaged upon long-distance programmes or in institutions where the normal facilities for research have been curtailed by the war. The awards will not normally extend over more than two years or less than three months and the amount will depend on the nature of the research and the circumstances of the applicant. Forms of application may be obtained from the secretary, Dr. L. Haden Guest, M.P., Leverhulme Research Fellowships, 7, Bedford Row, London, W.C.1. Applications should be received by March 1, and awards will date from Sept. 1, 1946.

Dr. William Oswald Gibson Taylor is being invited by the Scottish Nationalist Party to contest the Cathcart (Glasgow) by-election caused by the death of Mr. Francis Beattie (Cons.). Dr. Taylor graduated M.B., Ch.B. at the University of Glasgow in 1934 and served during the war as an ophthalmic specialist in the R.A.M.C.

The Association of Austrian Doctors in Great Britain, which is affiliated to the Free Austrian Movement, has launched an urgent appeal to all colleagues in this country. Children, women, and old folk in Austria, survivors of concentration camps, will face not only hunger and cold this winter, but complete lack of the most essential drugs. Help is needed, and donations should be sent to the Aid to Austria Appeal Committee Medical Fund, 157, Bloomsbury House, Bloomsbury Street, London, W.C.1.

Mr. Samuel Davidson has been appointed honorary obstetric surgeon to the Birmingham Maternity Hospital to fill the vacancy caused by the death of Sir Beckwith Whitehouse, and Mr. R. W. Weedon Butler has been appointed honorary ophthalmic surgeon.

King Edward's Hospital Fund for London has received a further instalment of £125,000 from the Nuffield Trust for the Special Areas. In founding this trust Lord Nuffield provided that any sums that might be available by way of repayment of loans or otherwise from his Trust for the Special Areas should pass to the King's Fund. A total sum of £500,000 has now been received, the first £250,000 of which was, at Lord Nuffield's request, allocated to Guy's Hospital.

Mr. Ralph Bates, F.R.C.S., medical superintendent of Stoke Park Colony, has recently been appointed medical superintendent of the Royal Eastern Counties' Institution for the Mentally Defective, Essex Hall, Colchester.

A limited issue of penicillin lozenges is now being made for use in appropriate cases at hospitals. Medical practitioners will also be able to obtain a limited supply for carefully selected cases in their own practices by application to the nearest distributing centre.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to The EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Atiology Westcent, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Treatment of Eunuchoidism

Q.—A man of 21 developed normally until the age of 14, when he suffered from mumps with bilateral orchitis. He is now worried by his smallness, high voice, and lack of beard. Females attract him, not males; he has occasional erections but no nocturnal emissions. There is "down" on his face, slight axillary hair, and a small clump of pubic hair, showing no signs of rising up the linea alba. His penis is that of a prepubertal youth. His testes are small, the right in the scrotum, the left at the external inguinal ring. What is the treatment?

A.—When bilateral orchitis is a complication of mumps recovery may be complete, or damage may be limited to the seminiferous tubules, or it may involve the interstitial cells of Leydig, which secrete testosterone. The seminiferous tubules are much more sensitive to toxins, and to high temperature, than are the interstitial cells, and the more usual condition, therefore, is normal virility but absence of fertility. However, in some cases, when the interstitial cells are also involved, one gets the condition of eunuchoidism, which is the clinical picture as described in the question. Treatment is by testosterone, which may be given as injections of the propionate, 50 mg. twice weekly, or as methyl testosterone tablets, 5 mg. t.d.s., or by implantation of testosterone propionate pellets subcutaneously, a total of 800 mg. being a suitable dosage.

Menstrual Migraine

Q.—A single lady aged 34 complains of intractable headaches starting some days before menstruation and lasting for about a week. The usual remedies have no effect, and the same applies to stilboestrol and gonadotrophin. It appears to be a pituitary type of headache. Menstruation is otherwise normal. Can you suggest a line of investigation and treatment?

A.—Cyclical headaches of this kind, sometimes described as menstrual migraine, may be of pituitary origin, but not necessarily. They are sometimes associated with high gonadotrophin and low oestrogen levels; gonadotrophic hormone therapy is therefore contra-indicated—it may make matters worse. Sometimes they are related to the retention of sodium and fluid in the tissues, and this in turn to a high oestrogen level in the blood. If, therefore, there is any sign of premenstrual oedema, distension, or increase in weight, oestrogens are also contraindicated. Many are the theories to account for the headache—swelling of the pituitary gland, cerebral anaemia, vasodilatation of cranial and cerebral blood vessels, hormone imbalance, allergy, neurosis. It would be of interest, if nothing more, to have the skull x-rayed to see if the roof of the pituitary fossa is calcified. A complete investigation of eyes, teeth, ears, sinuses, etc., as in any case of migraine, is also called for. Although oestrogens (including stilboestrol) and testosterone preparations administered

premenstrually are reported to be helpful sometimes, in general the results are disappointing. Treatment on more simple lines, aimed at reducing fluid retention and intracranial pressure, is often the best. Advise the patient to keep to a salt-free diet and to restrict her intake of fluid to 30 oz. (852 c.c.) in 24 hours, for seven to ten days premenstrually. Over the same period give ammonium chloride, gr. 15 (1 g.) t.i.d., by mouth, and also saline aperients if necessary. Avoid all sodium salts. Sometimes the intramuscular injection of a mercurial diuretic, one or two days before menstruation, is worth while in cases in which the above is insufficient.

If in spite of treatment the headaches continue, large doses of ergotamine tartrate by mouth (1 to 5 mg. initially, followed by 1 to 2 mg. every three or four hours) should be tried, keeping in mind its dangers if continued too long. It has recently been suggested that ergometrine works equally well, but I have no experience of this. Inhalations of pure oxygen are also said to give symptomatic relief in some cases.

If the headaches still persist, the patient will probably sooner or later raise the question of having the menopause induced artificially. If she does, it is contraindicated. As a last resort, however, and if the headache is very intense and associated with a calcified roof to the sella turcica, x-ray therapy to the pituitary gland might be considered, although it often has untoward side-effects, such as the development of obesity. Reference might be made to previous questions and answers on menstrual migraine which appeared in the *Journal* of Aug. 21, 1943 (p. 255), and Sept. 18, 1943 (p. 379).

First Aid for Cresol Burns

Q.—With the increase in the use of plastics, phenol and cresol burns are likely to become more frequent. During the process of manufacture of the "resin" employees are sometimes splashed by hot cresol. What is the best first-aid treatment?

A.—If the burning substances are not of a tarry nature, making them stick tightly to the skin, the burn should simply be put under the cold tap to relieve pain for the moment. Tap water has usually so few potential pathogens that it is safe. Stored normal saline is less safe unless one can be sure the bottle has never been opened since it was sterilized, but it has no real advantage over tap water. Hands and unsterilized linen should not be used for swabbing the burns. After they have been cooled with tap water they should be covered with a sterile cloth. Every factory should keep a number of such sterile cloths, wrapped in good stout paper and sterilized in an oven, for these emergencies. If the burn is too extensive and involves the trunk, so that it cannot readily be washed with tap water, pain should be controlled, if necessary, by morphine and the patient sent to hospital with the least possible delay.

Cirrhosis of the Liver

Q.—What is the modern treatment of Hanot's (hypertrophic) cirrhosis of the liver?

A.—The existence of a special hypertrophic type of cirrhosis (Hanot) is not generally accepted nowadays. Patients with chronic disease of the liver who have hepatic enlargement and persistent or recurrent jaundice usually prove to be suffering from subacute necrosis of the liver, and at necropsy they show a coarse or adenomatous type of cirrhosis with a variable amount of fatty infiltration. In cirrhosis due to alcoholism the liver may be large as a result of an increased content of fat. Jaundice may occur in all forms of subacute necrosis and cirrhosis; it usually signifies an increased activity or recrudescence of the disease process. A biliary type of cirrhosis should not be diagnosed in the absence of signs of obstruction or infection of the biliary passages. In the absence of these signs the patient should be treated as for subacute necrosis or cirrhosis. Possible causative factors, such as toxic drugs or chemicals, should be looked for. The main treatment is by diet. The fat intake should be reduced to a minimum, the protein intake moderately increased, and the bulk of the calories provided by carbohydrate. The vitamin intake should be raised: A, D, and K to compensate for the fat restriction, and the B complex for its therapeutic effect. Choline chloride has been recommended in this type of case. It is expensive, and the treatment is still experimental. It would be wise to begin with a dose of 1 g. t.i.d., and increase gradually up to, say, 4 g. q.d.s., preferably in solution after meals. If oedema or ascites appears, the salt intake should be reduced and one of the mercurial diuretics given. If jaundice is present the most effective remedy is probably rest in bed.

Sterility of Sulphonamides and Penicillin

Q.—I understand that drugs of the sulphonamide group require sterilization before use. A non-medical American druggist tells me this is not the case. I should be glad of chapter and verse to convince him that the sulphonamides do require sterilization, as they are not antiseptic in the true sense of the word. Is this also the case with penicillin?

A.—That a dry powder cannot be bactericidal is so self-evident a proposition that "chapter and verse" in support of it is hard

to seek. Whether the sulphonamides are antiseptic in the true sense of the word is a question which simply does not arise in this connection, because clearly whatever action they have can be exerted only in solution. The questioner's incredulous American friend is either under a strange misapprehension or really means that sulphonamides are so manufactured as to be bacteria-free, and so far that reason does not require to be sterilized. Contamination by dust or packing material, possibly containing tetanus spores, may nevertheless occur. The most accessible publication whereby he can be convinced of his error is *The Medical Use of Sulphonamides*, 2nd edition (M.R.C. War Memo. No. 10). The sterilization of sulphonamide powders is dealt with on the last page, which notes both the U.S. Pharmacopoeia tests for sterility and the work of Welch, Seacom, and Herwick (*J. Amer. med. Ass.*, 1942, 120, 361), who showed that sulphanilamide powder contaminated with tetanus spores produces tetanus in animals—i.e., so far from killing the spores, the drug does not even prevent their ultimate multiplication in the body.

Penicillin as supplied by the manufacturers is sterile, and solutions or other preparations made under satisfactory aseptic conditions should, therefore, not require further sterilization. If for any reason this should be thought necessary, it can be achieved only by filtration, since heat is destructive to penicillin. Some surgeons insist on the filtration of penicillin solutions to be used for intrathecal injection. Bacteria resistant to the action of penicillin, such as coliform organisms, will survive indefinitely in solutions of it.

Morphine in Coronary Thrombosis

Q.—Is it good practice to give 1/4 gr. (16 mg.) of morphine to relieve pain in coronary thrombosis or angina pectoris? Most G.P.s of experience must have had cases in which the patient died suddenly as the morphine was being absorbed.

A.—The injection of morphine is the correct treatment of coronary thrombosis: gr. 1/4 (16 mg.) should be given subcutaneously at once, and this dose repeated if relief from pain does not soon follow. For spasmodic or effort angina trinitrin is the treatment of choice: a tablet containing gr. 1/100 (0.65 mg.) is allowed to dissolve under the tongue, and one or two more may be taken if the pain is not relieved within a few minutes. Should the pain persist, morphine gr. 1/4 (16 mg.) is injected subcutaneously. The writer has not encountered the disaster to which reference is made, but in considering the possibility of cause and effect it must be remembered that death from ventricular fibrillation may occur abruptly at any time, and that this is most likely to happen in the earlier stages—the period during which morphine is likely to be administered. The remote possibility of such an accident should certainly not deter the physician from prescribing morphine for the relief of pain in coronary thrombosis or other forms of angina.

Treatment of Asymptomatic Congenital Syphilis

Q.—If a mentally defective child is found to have a positive blood Wassermann without any clinical evidence of syphilis, what treatment should it have? Would clinical or serological evidence of syphilis in the parents and/or siblings make any difference to the treatment prescribed?

A.—If a mentally defective child is found to have a persistently positive blood Wassermann reaction, and if, as a result, a diagnosis of asymptomatic congenital syphilis is made, the cerebrospinal fluid should be examined to exclude neurosyphilis. Assuming that the fluid is negative, treatment should consist of weekly injections of an arsenic compound—nearsphenamine if intravenous therapy is practicable, and sulpharsphenamine if the child is very young or has difficult veins—and a bismuth compound. These injections should be given concurrently in courses of ten of each, with rest intervals between courses of four to six weeks at first, increasing later. Treatment should extend over two years, or even longer if the serum reactions are not reversed, and thereafter the patient should be kept under observation for at least three years: dosage will depend on the age of the child and its tolerance to the drugs. Penicillin might be worth trying, but should be employed in addition to, not instead of, arsenic and bismuth. As yet there is little evidence available to show its value in such a condition. Clinical or serological evidence of syphilis in parents and/or siblings would serve to confirm the diagnosis, but would not affect the type or amount of treatment.

Adult Reactions to Diphtheria Immunization

Q.—In using A.P.T. in adults there have been some local reactions. What preparation should be used to immunize adults against diphtheria?

A.—Reactions to diphtheria prophylactic reagents are seen particularly in persons who give a pseudo-reaction to the Schick test: that is, those in whom a skin reaction occurs with the control material. This pseudo-reaction, which has been shown to correspond with the Moloney reaction (elicited by the subcutaneous injection of 0.1 c.c.m. of diluted formal toxoid), appears in persons who are partially immune and who therefore seem to be rather allergic to

diphtheria toxoid. In such individuals any one of the diphtheria antigens—toxoid, A.P.T., or T.A.F.—given in the usual dosage will elicit reactions of varying degrees of severity. Large-scale immunization of an adult population, or of older school-children, should therefore not be undertaken without preliminary Schick-testing. Pseudo-reactors are preferably not given any injections, as, being already partially immune, they are unlikely to develop diphtheria, and indeed the Schick test material itself is often sufficient to render them negative to further tests. If, however, preliminary Schick-testing cannot be done, the safest prophylactic for adults is T.A.F. An initial dose of 0.2 c.cm. should be given to all volunteers, and non-reactors should receive two further doses of 1 c.cm. at three to four week intervals. Reactors should not be given any further injections.

Senile Pruritus

Q.—Is complete rest in bed likely to prove beneficial to an intractable case of senile pruritus in a patient aged 80?

A.—Senile pruritus is unlikely to benefit from rest in bed, and might even be made worse, because the patient is able to give more attention to the itching skin.

Clicking Joints in a Baby

Q.—A mother states that she can hear the joints of the back cracking in her 14-months child. I have been unable to find any abnormality. Should I refer the case to an orthopaedic surgeon?

A.—The present writer in an extensive orthopaedic practice has seen a few small infants who have had queer clicking joints. The phenomenon appears to be without any great significance, for these symptoms seem to disappear. Unless there is any clear evidence of physical disturbance one would suggest leaving the problem and reviewing it from time to time. If the mother continues to be distressed by the peculiarities which the child presents it would certainly be worth while seeking confirmatory advice.

INCOME TAX

Assistant Provided with Furnished House

S. B. employs two assistants, each of whom has the use of a free furnished house; he pays income tax on the rental value and also owners' and tenants' rates.

* S. B. can deduct as an expense of the practice the amounts on which he bears income tax in respect of the properties—as he could deduct the rent if he rented them. He can also deduct the payments he makes for repairs, rates, maintenance of furniture, insurance, and other current expenses incurred on the properties.

Appointment: Travelling Expenses

I. W. is a medical officer whose duties involve a good deal of travelling. As he is compelled to live out he receives an allowance of £100 per annum. When he goes away he receives a subsistence allowance of 14s. a day for the first 7 days and 9s. a day for succeeding days. These rates, it is suggested, are too low, as they compare unfavourably with the 20s. a day which would be paid as subsistence if he were living in a hospital. Can he claim anything for income-tax purposes in view of his low subsistence rates?

* The governing principle is that a claim can be made only for expenses incurred "wholly, exclusively, and necessarily in the performance of the duties of the office." What I. W. would have to do to succeed in his claim would be to satisfy the local inspector of taxes (or on appeal from his decision a board of commissioners) that the cost of his visits outside his residential radius was necessarily greater than the amounts allowed him by his employer; and in measuring that cost it is to be presumed that any savings in respect of food, etc., at his residence would be taken into account. Obviously his prospects of success depend on his particular circumstances, but proof of the correctness of his claim would be difficult.

Fluctuation in Income

E. T. first became liable to income tax for 1944-5, but since April, 1945, owing to illness, has earned only £16. Can the two years be combined or averaged?

* No; each financial year must be treated as an isolated unit.

Appointment: Car Expense

H. S. had retired and subsequently accepted an appointment involving attendance at a board held 12 miles distant from his residence. Can he claim to deduct the expense of travelling to and from the board?

* No. In the circumstances the expense is incurred not "in performing the duties of the office" but antecedently in order that H. S. may be in a position to commence performing his duties. The case is somewhat similar to that of an employee who lives in the suburbs and travels to his employment.

LETTERS, NOTES, ETC.

Medical Books for Yugoslavia

Mr. HAROLD EDWARDS (King's College Hospital, Denmark Hill S.E.5) writes: The doctors of Yugoslavia are very short of modern British medical literature, having received practically none since the war started. They are most anxious to make good this shortage and on a recent visit to Belgrade I promised those who asked me—and they were many—to do what I could to help. If any of your readers can spare any standard works or series of periodicals (odd ones or twos are of little value) published in the United Kingdom since September, 1939, and would send them to me I will undertake to have them forwarded to Yugoslavia through military channels by kind agreement of the D.G.A.M.S., Sir Alexander Hood. A gift of this kind would be appreciated very much, and may help to increase the friendship and good will between the two countries. It is suggested that contributors write inside each volume: "The gift of (name and address)." This may lead to the development of individual friendships.

Coccygodynia

Dr. T. ASTLEY COOPER (Birmingham) writes: I wonder if any other practitioner has had similar experience to mine. I have had to deal lately with a rather interesting case of coccygodynia. The man is about 40 years of age and complains that from time to time he awakes during the night with a vague sensation of discomfort in the region of the sacrum. This discomfort gradually develops into a most intense neuralgic pain in the region of the coccyx. Nothing will relieve the pain until, after pacing the bedroom for some time a small amount of flatus is passed. The pain then subsides, but is so severe at the time that it leaves him quite exhausted. Another interesting feature is that it will frequently occur after sexual intercourse. Physical examination is quite negative and there is nothing to be discovered per rectum. These attacks have occurred at intervals since childhood. The only information I can get is that it is coccygodynia—which is obvious; but no help as to the possible cause of this pain or suggestions regarding its prevention. I presume it is due to pressure, but what the mechanism of this is remains rather a mystery.

Abortion and the Birth Rate

Dr. B. DUNLOP (Binfield, Berks) writes: Your welcome article (Dec. 29, p. 926) about the book *Britain and her Birth-rate* contains a long quotation from it which asks: "Is the sad truth to-day that children are distributed in inverse ratio to knowledge and the ability and desire to assimilate facts?" and which later says: "There is no reason to suppose that legislation will alter this pattern fundamentally." I submit that legislation could, however, alter this pattern fundamentally by relaxing the abortion law sufficiently to enable women to avoid having more children than they desire—a law which is an outstanding infringement on liberty.

Hospital Service Plan

Dr. S. M. R. THOMSON (London, E.13) writes: The letter by Sir Hugh Lett and Dr. W. Russell Brain on the London Hospital Service Plan (Dec. 29, p. 936) brings to the notice of the medical profession a very useful scheme. While it is a good plan for the general public, I would recommend it also to doctors and their dependants. The fees for hospital and for medical and surgical in-patient treatment are paid direct to the hospital and to the surgeon or physician who has given the necessary treatment. If a doctor or his dependant has been the patient this simplifies the question of gifts for service rendered and puts the whole matter on a business-like basis, more satisfactory to all concerned.

Nylon for Buried Sutures

Dr. T. RUSSELL STEVENS (Dorchester) writes: May I assure Mr. H. A. Haxton (Jan. 12, p. 66) that I will try his method of tying knots with nylon. Our case for nylon is strengthened by the two letters by Mr. H. I. Deitch and Mr. H. J. McCurrah, immediately following his letter. I would suggest to all those who are champions of catgut that there is no argument about the properties of nylon, such as has been raging about catgut. *Verb. sap.*

Nodules at Site of A.P.T. Injection

Dr. M. F. McDONNELL (Northfleet, Kent) writes: With reference to the answer given to the query about nodules forming after immunization with A.P.T. (Dec. 22, 1945, p. 908), we find that the following procedure eliminates the lump: (1) insert needle vertically and deep into upper deltoid muscle; (2) withdraw needle and gently massage the muscle at site of injection.

Correction

We regret an error on page 3 of the *Journal* of Jan. 5. "A rapid transfusion of a pint (473 c.cm.) of blood" is wrong. The pint to be transfused should have been an Imperial pint (568 c.cm.) and not a United States Apothecaries' pint (473 c.cm.).

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EFFECT OF A DAILY VITAMIN SUPPLEMENT ON THE HEALTH AND DEVELOPMENT OF CHILDREN

BY

C. R. BRANSBY, Ph.D. J. L. BURN, M.D., D.H., D.P.H.
H. E. MAGEE, M.B., D.Sc.

AND

The late D. M. MacKECKNIE, M.B., D.P.H.

The purpose of the investigation was to examine the effect of a daily supplement of vitamins in capsule form on the health and development of children living at home and attending day schools in Stoke-on-Trent and Salford. A similar investigation (Bransby *et al.*, 1944) had been made previously, and the present study was in the nature of a confirmatory test.

Literature.—The following review of the literature on the effects of vitamin supplements is limited to those studies in which the supplement was additional to the normal diet, and consequently excludes investigations in which the experimental subjects had diets with restricted vitamin intakes. Further, it does not include the study by Frankau (1943) in which a large vitamin dose was given for a few days as the results may have been due to the pharmacological effect of the vitamins in the supplement. The studies included in this review can broadly be divided into two—those concerned specifically with infections of the upper respiratory passages and those dealing with a wider range of conditions. The former have been reviewed by Keefer (1943), who concluded that the available evidence indicates that vitamin therapy has no effect on colds. The studies dealing with a wider range of conditions are summarized in Table I. The most marked effect of the vitamin supplements was obtained by Borsook (1945) on factory workers, but it must be pointed out that the daily dosages were about 10 times in excess of requirements. The improvements obtained may have been due to a pharmacological action, and the test does not throw light on the desirability or otherwise of the continued administration of such tonics. The results of the other tests are contradictory, and show that the vitamin supplements had no consistent effects.

Method.—The test was made on 1,620 children, aged 5 to 14 years attending elementary or secondary schools. In both areas Stoke and Salford the children were divided at random into two groups, one of which received one vitamin capsule daily, the other a placebo daily. Each vitamin capsule contained vitamin A, 4,000 i.u., vitamin B₁, 1 mg., riboflavin 2 mg., nicotinamide, 20 mg., ascorbic acid, 50 mg., vitamin D, 600 i.u. All practicable precautions were taken by the teachers to ensure that the capsules were eaten. The test started at the beginning of 1943 and ran in each locality for one year. Medical, dental, and anthropometric data were collected in Stoke three times during the experimental year (namely, at the beginning, three months subsequently, and at the end) and in Salford twice (at the beginning and at the end). In both Stoke and Salford records were kept for each child of the extent of and reasons for, absence from school. Other data collected for the experimental subjects were the number of children in the families to which they belonged, their home conditions, the type of school to which they went, and whether they took school milk or dinners, free or paid for. In Salford, data were collected on the economic conditions of the families of the experimental subjects. In Stoke the children performed dynamometer and hanging bar tests, and in Salford the hearing was tested by means of the audiometer.

Dietary Data.—As a part of the investigation dietary data were collected from a representative sample of the experimental subjects to ascertain the levels of the vitamin intakes from the ordinary diets. Dietary surveys in Stoke and Salford were made both in Aug./Sept., 1943, and in March, 1944, and the results have already been reported (Bransby and Wagner, 1945). It was found that on the average the intakes of nutrients

except calcium, were adequate or nearly so according to the League of Nations standards. The actual average daily vitamin intakes found in each survey were of the order of vitamin A, 3,000–4,000 i.u., vitamin B₁, 1–1½ mg., ascorbic acid 35–45 mg. The ascorbic acid intake found in March 1944 was raised above the general average for that time of the year owing to a chance distribution of oranges, and it was calculated that without the oranges the average intake would have been of the order of 20–25 mg. per head daily. Although the average intakes of nutrients except calcium, were generally sufficient, many individual children had intakes which were poor compared with the League of Nations standards. A paper by G. A. Jenkins dealing with the ascorbic acid content of the cooked vegetable eaten by children will shortly be published in the Journal.

Analysis of Data.—Recognized statistical methods were used for comparing the effect of the vitamin and placebo capsules. The standard errors of the initial height and weight, dynamometer pull, barium fluoride potential and audiotape data, as well as the standard errors of the height and weight increase and the changes in other factors were calculated by the t-test method. For the clinical and dental data, account was taken of both the incidence and the severity of the conditions which were included in the examinations. Inspection and analysis of sections of the clinical and dental data showed that the distribution of the various grades of severity among the children could be regarded as a Poisson distribution, and the standard errors of the initial scores and score changes were calculated accordingly. For most of the comparisons the data for boys and girls were treated separately in the three age groups 5–7 years, 8–10 years, and 11 years and over. Considerations of space prevent the inclusion of all but a few of the tables of results.

One of the purposes of collecting data on the number of children in the family (classified 1 or 2, 3, 4 or more), home conditions (graded good, fair, or poor) and economic conditions (graded good, fair, or poor) to which the experimental subjects belonged was to enable the experimental data to be broken down into sub-groups according to those factors. This meant that the effect could be assessed of the vitamin supplement on children living under poor conditions and consequently likely to be receiving a deficient diet. The factors by which such breakdowns were made were the general nutritional grade at the beginning of the experimental period, the number of children in the family, the home conditions, the economic conditions, the type of school which the child attended, and whether the child had milk or dinner at school free or paid for. The children were classified by single factors, such as economic conditions, and also by multiple factors, such as both economic conditions and the number of children in the family. The numbers in some of the resulting groups were small, and the Stoke and Salford data were, where possible, considered together. The resulting tables were examined in detail, and

TABLE I.—*Summarized Results of Studies on the Feeding of Vitamin Supplements*

Worker	Subjects	No.	Duration (Months)	Daily Vitamin Supplement						Effect of Vitamin Supplement
				A (i.u.)	B ₁ (mg.)	B ₂ (mg.)	Niacin (mg.)	Ascorbic Acid (mg.)	D (i.u.)	
Borsook (1945)	Men	528	12	50,000	10	10	100	250	800 (a)	Improved output due to better work and reduced absenteeism
Bransby <i>et al.</i> (1944)	Children	1,040	9	4,000	1	2	20	50	600	No effect: growth, strength, clinical or dental condition, absenteeism. Improvement in endurance and fatigue potential
" "	Men	214	9	4,000	1	2	20	50	600	No effect: weight, haemoglobin, blood pressure, absenteeism, output
Glazebrook and Thomson (1942)	Youths	1,500	6					50		No effect: incidence of colds and tonsillitis. Reduced duration of tonsillitis and incidence of rheumatism and pneumonia
Harper <i>et al.</i> (1943)	Cadets	69	5	6,000				50	1,000	No effect: growth, chest. Improved vital capacity, breath-holding, endurance, pulse rate, susceptibility to minor ailments
Jenkins and Yudkin (1943)	Children	178	12	5,000	1			25	500	No effect: pulse rate, vital capacity, breath-holding, endurance
Johnson <i>et al.</i> (1945)	Men	8	2					75		No effect: general well-being, vigour and efficiency in work
Keys and Henschel (1942)	Soldiers	26	10 (c)	See footnote (d)						No effect, either in brief, extreme, or prolonged severe exercise or semi-starvation, on muscular ability, endurance, resistance to fatigue, recovery from exertion
Mangold (1945)	Children	38	5		2					No effect: height, weight, alertness
Raffin and Cayer (1944)	Students	200	1	7,500	3	4.5	30	82	600 (b)	No effect: appetite, energy, health, weight, indigestion, abdominal pain, diarrhoea, nausea, vomiting
Sutherland (1934)	Children	575	6	A and D equiv. to 1 oz. (28.4 c.cm.) of cod-liver oil						Possible slight effect on growth, none or susceptibility to infection or resistance to established disease
Yudkin (1943)		1,000	12	5,000	1			25	500	No effect: pulse rate, vital capacity, breath-holding, endurance, haemoglobin, dark-adaptation, grip, intelligence. Improvement in colds

(a) Together with 500 mg. of calcium (CaCO₃).

(b) Together with liver extract and yeast extract.

(c) Total duration of experimental period of tests of shorter duration.

(d) Four series of experiments were made with the following daily vitamin supplements:

	Thiamin (B ₁) (mg.)	Nicotinamide (mg.)	Calcium Pantothenate (mg.)	Riboflavin (B ₂) (mg.)	Pyridoxine (B ₆) (mg.)	Ascorbic Acid (C) (mg.)
Series 1 ..	5	100	—	—	—	100
" 2 ..	5	100	20	10	10	200
" 3 ..	17	100	20	10	10	200
" 4 ..	—	—	—	—	100	—

conclusions based on them have been referred to where desirable. It is hoped to publish a separate paper dealing with health conditions according to economic and social factors.

Comparison of Experimental Groups

At Beginning of Test.—Table II shows the findings for the various experimental groups in Stoke and Salford at the beginning of the test. In Stoke there were no significant differences between the vitamin groups and their corresponding control groups in weight, height, pull, bar-time, and fatigue potential. In Salford there were no significant differences in weight, height, or audiometer scores, except that the girls aged 11–13 years in the vitamin group were heavier and taller than the corresponding group. The latter was an unexpected result, as the children were randomly selected.

Over the Test Periods.—Table II shows the increments and the differences between the increments of the vitamin and control groups over the test periods. None of the differences between the vitamin groups and their corresponding control groups is significant, except that the weight increments of boys aged 8–10 years in Stoke receiving the vitamin supplement were greater at the second and third examinations than those for the corresponding control boys receiving the placebo, and that the improvement in hanging-bar time of boys aged 11–13 years was greater in Stoke among those receiving the placebo than among those receiving the vitamins. Considering the large number of differences which are not significant and the lack of consistency of the results, little importance can be attached to these two significant differences. There is some consistency in the results for both weight gain and dynamometric pull in Stoke, but the differences are small and probably unimportant.

The data were further analysed to compare the changes in the vitamin and control groups according to the social and economic factors referred to above. No consistent differences between

the vitamin and control groups could be discovered when the children were classified according to a single factor or a number of factors. It therefore seems that the vitamin capsules had no discernible objective effects on growth, pull, bar-time, fatigue potential, or hearing compared with the placebo.

Effect on Clinical Conditions

The following clinical conditions were recorded at the medical examinations made during the test: state of nutrition (good, fair, or poor), round shoulders, pot-belly, lordosis, winged scapula, knock-knees, bow-legs, deformed chest, pallor of face, physique, obesity, enlarged tonsils, chest rales and cough, ear discharge, goitre, angular stomatitis, cheilosis, inflamed gums, colour of mucous membrane, nasal discharge, mouth-breathing, styes, blepharitis, simple conjunctivitis, phlyctenular conjunctivitis, longitudinal and transverse ridging of nails, white spots on nails, nails bitten, brittle nails, coarse and dry hair, impetigo, boils, chilblains, acne, seborrhoea, follicular keratosis, dryness of the skin. Each of the clinical conditions was graded at each examination 0, 1, 2, 3, or 4, according to its presence and severity.

In Stoke the data for boys and girls were analysed separately. In Salford the data for boys and girls were combined. Because of the large number of clinical conditions for which data were obtained and the number of groups into which the children were divided, tests for the significance of the differences between the vitamin and the control groups were made at the level of twice and also of three times the standard error.

In Stoke, on the basis of a difference being significant at twice its standard error, the vitamin supplements brought about an improvement of chilblains in boys and nail-biting in girls at the second and third examinations. Nose discharge decreased in boys at the second and in girls at the third examination. Rales diminished in girls in the first period. On the

decided to treat the worst caries cases. Therefore, in the analysis, the children were grouped into those who did not require treatment, those who received treatment, and those who required but refused it. The data of the three groups were analysed separately and together. This complication did not apply to the other tooth and gum conditions under investigation. For both Stoke and Salford the data of boys and girls were analysed separately, for the age ranges 5-7 years, 8-10 years, and 11-13 years. The average scores for each of the conditions were, with but a few exceptions, the same for the vitamin groups and their respective control groups. For both Stoke and Salford no discernible effect of the vitamin supplement was found on caries, mottling, general gum tone, or tartar. A significant effect of the vitamin capsules on the incidence of gingivitis is indicated, and the figures for that condition are given in Table IV.

TABLE IV—(a) Initial Scores for Gingivitis at the Beginning of the Test. (The scores relate to the total gingivitis intensity for the regions 51112)

			5-7 Years			8-10 Years			11-13 Years		
			No	Average	V/C	No	Average	V/C	No	Average	V/C
<i>Stoke-on-Trent</i>											
Boys	V	31	2.90	0.32	57	3.42	0.36	98	2.87	0.30	
	C	26	2.58		62	3.06		93	2.57		
	Change	24	3.21		55	3.55		70	2.09		
Girls	V	31	2.13	1.08*	49	3.00	0.55	72	1.43	0.66*	
	C	31	2.13		49	3.00		72	1.43		
	Change	31	2.13		49	3.00		72	1.43		
<i>Salford</i>											
Boys	V	—	—	—	68	2.09	—0.14	47	3.30	0.54	
	C	—	—	—	71	2.23		50	2.76		
	Change	—	—	—	42	1.69	—0.04	—	—	—	
Girls	V	—	—	—	55	1.73	—	—	—	—	
	C	—	—	—	55	1.73		—	—		
	Change	—	—	—	55	1.73		—	—		

(b) Changes in Gingivitis Scores over Whole Period of Test (One Year)

			5-7 Years		8-10 Years		11-13 Years	
			Average	V/C	Average	V/C	Average	V/C
<i>Stoke-on-Trent</i>								
Boys	V	—0.48	—0.52	—0.19	0.55	0.74	—0.11	
	C	0.04		—0.74		0.85		
	Change	—1.38		—1.05		—1.34		
Girls	V	—0.23	—1.15*	—1.00	—0.05	—0.50	—0.84*	
	C	—0.23		—1.00		—0.50		
	Change	—0.23		—1.00		—0.50		
<i>Salford</i>								
Boys	V	—	—	—1.22	0.05	—2.28	—0.10	
	C	—	—	—1.27		—2.18		
	Change	—	—	—0.64		—		
Girls	V	—	—	—0.64	—0.40	—	—	
	C	—	—	—0.24		—		
	Change	—	—	—0.24		—		

* Difference is significant. V = Vitamin group. C = Control group.

There were no differences in the initial gingivitis scores between the vitamin groups and their respective controls apart from that in Stoke the initial scores among girls aged 5-7 years and those aged 11-13 years were greater in the vitamin groups than in their respective control groups. Over the test period of one year the improvement in gingivitis was greater in the vitamin groups in 5 out of 6 groups in Stoke, of which two of the differences are significant. Generally, the differences are of such a size as to be noteworthy. It must be observed, however, that these two significant differences occur in favour of vitamin groups which initially had a significantly higher incidence of gingivitis than did their controls. Over the first three months of the Stoke study the improvement was in favour of the vitamin group in 6 out of 6 groups, but over the last nine months there were no consistent differences between the vitamin and the control groups. These findings suggest that the vitamin supplement had a beneficial effect on gingivitis, particularly during the first three months of medication. The supplement had no significant or consistent effect on gingivitis in Salford. It should be noted that, generally, the initial gingivitis scores were higher in Stoke than in Salford.

The vitamin capsules contained ascorbic acid and nicotinamide, both of which have been claimed to have a beneficial effect on gingivitis (King, 1943, 1945a, 1945b; King, Franchlyn, and Allen, 1944; Campbell and Cook, 1942, 1945). During the period of the present test, groups of children in Salford, in a parallel investigation, received a supplement of 50 mg. of ascorbic acid daily, and another group was studied which received no supplement or placebo of any kind. These groups

were not strictly comparable with the present experimental groups, as the children in them were chosen from different schools, but they provide data on gingivitis which can be considered in conjunction with those of the vitamin and placebo groups. These data are given in Table V.

TABLE V.—Average Initial Gingivitis Scores, and Changes during the Test Period of Groups of Children Receiving a Supplement of Ascorbic Acid or No Supplement or Placebo of any Kind

				8-10 Years	11-13 Years
Groups receiving Ascorbic Acid					
Boys.					
Number ..	..	..	44	52
Initial score ..	..	..	2.54	2.54
Change ..	..	..	-1.80	-0.81
Girls.					
Number ..	..	..	24	71
Initial score ..	..	..	2.83*	2.73
Change ..	..	..	-1.88*	-0.03
Groups receiving No Supplement or Placebo					
Girls:					
Number ..	..	..	—	36
Initial score ..	..	..	—	1.33
Change ..	..	..	—	-0.42

* Significantly different from corresponding placebo group

For boys aged 8-10 years and 11-13 years neither the initial scores nor the changes were significantly different from those of the corresponding Salford placebo groups. For girls aged 8-10 years the initial score was higher and the improvement greater for the vitamin group than for its appropriate placebo group. There was no placebo group corresponding to the girls aged 11-13 years receiving ascorbic acid, but there was a similar group receiving neither supplement nor placebo. Although the initial score of the former was significantly greater than that of the latter, the changes were not significantly different. It must be observed that the improvement due to the ascorbic acid supplement in the former group was negligible. The above data suggest that the supplement of ascorbic acid alone had no beneficial effect on gingivitis. From this it might be inferred that the ascorbic acid in the vitamin capsule was not responsible for the improvement in gingivitis, although there is the possibility that the improvement was due to combination of ascorbic acid with other ingredients of the vitamin capsule.

Effect on Absence from School

All absences from school were classified into the following categories of complaints: respiratory; skin; ear, nose, and throat; gastro-intestinal; eyes; infectious; unspecified illness; injuries; no illness. Information on absenteeism was checked by health visitors or school nurses at the homes of the children who had been absent from school. Table VI shows:

TABLE VI.—Average Number of Days' Absence per Child from Various Causes during the Experimental Periods

	1st Period				2nd Period			
	Boys		Girls		Boys		Girls	
	V	C	V	C	V	C	V	C
<i>Stoke-on-Trent</i>								
Respiratory	2.0	1.8	2.9	2.6	3.8	2.9	4.7	4.7
Skin	0.1	0.3	0.6	0.8	1.2	3.2*	1.5	1.3
Ear, nose, and throat	0.4	0.6	0.2	1.1	1.3	1.4	1.9	2.2
Gastro-intestinal	0.1	0.1	0.7	0.1	1.2	0.8	1.2	0.7
Eyes	0.0	0.0	0.4	0.0	0.1	0.1	0.1	0.0
Infectious	2.3	3.0	2.4	1.9	0.3	0.6	0.0	0.0
Unspecified illness	0.5	0.8	0.7	0.6	4.6	3.6	5.9	7.1
Injuries	0.8	0.3	0.5	0.7	0.6	0.5	0.4	0.2
No illness	3.2	3.6	2.7	2.5	3.2	3.1	1.2	1.9
Total	9.4	10.5	11.1	10.3	16.3	16.2	16.9	15.2
<i>Salford</i>								
Respiratory	4.2	4.5	6.1	6.4	8.1	9.0	10.0	12.1
Skin	0.8	0.9	0.4	0.5	0.9	0.9	1.2	1.6
Ear, nose, and throat	1.3	1.0	0.9	1.3	1.2	2.1	2.5	1.9
Gastro-intestinal	0.9	1.0	1.0	1.5	1.8	1.6	1.5	1.5
Eyes	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1
Infectious	3.3	2.1	2.1	1.6	2.4	2.0	2.2	1.3
Unspecified illness	1.0	1.0	1.0	1.2	0.7	0.9	0.5	0.7
Injuries	0.5	1.5	0.4	0.9	1.1	0.7	1.1	0.7
No illness	5.6	6.2	6.1	5.3	4.8	5.1	4.9	5.1
Total	17.6	18.6	18.1	18.7	21.1	22.3	23.9	24.4

* Difference is significant. V = Vitamin group. C = Control group

EFFECT OF BLAST ON THE HUMAN EAR

BY

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The effects which follow exposure of the human auditory apparatus to blast waves receive but scant attention in current textbooks. It is the aim of this paper to present, in a general way, a composite picture of the results of injury to ears by the detonation of near-by explosives.

Blast lesions of the ears are frequently seen by medical officers on active service and, with increasing demobilization, civilian medical services will meet this problem often. It is not possible to exclude the superadded effects of noise, which of itself is capable of producing an inner-ear type of deafness. All soldiers in the field are exposed to battle noises, but only those cases of deafness which have followed acoustic trauma from blast waves are included in this article. The opinions expressed are the personal ones of an Army otologist who has seen large numbers of cases of blast deafness in base hospitals in the Middle East and in Italy.

Incidence

In 1,000 consecutive in-patient battle casualty admissions 31 (3.1%) had deafness attributable to blast. Of these, approximately 40% had associated wounds, the remainder being admitted to hospital solely for the aural lesion. Analysis of these 31 cases showed that about half had a blast rupture of a drum, but, from an experience of a very large group of cases over a three-year period, this figure did not represent the true relation of rupture to non-rupture cases, for the following reasons: (1) Cases of ruptured drums were usually evacuated from forward areas to the base, whereas non-rupture cases were held at forward medical units. (2) Failure of medical officers to send for specialist investigation patients with normal drums but with blast deafness. (3) At out-patient clinics the ratio of blast cases with rupture to those without rupture was 1:2. (4) Failure of individuals to report deafness to their medical officers.

We may assume, therefore, that the greater number of blast-deafness cases are not associated with a break in the continuity of the tympanic membrane. In these, noise may play an associated part in the production of the deafness, but in all of the cases reviewed above a definite history of blast injury was obtained.

Aetiology

The aural lesions are produced by the direct traumatic effect of a blast wave on the structures comprising the middle or the inner ear, or both combined; rarely by the indirect method of

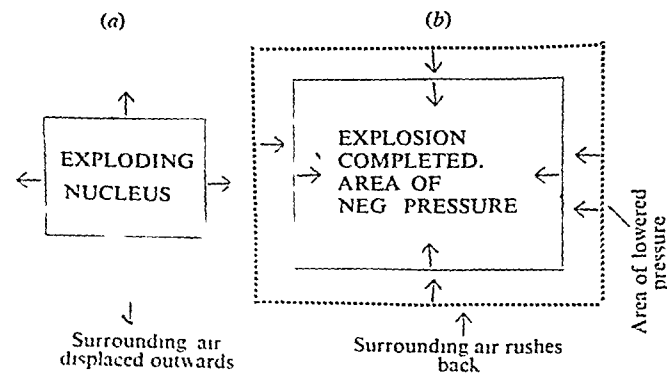


FIG 1—(a) Production of primary wave: area of negative pressure being produced in the vicinity of the blast wave of the explosion (b) Production of secondary wave. Air rushes inwards to equalize the pressure

basal skull fracture involving the petrous portion of the temporal bone.

There are two phases to the so-called blast wave—primary and secondary—the mode of production of each being explained in Fig 1. Either the primary or the secondary wave is capable

of producing aural damage—the first by its percussion effect and the second by a suction action. It is not possible to say which is the most important factor. The ear may be damaged by a single wave of great amplitude, or repeated traumatization may result in a demonstrable degree of deafness, the drum remaining intact.

The part played by noise in the production of deafness has already been mentioned. "Boiler-maker's deafness" may be cited as an example in which long-continued noise produces a degeneration of parts of the inner ear, ultimately resulting in an inner-ear type of deafness, the drum remaining intact. Such a condition is insidious in onset, and is not related to sudden acoustic trauma such as is produced by a blast wave. Undoubtedly many soldiers suffer from a nerve-type deafness which has as the aetiological factor "battle noise." Others are seen with similar clinical findings, but the onset is related to the effects of a near-by explosion that has caused a sudden deafness, which may pass off in a few days, only to recur when the ears are again blasted. Such a deafness I consider to be a true blast deafness, the wave having damaged inner-ear structures.

Noise may play an associated part in the production of lesions of the inner ear, but in these "blast cases" it is not the major factor. "Battle-noise" deafness in which no true blast element could be ascertained is not included in this paper.

Classification of Lesions

First Group: Fractured Skull.—A fracture of the base of the skull involving the petrous portion of the temporal bone causes a traumatic deafness akin to that seen in civilian practice. Haemorrhage into and disorganization of the inner ear result, producing a deafness of inner-ear type. This injury is of rare occurrence, and leads to a severe degree of disability.

Second Group: Lesions of the Middle Ear.—Blast rupture involves the pars tensa of the drum, is of any size or shape, and occurs in any quadrant. Haemorrhage into the middle-ear cleft or into the external canal, via the perforation, results. *Blast contusion* of the tympanic membrane and haemo-

TABLE I

Symptoms	Middle-ear Type	Inner-ear Type
Deafness	Onset sudden after a blast injury Usually single exposure Severe degree at onset Usually unilateral May be bilateral at onset, with unilateral lesion Course: often sudden improvement after quiescent period Increase if otorrhoea supervenes Residual deafness may persist	Onset follows definite "blast." Cf. noise deafness—insidious onset Single, or multiple Slight or severe—progresses if trauma repeated Usually bilateral and of equal degree in the two ears Slow, gradual improvement or no recovery No increase if no re-exposure
Tinnitus	Occurs in 70% of cases Unilateral. May be bilateral at onset Gradually diminishes. May persist	90% of cases Often bilateral Often persists. Apt to be permanent. Often leading symptom
Vertigo	66% of cases. Duration short: few minutes to a few hours Rarely over 24 hours	Not usual
Otalgia	50% cases at onset. Recurrence or exacerbation with subsequent infection	Not usual
Headache	50% cases Frontal or occipital. Lasts up to 3 days; usually only a few hours	Sometimes; frontal or occipital. If present may persist for weeks
Bleeding	From external meatus in 25% cases May be mixed with C.S.F. if basal fracture	Not found
Whistling of air through the perforation	Not common: 10% of cases	Not found
Aural discharge	Usually on 2nd to 5th day. May occur at any period if perforation remains open. Serous, seropurulent, or purulent. Copious, moderate, or small in quantity. Often sero-sanguineous at onset	Not present unless related otitis media externa occurs

Treatment

Prophylaxis.—The wearing of plugs in the external meatuses might help to lower the incidence of rupture, but it is difficult to find a suitable material which will be firm enough and yet will allow a reasonable standard of hearing. Such a measure is therefore impracticable in modern warfare. A regular six-monthly check of those exposed to the effects of blast offers the best hope of reducing the incidence of severe nerve deafness. Any showing deafness could be removed from the source of trauma before high-grade disability was established. Those possessing healed ruptured drums should be protected from further blast damage in a similar manner.

Uninfected Blast Ruptures.—Since the use of anesthetic aural drops increases the likelihood of infection these ears should be left strictly alone. These patients are warned that it is dangerous to allow water to enter their ears, and swimming is prohibited. Should a coryza develop, forcible blowing of the nose, with the nostrils occluded, is contraindicated. Inhalations of mentholated steam are advised. The prophylactic use of chemotherapy to reduce the incidence of infection is of doubtful help. If employed a full course should be given.

Infected Blast Ruptures.—Treatment should be along the lines already indicated. The need for admission to hospital and for a thorough local toilet is again stressed.

Nerve Deafness.—Little active treatment is possible. Rest from the field, reassurance, and, if tinnitus is severe, a 14-days course of phenobarbitone are employed. Removal from the source of injury is essential.

Prognosis

It is difficult at an early examination to say which ruptures will heal and which will not. In general, extensive gaps in the tympanic membrane are unlikely to close; moderate-sized lesions, involving a third of the pars tensa, have a fair chance of doing so; while small perforations are likely to heal spontaneously, providing there is no complicating factor such as persistent infection. If the edges of the rupture show vascularization a fortnight after the injury, the repair is taking place normally. If no such red edge is seen at the end of six weeks there is little chance of closure. A perforation which has shown no change in three months will not heal spontaneously. The presence of otitis media delays healing until the infection has been controlled, but thereafter the reparative processes often proceed with surprising rapidity. One wonders whether the onset of an otitis is not, on occasion, helpful, the increased local vascularity stimulating fibroblastic reaction. On the other hand, persistent pus is very likely the forerunner of permanent perforation.

Recovery of hearing proceeds at varying rates. Ruptures which heal, leaving little, if any, visible scar, sometimes recover full acuity of hearing to the human voice, providing there is no permanent associated nerve deafness. Fork tests, and the audiometer, usually reveal gaps in the lower-tone register, however. Uninfected, unhealed lesions also, under the same conditions, often recover almost completely. Some cases show a residual middle-ear or "mixed" deafness at the end of six months, and such deafness is likely to be permanent.

Otitis media lowers the hearing until the tissues have recovered from the inflammatory reaction, and may result in a permanent deterioration of this faculty. Therefore, in blast ruptures considerable improvement of hearing is probable, but prognosis as to full recovery should be guarded. It is the degree of associated cochlear deafness that often determines the final acuity of hearing in "mixed" deafness. In nerve deafness of blast origin a guarded prognosis should be given. Many cases recover completely when judged by the spoken voice, but the upper-frequency forks (2,048 and 4,096 D.V.s per second) and the audiometer usually reveal a permanent depression at those frequencies—in most cases developing rapidly up to a certain point, then slowly or no further; a few continue to have a high-grade inner-ear deafness. Any deafness remaining at the end of six months is likely to be permanent.

Tinnitus is apt to be a persistent and annoying symptom in cases of labyrinth deafness.

The Future

With the termination of hostilities many soldiers will return to civilian life with a legacy of their service in the shape of deafness, with or without an otorrhoea. Such a disability is pensionable. Others as they approach the age of 40 years—the age at which idiopathic nerve deafness starts—will become deaf, and may apply for compensation on the grounds of their war service. Such deafness is unrelated to their service and is not pensionable. Unfortunately, the clinical pictures and the audiometric records of blast nerve deafness and of senile deafness are similar. In the differential diagnosis stress will be laid on the history and on the age of the patient.

The routine audiometric recording of the hearing of Service men under the age of 40, prior to their discharge, is urged. A permanent record of the state of the hearing before the onset of possible senile deafness would be available, and this would be of inestimable value to the otologist in assessing this difficult type of case at a later period.

Summary

An outline of an Army otologist's views on the incidence, aetiology, and types of blast injuries to the ears is given.

The high percentage of associated cochlear trauma in blast ruptures is stressed.

Infection after rupture occurs in approximately half the cases, and usually begins within four days of injury.

A half-yearly otological examination of soldiers, to determine the presence or absence of blast deafness, is indicated.

Prognosis is doubtful, and should be guarded. Residual deafness may remain.

Routine audiometry upon demobilization is advocated.

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THE HIPPURIC ACID TEST IN PREGNANCY

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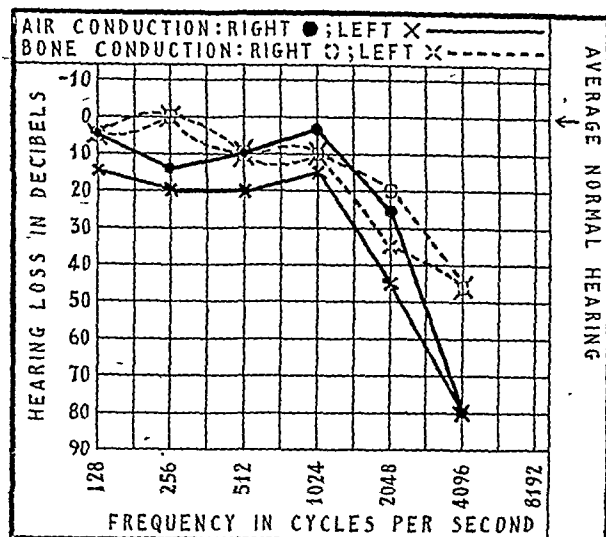
Since the hippuric acid test was introduced by Quick (1935) for clinical purposes many investigations have been published stressing its value in the diagnosis of liver impairment. The importance of the test lies, according to Rennie (1942), Higgins *et al.* (1944), and others, in the detection of a general liver dysfunction: rather than as an aid in the differential diagnosis of liver diseases. Its delicacy as a measure of liver efficiency made its use attractive for our purpose, as it might show more conclusively whether or not there exists a real deficiency in the liver metabolism due to pregnancy. The hippuric acid test has been applied to pregnant women previously, so far as we know, only by Neuweiler (1939), who investigated the hippuric acid excretion during pregnancy and the puerperium. He found a generally low output in pregnancy, with a very wide range.

This investigation has been made in our antenatal clinic on 50 pregnant women during the last trimester. No particular selection was made, except that women with the slightest signs of oedema, albuminuria, or hypertension were excluded. Twenty women attending the out-patient department with general gynaecological complaints were taken as controls.

Methods

In order to avoid the often-reported nausea and vomiting after oral application of sodium benzoate, and also a wait of four hours, we used the intravenous modification of the Quick test as described by Quick, H. Ottenstein, and Weltchek (1938).

FIG. 3.—Case 2. "Drop to the right" by both air and bone conduction. Nerve deafness of blast origin.



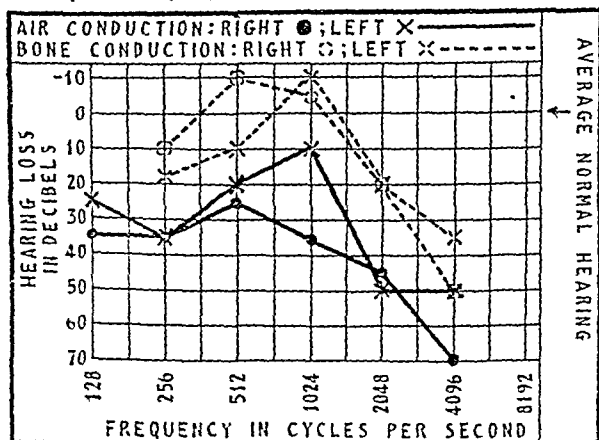
Remarks on Case 2.—Man aged 36. Blast deafness; drums normal—intact and mobile. Weber: No lateralization. Rinne: Positive R. and L. Fork at 4,096 not heard by B.C. on either side.

"Mixed" deafness, as the name implies, is a combination of the two types, when both the middle and the inner ears have suffered. The fork findings are variable, depending on which structure suffers the greater damage, and may change as recovery occurs in one or the other.

In a series of 96 blast-ruptured drums it was shown that 80 (83%) had a demonstrable nerve deafness in addition to the middle-ear deafness. In an average type of case, with a unilateral rupture and "mixed" deafness, the common findings are:

1. Loss by air conduction is greater than that by bone conduction; negative Rinne; Weber lateralizes to ruptured side.
2. Moderate loss of a few seconds by bone conduction with a 256 fork tested against a normal ear.
3. Both lower and upper tones are affected to a greater or lesser extent. The lower-tone limit is raised (patient unable to hear fork 16 D.V.s per second by air conduction). The upper tones are depressed, especially at the frequencies of 4,096 and 2,048 D.V.s per second, marked loss being shown to these forks by bone conduction.
4. The unruptured drum often shows the fork reactions of a nerve deafness.

FIG. 4.—Case 3. "Mixed" deafness; both A.C. and B.C. affected—high and low frequencies by A.C. Note drop in high frequencies by B.C. The most common type of audiogram in blast ruptures, 83% of deafness being of "mixed" type.



Remarks on Case 3.—Gunner aged 21. Blast from blow-back of breech of 25-pdr. on May 29, 1944, causing deafness and tinnitus—bilateral. R. ear towards breech. Personal and family history negative. June 6: Blood-clot in R. canal. Uninfected reniform perforation of postero-inferior quadrants, right; small antero-inferior blast perforation just healed, left. Weber to right. Rinne: Negative R., positive L. 16 fork not heard by A.C. right; 4,096 fork not heard by A.C. or B.C. right. Loss to 256 fork equals 5 secs.

5. Audiometry shows "the horizontal drop"—see Fig. 4—or the inverted V type of curve, in which the hearing loss is least in the centre of the frequency scale—512 or 1,024 cycles per second.

6. If the rupture heals and middle-ear hearing returns, nerve type deafness may remain. Nerve deafness may improve, leaving a middle-ear deafness, but this change is not so common as the first type of reversal mentioned.

Infection of the Middle-ear Cleft

Incidence.—75 out of 152 (49%) consecutive cases of blast rupture gave the history or had the signs of otitis media following upon the injury.

Relation to Interference.—By interference is meant the instillation of fluids or solids into the external meatus, inadvertently (swimming) or therapeutically (syndring, drops). In the above series 23 (15.1%) had interference, and 18 of these developed a subsequent infection—an incidence rate of 78%. Interference is thus a positive factor in the production of infection of the middle-ear cleft.

Time of Onset.—Of the above series 62.7% developed otitis media within four days of the blast rupture. In the late cases—that is, those that occur after 8 days—a very positive cause for the production of the infection is usually found—e.g., acute nasopharyngeal infection, late interference, or pre-existent chronic nasopharyngeal sepsis.

Bacteriology.—The infection in those cases reaching hospital is usually a mixed one, with streptococci, staphylococci, or pneumococci, associated with *Ps. pyocyanea*, *B. proteus*, or diphtheroids.

Symptoms and Signs.—Pain in the ear and an increased deafness precede the otorrhoea. The typical picture of acute otitis media presents itself, the traumatic perforation standing out clearly in some cases, while in others it is masked by debris or by oedematous middle-ear mucosa.

Complications.—Chronic otitis media is the commonest sequel, but is uncommon if patients are brought under aural supervision in the early stages. The usual causes of failure to cure the acute condition include neglect of efficient aural toilet, failure to eradicate chronic nasopharyngeal foci surgically, failure to deal with subacute mastoiditis when the otorrhoea persists over five weeks, and the use of chemotherapy to the exclusion of local toilet and surgery where such are indicated. Acute mastoiditis is uncommon, probably because of the excellent drainage afforded by the rent in the tympanic membrane. Subacute mastoiditis, however, is common, and unless the condition is treated many cases of chronic otorrhoea result. One case of meningitis (pneumococcal) has been seen, this being secondary to pneumococcal otitis media of blast origin. The response to chemotherapy was excellent, and the patient was discharged six weeks later with a dry ear, healed drum, good hearing, and no abnormal signs in the central nervous system. No other intracranial complications have been recorded.

Treatment.—Most cases respond well to the "dry" method of treatment—i.e., dry toilet of the canal down to the drum until all pus and debris have been removed, and the installation of dry gauze wicks, this cycle being repeated as often as the wick becomes damp. With the local treatment is combined rest in bed for the first week. The appropriate sulphonamide is used if the otorrhoea persists over 14 days, and in these cases a full course of 30 g. is given. Penicillin has not been used in this series. Nasopharyngeal foci are dealt with surgically at an early date, and a cortical mastoidectomy is performed after the lapse of five weeks if the otorrhoea persists.

Prognosis.—This is good when the case is treated in hospital. The average duration of the otorrhoea in the series of 75 cases, from the time of onset, was 18 days, but the mean figure under full hospital treatment and personal supervision, after admission, was 13 days. Of these 75 cases 5 developed acute otitis media after admission, and these were followed through until quite dry; the mean figure for this group was 12 days. Relapses may occur if an acute nasopharyngeal infection arises, or if the perforation remains unhealed and infection is reintroduced via the meatus. An impression gained from out-patient experience is that many cases result from inadequate primary treatment, and in these the outlook with respect to cessation of the discharge is doubtful. Many of these cases of chronic otitis media do well in hospital but relapse a short while after they have been discharged from the wards.

Treatment

Prophylaxis.—The wearing of plugs in the external meatuses might help to lower the incidence of rupture, but it is difficult to find a suitable material which will be firm enough and yet will allow a reasonable standard of hearing. Such a measure is therefore impracticable in modern warfare. A regular six-monthly check of those exposed to the effects of blast offers the best hope of reducing the incidence of severe nerve deafness. Any showing deafness could be removed from the source of trauma before high-grade disability was established. Those possessing healed ruptured drums should be protected from further blast damage in a similar manner.

Uninfected Blast Ruptures.—Since the use of anesthetic aural drops increases the likelihood of infection the ear should be left strictly alone. These patients are warned that it is dangerous to allow water to enter their ears, and swimming is prohibited. Should a coryza develop, forcible blowing of the nose, with the nostrils occluded, is contraindicated. Inhalations of mentholated steam are advised. The prophylactic use of chemotherapy to reduce the incidence of infection is of doubtful help. If employed a full course should be given.

Infected Blast Ruptures.—Treatment should be along the lines already indicated. The need for admission to hospital and for a thorough local toilet is again stressed.

Nerve Deafness.—Little active treatment is possible. Rest from the field, reassurance, and, if tinnitus is severe, a 14-days course of phenobarbitone are employed. Removal from the source of injury is essential.

Prognosis

It is difficult at an early examination to say which ruptures will heal and which will not. In general, extensive gaps in the tympanic membrane are unlikely to close; moderate-sized lesions, involving a third of the pars tensa, have a fair chance of doing so; while small perforations are likely to heal spontaneously, providing there is no complicating factor such as persistent infection. If the edges of the rupture show vascularization a fortnight after the injury, the repair is taking place normally. If no such red edge is seen at the end of six weeks there is little chance of closure. A perforation which has shown no change in three months will not heal spontaneously. The presence of otitis media delays healing until the infection has been controlled, but thereafter the reparative processes often proceed with surprising rapidity. One wonders whether the onset of an otitis is not, on occasion, helpful, the increased local vascularity stimulating fibroblastic reaction. On the other hand, persistent pus is very likely the forerunner of permanent perforation.

Recovery of hearing proceeds at varying rates. Ruptures which heal, leaving little, if any, visible scar, sometimes recover full acuity of hearing to the human voice, providing there is no permanent associated nerve deafness. Fork tests, and the audiometer, usually reveal gaps in the lower-tone register, however. Uninfected, unhealed lesions also, under the same conditions, often recover almost completely. Some cases show a residual middle-ear or "mixed" deafness at the end of six months, and such deafness is likely to be permanent.

Otitis media lowers the hearing until the tissues have recovered from the inflammatory reaction, and may result in a permanent deterioration of this faculty. Therefore, in blast ruptures considerable improvement of hearing is probable, but prognosis as to full recovery should be guarded. It is the degree of associated cochlear deafness that often determines the final acuity of hearing in "mixed" deafness. In nerve deafness of blast origin a guarded prognosis should be given. Many cases recover completely when judged by the spoken voice, but the upper-frequency forks (2,048 and 4,096 D.V.s per second) and the audiometer usually reveal a permanent depression at those frequencies—in most cases developing rapidly up to a certain point, then slowly or no further; a few continue to have a high-grade inner-ear deafness. Any deafness remaining at the end of six months is likely to be permanent.

Tinnitus is apt to be a persistent and annoying symptom in cases of labyrinth deafness.

The Future

With the termination of hostilities many soldiers will return to civilian life with a legacy of their service in the shape of deafness, with or without an otorrhoea. Such a disability is pensionable. Others as they approach the age of 40 years—the age at which idiopathic nerve deafness starts—will become deaf, and may apply for compensation on the grounds of their war service. Such deafness is unrelated to their service and is not pensionable. Unfortunately, the clinical pictures and the audiometric records of blast nerve deafness and of senile deafness are similar. In the differential diagnosis stress will be laid on the history and on the age of the patient.

The routine audiometric recording of the hearing of Service men under the age of 40, prior to their discharge, is urged. A permanent record of the state of the hearing before the onset of possible senile deafness would be available, and this would be of inestimable value to the otologist in assessing this difficult type of case at a later period.

Summary

An outline of an Army otologist's views on the incidence, aetiology, and types of blast injuries to the ears is given.

The high percentage of associated cochlear trauma in blast ruptures is stressed.

Infection after rupture occurs in approximately half the cases, and usually begins within four days of injury.

A half-yearly otological examination of soldiers, to determine the presence or absence of blast deafness, is indicated.

Prognosis is doubtful, and should be guarded. Residual deafness may remain.

Routine audiometry upon demobilization is advocated.

Acknowledgment is made to Brig. H. S. Kendrick, NZM.C., D.M.S., 2 NZ.E.F., for permission to undertake this investigation; and to Sgt. B. E. Conway and Cpl. O. R. Riley, of the NZM.C., for invaluable assistance in record-keeping.

THE HIPPURIC ACID TEST IN PREGNANCY

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Since the hippuric acid test was introduced by Quick (1935) for clinical purposes many investigations have been published stressing its value in the diagnosis of liver impairment. The importance of the test lies, according to Rennie (1942), Higgins *et al.* (1944), and others, in the detection of a general liver dysfunction: rather than as an aid in the differential diagnosis of liver diseases. Its delicacy as a measure of liver efficiency made its use attractive for our purpose, as it might show more conclusively whether or not there exists a real deficiency in the liver metabolism due to pregnancy. The hippuric acid test has been applied to pregnant women previously, so far as we know, only by Neuweiler (1939), who investigated the hippuric acid excretion during pregnancy and the puerperium. He found a generally low output in pregnancy, with a very wide range.

This investigation has been made in our antenatal clinic on 50 pregnant women during the last trimester. No particular selection was made, except that women with the slightest signs of oedema, albuminuria, or hypertension were excluded. Twenty women attending the out-patient department with general gynaecological complaints were taken as controls.

Methods

In order to avoid the often-reported nausea and vomiting after oral application of sodium benzoate, and also a wait of four hours, we used the intravenous modification of the Quick test as described by Quick, H. Ottenstein, and Weltchek (1938).

In the literature very little was to be found about the comparison between the oral and intravenous methods. A comparative study by B. Ottenstein (unpublished) of both methods of application in normal and luetic patients convinced us that the intravenous method is slightly more sensitive than the oral one.

The tests were made in the morning between 9 and 12 o'clock. The patients, who had had a light breakfast at home, were injected slowly with a freshly prepared solution of 1.77 g. of sodium benzoate in 20 c.cm. of distilled water. The injection took not less than 4 to 5 minutes. Most of the patients showed no reaction at all, some a little dizziness during the injection. They were advised to urinate before the injection and then rested for exactly one hour, after which the urine was used for the estimation. Amounts of urine of less than 100 c.cm. were immediately acidified with 25% hydrochloric acid to Congo-red reaction (about 1 c.cm.) and vigorously stirred with a glass rod until precipitation of hippuric acid crystals started. These were allowed to stand for at least one hour in the ice-box. The supernatant fluid was then filtered off with a suction pump and the crystals repeatedly washed with a little cold water until the original container was entirely clean. The filter paper was carefully removed from the funnel and the crystals washed into a small beaker with a little hot water. The crystals were then dissolved by heating and immediately titrated with N/5 sodium hydroxide against phenolphthalein. Calculations were done according to the original prescription by Quick (1936), and the results expressed as milligrammes of benzoic acid. If the excreted urine was more than 100 c.cm. it was first slightly solidified with acetic acid and concentrated to about 50 to 70 c.cm. on a boiling-water bath. The estimation was then made as described above.

Results

Control Group (20 women, non-pregnant).—Mean average, 0.768; range, 0.41–1.10; standard deviation, 0.22; standard error, ± 0.05 ; coefficient of variation, 29.1%.

Pregnant Women (50 cases).—Mean average, 0.43; range, 0.15–0.76; standard deviation, 0.16; standard error, ± 0.02 ; coefficient of variation, 37.2%.

Discussion

The findings of Neuweiler (1939) were fully confirmed. In late pregnancy there was a marked decrease in the excretion of hippuric acid after intravenous injection of sodium benzoate. In our series only one of the pregnant women reached the level of the mean average of the control group. On the other hand, four of the 20 controls showed a rather low output and two more showed a value slightly under 0.7. This figure is generally accepted as the lower limit of normal. These patients had no symptoms which could explain the low values. Therefore, as some non-pregnant women show a decrease in hippuric acid excretion and some pregnant women have only a slight diminution of the normal excretion, one has to be cautious in drawing conclusions. One has to consider whether the doubtlessly existing lowering of the hippuric acid excretion might be only the expression of a physiological peculiarity of the state of pregnancy. According to Quick (1931), the benzoic acid is conjugated in the liver with glycine, thus forming hippuric acid, which is excreted by the kidneys. If no food rich in glycine is taken previously the glycine is synthesized in the liver at a constant rate roughly proportional to the surface area of the patient, provided the ingested dose of benzoic acid is big enough. Since the excretion of hippuric acid by the kidneys is even faster than its synthesis (Quick, 1931), a low rate of excretion after administration of benzoic acid in the almost fasting state is a measure of the ability of the liver to synthesize glycine. But as in kidney impairment there is a retardation in the excretion rate of formed hippuric acid (Snapper and Grünbaum (1924) have found an increase in hippuric acid in the blood after administration of benzoic acid in cases of renal sclerosis), this possibility has also to be considered, since retention of nitrogen during pregnancy is quite common. The intake of benzoic acid and glycine in a fairly large amount would clarify this question. Investigations on this line are in progress.

Considering theoretically all possible explanations of our findings in view of the peculiarity of the state of pregnancy, there remains another problem to be discussed. Again according to Quick, together with the conjugation of benzoic acid

with glycine there is also a conjugation with glucuronic acid, which forms glucuronic acid-monobenzoate. The portion of benzoic acid appearing in the urine combined with glucuronic acid is generally insignificant, owing to the fact that when glucuronic acid-monobenzoate is administered it is eliminated as hippuric acid and the glucuronic acid presumably becomes oxidized. With regard to the occurrence of glucuronic acid in pregnancy very little is known; but we do know that of the total amount of oestradiol in pregnancy a high proportion is converted to the inactive oestriol, and this, at least to a certain degree, is combined with glucuronic acid. It might be hypothetically assumed that there is a greater need of glucuronic acid in the body during pregnancy, and this fact may interfere with the usual conjugation of benzoic acid and glycine. This problem, too, will be investigated and reported on later.

Conclusion

The excretion of hippuric acid has been tested after intake of 1.77 g. of sodium benzoate intravenously in 50 women during the last trimester of pregnancy; 20 non-pregnant women acted as controls.

Most of the pregnant women showed a marked decrease in hippuric acid excretion: an explanation of this phenomenon has been discussed.

The generally low output of hippuric acid after intake of sodium benzoate in pregnancy makes this test inapplicable where hepatic diseases are associated with that condition.

We wish to express our gratitude to Prof. Nasid Erez, director of the clinic, for having given all facilities for making this investigation.

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SULPHAPYRIDINE ANURIA IN GURKHAS

BY

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From November, 1944, to February, 1945, five cases of sulphapyridine anuria in Gurkhas were admitted to this hospital. Two were treated medically and three surgically. All terminated favourably. Perhaps the most interesting one was the following.

Case History

The patient, a Gurkha soldier aged 18, was admitted to another hospital with bronchopneumonia on Jan. 12, 1945, and was treated with sulphapyridine, 1 g. four-hourly, along with vitamin C tablets. Next day he was transferred to a second hospital, where treatment was modified to 1 g. of sulphapyridine every six hours. This treatment was continued during the 14th and 15th, when his general condition showed a marked improvement and chest examination revealed only rhonchi scattered throughout the lungs.

At 6 a.m. on Jan. 16 the patient, whose output of urine was diminishing so that fluids were pressed, complained of severe pain in the epigastrium and painful micturition. The sulphapyridine was stopped immediately, after 23 g. had been given, and the patient received the usual medical treatment for sulphonamide anuria. Later that day he was transferred to this hospital, 25 miles away. He had last passed urine (4 oz.: 114 c.cm.) about midnight on Jan. 15/16.

On arrival at 9 p.m. on Jan. 16 the patient was complaining of frequent vomiting and of severe cramp-like epigastric pains. He thought that during the journey he had passed a few drops of urine with much straining. He was drowsy and slightly cyanotic. T. 97.4° F. (axilla); P. 120, rhythmic, equal, full; R. 36; B.P. 115/85. Pupils were miotic and reacted sluggishly to light; tongue dry and furred; ankle- and knee-jerks brisk; cryaesthesia. Examination of the lungs did not reveal any area of consolidation, but only generalized rhonchi and gross rales.

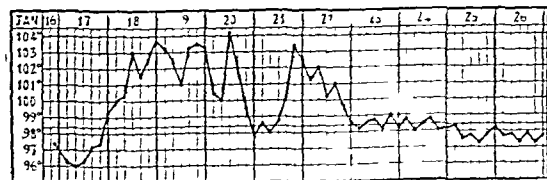
He was examined and his bladder washed out with luke-warm sodium bicarbonate solution. Medical treatment was continued, with

plenty of fluids and alkalis by mouth and by applications in both kidney regions. With his vomiting the patient received three round worms. At 2 a.m. on the 17th he passed with difficulty a few drops of smoky urine. He was also given a continuous intravenous drip of glucose saline. At 8.30 a.m. after a little sleep he felt more comfortable. His intake of fluid in this hospital so far had been 45 oz (1.1 l.), but no urine other than the few drops already mentioned had been passed. His condition was satisfactory except that he was rather drowsier than before. T 96.2° F, P 70, R 22, hard full, R 36, BP 145/100, blood urea 48 mg per 100 ccm. Condition of the chest unchanged. Medical treatment was continued all day and the bladder was washed out twice without result. At 5 p.m., in view of the persistent anuria and the progressive increase of the uraemic symptoms, operative treatment was decided upon. A resection of 200 ccm was done, followed by an intravenous drip transfusion of glucose saline. At 6.15 p.m. the patient was given an injection of morphine. At 7 p.m.—47 hours after the anuria had begun—right-sided nephrotomy was carried out under local anaesthesia.

At operation the kidney was found enlarged and congested, and showed small localized subcapsular swellings containing urine, an incision from the convex border to the pelvis was made for a length of about 1½ in (4 cm) and a rubber catheter stitched in. Lavage of the pelvis with a solution of sodium bicarbonate was carried out, followed by lavage of the bladder with the same solution. There was no occlusion of the ureter. After the operation the patient was given a subcutaneous saline injection of 400 ccm and alkalis by mouth at regular intervals. He spent a good night. 1 oz (28.4 ccm) of urine was collected through the catheter, and the bedding was found to be soiled with urine the next morning. He looked better and vomiting had stopped. T 100.2° F, P 70, R 22. At about 12 noon his temperature went up and the clinical examination showed consolidation of the right lower lobe of pneumonia type. Fever of the high remittent type continued on Jan. 19 and 20 (see Chart). During this period the patient passed an increasing quantity of urine by the catheter and per urethram. He looked very ill, cyanosed, and dyspnoeic, so symptomatic treatment was given. The blood urea on Jan. 19 was 55 mg per 100 ccm.

At 4 p.m. on Jan. 18 sodium penicillin treatment had been started 15,000 Oxford units every three hours (concentration 5,000 units per ccm), the potency having been checked by the station laboratory. In the morning of the fourth day of treatment (Jan. 21) the patient looked better, although his local condition remained unchanged and he was found to have developed a bed sore. His temperature was down for the first time after the operation but in the evening it went up again. Clinical examination showed besides the pneumonia of the right lower lobe, the presence of scattered patches of bronchopneumonia in the right upper and left lower lobes. At about 4 p.m. the patient developed a crisis of asphyxia with tracheal rales, which was overcome only by continuous inhalation of oxygen, digitaline, and camphor in oil.

At that time (the catheter had been removed the day before) the patient was passing a fair quantity of strongly alkaline urine, his WBC count was 8,100 and his blood urea 32 mg per 100 ccm. In view of impending disaster, the chance was taken of giving him 1 g of sulphadiazine four hourly. He had his first dose at 5 p.m., and the next morning seemed somewhat improved. The course of the temperature is shown in the Chart. Sulphadiazine was con-



tinued in doses of 1 g eight-hourly until Feb. 1 when it was cut down to 0.5 g eight-hourly (WBC, 5,900) and the next day discontinued altogether. As adjuvant therapy he was given 2 ccm of nikethamide twice daily. His blood urea on Jan. 31 was 22 mg per 100 ccm.

The recovery of the patient was quick and satisfactory, and on March 4 he was discharged from hospital.

Comment

Assuming that the normal precautions taken in sulphonamide therapy were observed (as they appear to have been) before the patient's admission to this hospital there seem to be two possibilities: (a) that the sulphapyridine used had become toxic, and (b) that Gurkhas, having never experienced Western medication, are particularly liable to fail to excrete the products of modern chemotherapy. As however the same consignment of sulphapyridine has been used in several hundreds of cases

of British and Italian patients without any untoward result, the former explanation is considered unlikely.

In all cases burning micturition shortly preceding the oliguria was the first symptom. Cystoscopic examination revealed great haemorrhagic suffusion and congestion of the mucosa of the bladder, obviously making an attempt at urethral catheterization difficult and dangerous. No signs of tubular obstruction were seen at any of the operations. The absence of these—which one would expect to be present if the acetyl-sulphapyridine is to reach such a concentration in the urine as to be precipitated in the lower third of the ureter and uretero-vesical orifice—and the free passage of the bicarbonate solution which was introduced into the pelvis of the kidney to the bladder, rule out any possibility of mechanical obstruction of the renal tract as the cause of the anuria in the three cases. At no time has any crystal of a sulphonamide derivative been seen either at operation or in the urine, even in concentrated.

The operation revealed in all three cases a kidney without signs of hydronephrosis of the pelvis but small subcapsular swellings containing urine. The kidney, especially the medulla, was found congested. We believe that this condition of congestion—a toxic nephrosis—of the kidney may be the primary cause of the anuria.

The blood urea which has been found to approximate closely in Gurkhas to the normal European standard, rises rapidly, especially in the second 24 hours after anuria has become established, reaching not far from 60–80 mg per 100 ccm after 24 hours. We consider it advisable to try medical treatment for the first 24 hours after the onset of burning micturition and oliguria and to resort to surgical measures if such treatment meets with no success.

It is regretted that owing to Service conditions no bibliography is available.

I should like to express my thanks to the various members of the hospital staff—Indian and Italian—and especially Cap. Del Rio M. of the Corpo Sanitario Italiano and Major B. L. Parnell, I.M.C. for their excellent work and local co-operation, also to Col. K. S. Master M.C. K.H.P. for his kind interest and permission to publish this note.

ACUTE PANCREATITIS

BY

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Acute pancreatitis is one of those conditions concerning which it is difficult to formulate definite ideas as to diagnosis and treatment for the disease varies enormously in its severity and statistics as to the mortality rate under different forms of treatment are often misleading. This article is written in an endeavour to clarify some points concerning its diagnosis and treatment.

Before considering the diagnosis it is necessary to stress several facts which are well known.

(1) The disease varies from an extremely severe case with a condition of a mild abdominal upset, which in the majority of cases is not recognized as a pancreatitis.

(2) A definite clinical diagnosis is extremely difficult. In a study of recent literature on acute pancreatitis the following findings are of significance: Pre-operative diagnosis. All cases were operated upon at varying intervals from the time of onset of symptoms. In those operated on under 72 hours from onset the pre-operative diagnosis was incorrect in a much higher proportion of cases.

Pre-operative diagnosis
Acute cholecystitis
Acute pancreatitis
Perforated peptic ulcer
Acute appendicitis

Cases
25
18

Criteria for a Diagnosis of Acute Pancreatitis—In considering the diagnosis of acute pancreatitis in a series of cases it is necessary to have some criteria on which the diagnosis is based. In this series, and in the cases taken from the literature the diagnosis has been made on one or more of the following: (1) evidence of acute pancreatitis seen at necropsy, (2) evidence of acute pancreatitis seen at operation, (3) clinical evidence associated with a urinary diastase above 50 units. Any cases which clinically may have been acute pancreatitis but did not fulfil one or more of the above conditions, have been excluded from this discussion.

Differential Diagnosis

Figures taken from the literature and from our own cases show that the two most common conditions with which acute pancreatitis is confused in the clinical diagnosis are perforated peptic ulcer and acute cholecystitis. The treatment of perforated peptic ulcer is early operation, whereas in acute cholecystitis (although fashion changes from time to time) most surgeons adopt a conservative attitude, operation being performed as an emergency only when certain pathological changes occur which make it dangerous to continue with conservative treatment.

It is my belief that the most severe cases of acute pancreatitis, particularly in men, simulate perforated peptic ulcer, and the less severe cases simulate acute cholecystitis. In the cases of acute pancreatitis mistaken for perforated peptic ulcer, operation is performed and the mortality is high. In the less severe cases, mistaken for acute cholecystitis, conservative treatment is adopted and the mortality is lower. The result of this is that the mortality for operation is higher than for conservative treatment; but this gives a false picture of the effect of operation on the mortality, because the cases diagnosed pre-operatively as perforated peptic ulcer are the most severe ones and will have a high mortality rate in any case, although the added strain of an operation must increase the rate, but not to the extent which is implied by a comparison between the conservative and operative treatment.

If laparotomy is performed because of doubt or mistaken diagnosis it seems logical that the least possible intra-abdominal interference should take place. Decompression of the biliary system by means of cholecystostomy may be advisable, and drainage of any large collection of fluid in the lesser sac.

Analysis of Cases

Thirteen cases of acute pancreatitis in which the diagnosis was confirmed by one or more of the criteria mentioned above were treated at Crumpsall Hospital during the four-year period 1941-4. Ten of these cases were submitted to operation; the pre-operative diagnoses of these cases are as follows:

Cases Submitted to Operation within 60 Hours of the Onset of Acute Symptoms

Pre-operative diagnosis:	Cases
Perforated peptic ulcer	2
Peritonitis	2
Acute cholecystitis	1
Acute intestinal obstruction	1

Cases Submitted to Operation 10 to 30 Days after the Onset of Symptoms

Pre-operative diagnosis:	Cases
Cholecystitis	3
Pancreatitis	1

As an explanation of the diagnosis of the cases submitted to early operation it should be noted that acute pancreatitis was considered in at least four instances, but because of uncertainty it was thought unwise to continue with conservative treatment.

Suggested Procedure

In a case where the diagnosis of acute pancreatitis is a possibility one must first consider whether it may be a perforated peptic ulcer, and if reasonable doubt exists laparotomy must be performed. If at operation an acute pancreatitis is found the most that should be done is decompression of the biliary system by means of cholecystostomy, and drainage of any large collection of fluid in the lesser sac. Acute pancreatitis is associated with gall-stones in a high proportion of cases, and if there is an impacted stone at the neck of the gall-bladder cholecystostomy is useless unless the stone can be removed. In such a case cholecystectomy should be performed if the general condition of the patient allows it. Gastro-intestinal suction should be used in all cases, whether treated conservatively or by operation.

If the diagnosis of perforated peptic ulcer or any other condition requiring urgent intervention can be eliminated, conservative treatment should be adopted. Conservative treatment means careful periodic examination of the patient, with an hourly record of the pulse rate, continuous gastro-intestinal

suction, administration of intravenous therapy (preferably plasma), and an estimation as soon as possible of the blood or urinary diastase. Whipple (1942) prefers the serum lipase test of Myers, which, he states, can be performed within an hour by those experienced in its use. At a later date a radiological examination of the gall-bladder should be performed, and if stone or non-function of the gall-bladder is demonstrated, operation must be undertaken.

Summary

In acute pancreatitis a diagnosis of perforated peptic ulcer or some other surgical emergency will be made in approximately 40% of the cases and laparotomy be performed. The mortality rate will be high in these cases, chiefly because they are the most severe.

Where the diagnosis of acute pancreatitis or acute cholecystitis is made the patient should be treated conservatively on the lines described. In these cases the mortality rate will be lower, chiefly because they are less severe.

In the mild cases the diagnosis of acute pancreatitis will often not be made.

REFERENCE

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Medical Memoranda

A Fatality from Thyroidectomy following a Leucopenia caused by Thiouracil

There has recently been considerable interest in the treatment of thyrotoxicosis by the administration of thiouracil. It is difficult to assess the value of any new drug without extensive trials; the publication of a single case report is probably of little value of itself, but when taken in conjunction with others it may help to form a basis of opinion.

CASE HISTORY

Mrs. A., aged 67, was admitted to the Royal Victoria and West Hants Hospital, under Dr. Robson, as a case of heart failure. For the previous 15 months she had suffered from increasing dyspnoea, especially on exertion, and swelling of the ankles. She experienced no cardiac pain or palpitations. She had a slight productive cough but had never had any haemoptysis. Appetite was good, and there was no loss of weight. Her symptoms had increased markedly during the month before admission, so that any slight exertion tired her. Her previous history contained nothing relevant. There was no record of rheumatic fever or tonsillitis.

On admission the patient was fairly well covered and there was no apparent recent loss of weight. She had a well-marked exophthalmos, with a moist skin and slight tremor. She did not appear to be very nervous. She had a pronounced auricular flutter with a pulse rate of 120. The apex beat was 4 in. (10.2 cm.) from the midline, in the fifth left intercostal space. A systolic murmur was heard over the cardiac area, with maximum intensity over the apex beat; a mid-diastolic murmur was also present. There was evidence of back pressure, with oedema and pitting over the lower limbs and back. Some crepitations were heard at the bases. The liver was not enlarged. There was a uniform enlargement of the thyroid, which was smooth and fairly firm. A systolic murmur could be heard all over the gland.

Radiological examination of the chest showed gross cardiac enlargement with back pressure. The urine contained no casts, but there was a slight trace of albumin. The blood urea was 37 mg. per 100 c.cm. Blood count: erythrocytes, 6,160,000 per c.mm.; Hb, 62%; colour index, 0.5; leucocytes, 7,000 per c.mm. (polymorphs 68%, lymphocytes 24%, monocytes 8%).

She was treated with digitalis and sedatives at first, which improved the rate and regularity of her heart. She was then put on a course of Lugol's iodine, which was discontinued on account of persistent diarrhoea. A course of mercurial diuretics was then tried, with some improvement. It was decided to start her on a course of thiouracil, owing to her apparent intolerance of iodine. She received daily injections of 0.3 g. for one week, at the end of which time she was found to be suffering from a leucopenia, her leucocytes having dropped to 3,900 per c.mm. (polymorphs 60%, with a relative lymphocytosis). An immediate injection of 10 c.cm. of peritoneal nucleotide restored her leucocytes to 8,200, with 80% of polymorphs. However, four days later her leucocytes had fallen to their original level. Her general condition had improved with thiouracil; whereas she had lost a stone (6.3 kg.) in weight during one month's treatment in hospital, she now started to gain. As her blood picture remained unsatisfactory she was given daily injections of 10 c.cm. of peritoneal nucleotide, which produced only a temporary improvement in her leucocyte count. These injections, however, brought about a severe general reaction, with a rise of temperature and pulse rate. After three weeks' treatment, with no permanent improvement in her blood picture, her thyrotoxicosis began to become more apparent, with a

return of her fibrillation. It was decided that her only chance of recovery lay in a thyroidectomy. She died before the operation course of Lugol's iodine. Her leucocyte count a day before operation was 4400 per c mm.

Operation was performed under avertin gas-oxygen and local anaesthesia. Seven-eighths resection of the gland was carried out. Her condition on return from the theatre was fairly satisfactory with a pulse rate of 90. She was unable to retain any Lugol's iodine given by the rectum and intratracheal feeding was not needed. Some eight hours after operation her pulse rate rose sharply to 140 and she became very restless. She apparently died of a circulatory crisis some 24 hours after operation.

COMMENT

This case presented the familiar problem of an elderly thyrotoxic patient with advanced cardiac damage. The difficulty arose from her intolerance of iodine. Thiouracil produced an improvement in her toxic condition but the effect was offset by the apparent irreversible change in her blood picture. Pentnucleotide produced only a temporary improvement which was accompanied by disturbing general reactions. This might have been overcome by the administration of extract of yellow bone marrow given by the mouth. This case is the first fatality in a small personal series of under 100 thyroidectomies which included some severe thyrotoxic cases with concomitant heart damage.

My object in reporting this case is to stress the danger of subjecting a patient to thyroidectomy with an uncompensated granulocytopenia, even if the other indications for operation appear to be urgent.

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Palindromic Rheumatism

This syndrome seems so clear-cut that it is strange in view of the widespread interest shown in rheumatic conditions over the last 20 years, for it to have escaped notice in the U.S.A. until four or five years ago and, here, until Winfield (1945) reported a case in the *Journal*. Hench and Rosenberg (1941, 1944) the former a leading authority on rheumatism, described 34 cases from the Mayo Clinic and Cain (1944) one case. No excuse at any rate, need be made for reporting further cases as they come to notice. The symptoms and signs presented by a patient seen in Sept., 1945, accord closely with the accounts given already.

A housewife aged 53 was sent to Droitwich for treatment for arthritis. She gave a history of four years of frequent brief acute attacks of pain, swelling, and redness of her joints, or of the tissues near them, lasting a few hours to six days, generally three days. The intervals were quite irregular. Some malaise occurred during the attack, but the temperature was never raised. She was perfectly well, with no joint symptoms whatever between the attacks. These often started at night. The hands, knees, or feet were usually affected.

The patient was a healthy well nourished woman with a slightly enlarged thyroid but no symptoms or history of hyperthyroidism. She had never had a doctor except for her six confinements and for the present condition. There was a small patch of inflammation on the dorsum of the left foot, which cleared up within 24 hours and a small subcutaneous nodule near her right elbow. During her stay of three weeks her right wrist the subcutaneous tissue at the nape of the neck, and her left ankle were affected in turn for three to four days. Her temperature was at all times normal. The B.S.R. was normal in two of the intervals but was raised (28 Westergren) during the last episode. The blood count, blood uric acid urine, and x-ray appearances (hands and knees) were normal. Salicylates had no effect.

Following biopsy, Hench and Rosenberg describe (a) typical inflammatory joint reaction, (b) inter- and intra-cellular oedema of the skin, (c) low-grade non-specific reaction in the nodules. As to aetiology, they reject infective allergic and angioneurotic possibilities, there is then for the moment, even less of a clue to it than in rheumatoid disease the condition which the syndrome most closely resembles. It would appear, however, that anxiety and strain may play, at any rate a predisposing part in both conditions. Thus the one patient in the Mayo Clinic group who lost her attacks completely did so after she "quit worrying and adopted a baby," and another had less severe attacks after he "quit the oil business became a druggist, and took phenobarbitone daily," while the patient whose case is described here started hers after months of great war strain and of anxiety about her son, who had disappeared in Malaya.

Droitwich

A R NELIGAN MD Lond

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Reviews

A YEAR'S BIOCHEMISTRY

Ann. Rev. Biochem. Vol. XIV, Ed. by J. M. V. L. L. Alabaster Ed. J. M. V. L. L. (Pp. 633) Clarendon Press, Oxford University Press, London H K Lewis & Co

Without any externally visible enlargement this book exceeds its predecessor by yet another 60 pages, a 10% or future indefinite expansion involving the supply of a mechanical crane along with each new edition float before a semi-stunned reviewer's mind's eye. Perhaps however time are not quite so desperate the rate of increase may be accelerating for last year (see review in the *Journal* of Nov. 18 1944) we had to register an increase of 90 pages.

Once more the editors have drawn their contributions from the British Commonwealth as well as predominantly from the United States. Two of its year's experts are from Britain and three from Australia, the remainder are American authors. Again although most of the contributors derive from academic laboratories—universities, medical schools and research institutions—inspection of the various authors' places of work, reveals that three out of the forty were engaged in industry—a rather smaller proportion than in Vol. XIII.

An admirable balance is once more maintained between, on the one hand the chemical and the biological aspects of fundamental biochemistry and on the other, between the old and their application. Thus we have again chapters on biological oxidations and reductions and on non-oxidative enzymes, on the chemistry of the carbohydrates of the lipids and of the amino acids and proteins, on the water-soluble and on the fat-soluble vitamins, on carbohydrate metabolism, on fat metabolism, on protein and amino acid metabolism, on mineral metabolism, on the chemistry of the hormones, on the chemistry and metabolism of phosphorus compounds, on the steroids and the nucleic acids. These hardly welcome perennial are enlivened by the usual addition of bright new annuals. This year's chapters are devoted to the interpenetration, to animal proteins (chlorophyll pigments were surveyed last year) to detoxication mechanisms to biological nitrogen fixation, and (a complementary story) to the nitrogenous constituents of plants and also to their mineral nutrition. At the very end are two chapters on subjects of topical and still growing interest—namely, the chemistry and metabolism of bacteria, and the chemistry of antibiotic substances other than penicillin. The author of this last chapter, Dr A. E. Oxford writes "By reason of a regulation designed to ensure the better prosecution of the war effort, the first article in the *Annual Review of Biochemistry* to deal exclusively with a comparatively new but rapidly growing field in microbiological chemistry cannot include anything about the most remarkable substance in that field—namely, penicillin. This is the less to be regretted since penicillin ought undoubtedly to have a review to itself when publication upon its purification and chemical nature is again permitted." Already his prophecy has been in part fulfilled with the publication of the surviving two alternative formulae out of the many that have been so assiduously and secretly elaborated, studied and rejected during the past four years. It can be confidently anticipated that next year's Review will contain something like the account forecast by Dr Oxford.

Meanwhile there is still only one word that is indispensable to the description of this annual source of satisfaction and humility: the word is—indispensable.

PSYCHOLOGICAL MEDICINE

Psychological Medicine: A Short Introduction to Psychiatry. With an Appendix on Psychiatry Associated with War Conditions. By Desmond Curran, M.B., F.R.C.P., D.P.M., and Eric Guttmann, M.D., M.R.C.P. Foreword by J. J. Connelley, D.M., F.R.C.P. Second edition. (Pp. 216) Illustrated. 10s 6d plus 6d postage. Edinburgh: E and S Livingstone.

Among the very numerous books which have been written on this subject in recent years this volume may be described as outstanding, and the publication of a second edition in two and a half years and at a time when the issue of books is so difficult shows that the medical public has appreciated this fact. Its great merit is its brevity, its clarity, and its middle course.

between the extremes of any of the many psychiatric doctrines which have flourished in our time.

Written perhaps more from the point of view of the psychoses than the psychoneuroses, it yet manages to hold a just balance between the two branches of mental medicine, and the addition of a new chapter on the obsessions adds materially to its value. The sections on the organic syndromes, especially that on the results of head injury, are especially valuable; and the appendix on psychiatric conditions of war, brought up to date, is of great interest. The importance of personnel selection in relation to general morale and prevention of mental illness is admirably illustrated, especially as exemplified by the absence of neurosis in the carefully selected submarine crews, engaged in a service which, at first sight at least, might have been expected to result in exceptional mental stress.

It remains to be seen whether the lessons of war can be carried into the medicine of peace, and whether the profession as a whole can think a little more of the community and a little less of the individual as an exercise in "scientific curiosity." As Dr. Conybeare says in the foreword which he has provided: "It is clearly better that the diagnosis of the occasional case of physical disease should be delayed rather than that large numbers of potentially useful men should be rendered hypochondriacs." Yet one must try to keep a just balance, and it is equally important that we should not dismiss the patient as "merely neurotic" because his symptom-complex defeats our diagnostic acumen, if we have not got any positive evidence for such a conclusion. If all medical practitioners were to read and ponder over this excellent little book it would help them greatly to avoid the Scylla and Charybdis of these two equally common states.

TUBERCULOSIS IN THE U.S.A.

Tuberculosis in the United States, Graphic Presentation, Vol. 1. Mortality Statistics for Large Cities. Federal Security Agency, U.S. Public Health Service, and Medical Research Committee, National Tuberculosis Association.

This volume is the third of a series dealing with tuberculosis in the United States of America. Vol. 1 reviewed the mortality from tuberculosis over three decades for States and geographical divisions by age, sex, and race. In Vol. 2 the data were presented in the form of proportional mortality. Considerable variation exists between and within States; the death rate for tuberculosis in the triennial period 1939-41 was 411 per million in the rural areas and 554 in the large cities—35% higher. The present volume deals with the mortality experience of the 92 cities with a population of 100,000 or more. The data are set out in two tables and two diagrams, for each city. The first table shows the death rate in eight age groups for each sex and race for the period 1939-41, together with the crude and standardized rates. The second table gives, for the same subdivisions, the deaths from tuberculosis as a percentage of deaths from all causes. The crude death rates for all races and for whites range from 156 per million in Grand Rapids to 1,517 in San Antonio; age and sex differences do not contribute to this large range, since the standardized death rates are 155 and 1,569 respectively. The non-white death rate varies from 955 per million in Charlotte to 2,755 in Newark.

In each of the three volumes the graphs are on the backs of the tables, a more convenient arrangement from the reader's point of view would have been for the tables to face the graphs.

A DOCTOR'S LIFE AT SEA

Ship's Doctor. By Rufus W. Hooker, M.D. (Pp. 175. 15s.) London: Herbert Jenkins, Ltd.

This medical book, the autobiography of an American sea surgeon, could equally well be read by the lay public. The greater part of the volume is concerned with recounting cases that came under the author's care during his voyages in passenger liners and pleasure cruisers.

Dr. Hooker began his medical career in Mexico, and would have remained there but for the overthrow of the Diaz regime in 1911, when the revolution declared an "open season" on aliens. He had to throw up his work and escaped with only his instruments. He then went through a course of postgraduate study in New York hospitals and specialized in diseases of the eye and ear. During the 1914-18 war he was posted to an

aviation training camp; later he worked up a successful general practice in his home town, but his longing for world travel turned his thoughts to sea-going and he became ship surgeon, a job for which he was well qualified. He possessed medical and surgical experience and was self-reliant—the two chief requisites for medical life at sea. Perhaps in no other branch of our profession has a doctor to face such a wide range of cases, frequently urgent, beyond reach of other help.

Into a connected story he weaves clinical accounts of how he dealt with myeloid leukaemia, tropical diseases, fractures, abdominal emergencies, and many other complaints. His medico-legal cases are full of interest, as also his management of accouchements at sea. Prospective ship surgeons should give their attention to this book, which tells in easy fashion the kind of professional life that has to be faced in surroundings that are usually devoid of the help so readily obtainable in practice ashore. It is a book of medical and surgical realism rendered all the more attractive by the author's common-sense reflections and independence of thought.

Notes on Books

The 53rd edition of the *Annual Charities Register and Digest*, for 1946, is published by Longmans, Green and Co. on behalf of the Charity Organization Society, which has now been renamed the Family Welfare Association. As in former years, this reference book gives information about the societies, associations, and other bodies that provide relief in affliction and distress of all kinds. The title-page describes it as a classified register of charities in or available for the Metropolis, but in fact it gives pointers to many other agencies and organizations. The information is grouped into forty-three sections and there is a full index. The head office of the Family Welfare Association is at Denison House, 296, Vauxhall Bridge Road, London, S.W.1, from which address copies of the book may be had direct, price 10s. 6d.

Mr. ZACHARY CORN's *Early Diagnosis of the Acute Abdomen* appeared first in 1921, and by 1944 had passed through eight editions and seven reprintings. As a guide to the diagnosis of abdominal emergencies this little book met a real need, and the profession was quick to recognize its value. The ninth edition (Oxford University Press; 12s. 6d.) carries on the good work, and the author in preparing it has made a few minor changes and additions, chiefly in the chapter on acute intestinal obstruction and on acute abdominal symptoms in pregnancy and the puerperium, and has included two more diagrams. A further lease of popularity can be predicted.

Volume LXIV of the *Transactions of the Ophthalmological Society of the United Kingdom* covers the proceedings of the Society during its 64th session—March and April, 1944—and includes reports on the affiliated societies for 1943-4. It is published by J. and A. Churchill at 40s. The main subjects dealt with are ocular psychoneuroses, virus diseases of the eye, diseases of the brain and optic nerve, diseases of the orbit and sphenoidal sinus. The volume opens with Mr. H. M. Traquair's presidential address on the nerve-fibre bundle defect, and the miscellaneous papers include one by Richard Cruise on preventable blindness in war.

Fabian Publications Ltd., and Victor Gollancz Ltd., have jointly issued a shilling pamphlet, *The British Gas Industry—Present and Future*, by JOAN MURPHY, as No. 103 of the Fabian Society's research series. Leslie Hardern in his foreword says that the time has come: "the new Government is completing its plans for the nationalization of the coal industry, and will soon be turning its attention to the gas and electricity industries." In three sections the author gives facts about the gas industry to-day, discusses present problems, and outlines a plan.

A second edition (1945) of the *Dietitians Section of the National Register of Medical Auxiliary Services* has been issued, and copies of this and other sections will be sent free to medical practitioners, hospitals, etc., on application to the Registrar of the Board, 111, Tavistock Square, London, W.C.1. The list comprises the names, addresses, and qualifications of persons approved by the recognized qualifying body, the British Dietetic Association. Dietitians is defined as the interpretation and application of the principles of nutrition in health and disease. Dietitians whose names appear in the list do not in cases of disease undertake the treatment of any condition except under the direction and control of a registered medical practitioner.

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TREATMENT OF PEPTIC ULCER

Treatment of a common disease like peptic ulcer is so often determined by impressions or by the prevailing climate of opinion that it is important from time to time to check our practice with the statistics of a carefully observed series of cases. An account has now been published¹ of over a thousand cases which have been carefully followed at the surgical department of the New York Hospital. As the majority of the patients were treated medically, this is probably as dispassionate a record as can be expected of the results of medical and surgical treatment of peptic ulceration; but inevitably it deals with a highly selected sample of the disease. At one time or another 10% of people suffer from peptic ulcer, but only a fraction of them reach the out-patient departments of the hospitals, and of those who do only about 1 in 6 filters through into the wards. Hospital statistics such as Dr Heuer's are therefore applicable only to the small group of ulcers which have perforated, bled, or resisted ambulant treatment. Moreover, though the book is described as a ten-year clinical study, less than a quarter of the patients had been followed for more than five years, and only 120 of them had gone so long without operation. Dr Heuer's experience, both in the groups of patients treated conservatively and in those submitted to operation, has been that the results change considerably until at least five years have elapsed, and even in the period between five and ten years a certain proportion suffer a recurrence. This is indeed a field in which experience is difficult and judgment fallible. Much of the disagreement about the relative merits of medical and surgical treatment of peptic ulceration has arisen from the failure of physicians and surgeons to realize that they are often dealing with different categories of experience, and that in the life-history of a peptic ulcer a decade is a relatively short time.

In this group of patients with peptic ulcers admitted to hospital Heuer finds that less than 60% have done well on medical treatment and 3.5% of those so treated have died directly from the ulcer. Serious complications which lead to death usually appear early in the period of observation, and it is unwise to persist with medical treatment if pain is not relieved or if complications occur. Haemorrhage, gastric retention, and gastro-jejunal ulceration should all exert a strong bias in favour of surgical treatment. Heuer believes that the immediate treatment of haemorrhage should be medical, but if haemorrhage recurs, or if a patient bleeds while he is in hospital undergoing medical treatment, it is probable that the bleeding is arterial and surgery should be advised. In view of the possibility of operation, particularly in patients over 45, Heuer is opposed to the Meulengracht treatment by early feeding, and claims equally good results from parenteral fluids. There can be

few questions on which physicians and surgeons differ so widely as the risk of carcinoma in gastric ulcer. Heuer believes that with careful examination and supervision the risk of missing a carcinoma by medical treatment of gastric ulcers is not great—certainly not greater than the risks of gastric resection. In his experience a low acidity, must give rise to the strongest suspicion of carcinoma.

From analysis of the results of surgery Heuer comes to two conclusions with which many physicians will agree. Gastro-enterostomy is often a most successful operation and it is still the operation of choice in a high proportion of cases of peptic ulcer; and, secondly, the success of the operation varies very much with the skill of the individual surgeon, and particularly with his ability to know how and where to put the stoma. When, however, gastro-enterostomy or other conservative operation fails, nothing short of gastric resection will succeed and any lesser interference is usually disastrous. After gastro-enterostomy there is no significant change in the secretion of hydrochloric acid, and it is assumed that the good results are due to dilution and neutralization of the acid. After gastric resection there is, in general, a decline in acid secretion in proportion to the extent of the resection, but resection of any magnitude consistent with a reasonable mortality does not ensure achlorhydria. If we are ever to achieve complete achlorhydria as the basis of cure of peptic ulcer it will probably come not via surgery but via biochemistry, on the lines promised by Davenport's² work on the inhibition of gastric secretion. While agreeing with Heuer's conclusions and stressing the clarity and objectivity of his writing we cannot help adding that his monograph would have been still more acceptable if he had taken some statistical advice in the presentation of the data. To say that "the results of gastro-enterostomy approach within 10% those of resection and with a lower primary mortality" is almost meaningless and a better picture of the relative merits and mortality of gastro-enterostomy and gastrectomy could almost certainly have been composed from these figures if the chances of dying or recovering after different operations had been compared by quite simple statistical techniques. The same criticism applies to Dr. Heuer's analysis of the literature, where the data are so discordant that they cannot properly be summated and expressed as percentages. Much of the literature is in any event of little value owing to the high proportion of cases lost sight of. It is nevertheless clear that treatment of peptic ulcer consists to-day of a series of screens, whereby the more tractable cases are successively filtered off—rest in bed for those in whom ambulant treatment fails, gastro-enterostomy when medical treatment fails, and gastrectomy for the unsuccessful gastro-enterostomy or for the patient who bleeds or is suspected of malignant disease. In recommending any treatment for wide application we must always be mindful of the enormous reservoir of cases of peptic ulceration and of the contribution which the biochemist may make to treatment within the next five or ten years. Nevertheless there will be few physicians or surgeons, who will not have their ideas in clearer focus as a result of reading this analysis of American experience of the disease.

FUTURE OF MENTAL NURSING

The report of the Subcommittee on Mental Nursing and the Nursing of the Mentally Defective,¹ summarized in our issue of Jan. 12, is to be welcomed on every count. The subcommittee saw as its main task the formulation of recommendations which would have the effect of raising the standard and status of mental nursing to the same level as general nursing. Such a plan would be vain if it were not justified by the facts, and if the same level of skill, intelligence, and devotion were not required in the nursing of the mentally ill as of the bodily ill. Until a few years ago this could, perhaps, hardly have been claimed. By far the greater part of the nurse's time was then spent in a largely custodial care of her patients, which, though it made demands on such qualities as experience, tact, and presence of mind, did not need such a high level of technical education as was necessary in general nursing. In these last few years, however, the face of psychiatry has changed. The appearance of a range of physical methods of treatment has brought with it a need for the nurse to have knowledge and experience of specialized techniques, an understanding of the modes of interaction of bodily and mental events, and therefore a greater knowledge both of general medicine and of psychology; it has above all meant a reorientation of her attitude to her patient. It is no longer a matter of passively waiting for him to get better, and tiding him over the difficulties and dangers that lie in his way, but one of actively aiding his recovery. Every patient that comes into the admission villa offers a challenge; it should be possible to get him well and on his way home before the question of transfer to a chronic ward arises. The mental hospital, from an asylum, is in process of becoming a hospital much like any other.

One of the principal recommendations of the subcommittee is that the system of examinations should be unified. One certificate is issued by the Royal Medico-Psychological Association, another by the General Nursing Council. Though it is only the latter which entitles the nurse to State registration, the R.M.P.A. certificate attracts about nine entries for every one for the State final. The reasons are not far to seek. The R.M.P.A. certificate offers nearly all the advantages in pay and promotion of State registration, and the examinations are conducted at a much larger number of centres, at a lower fee to the nurse, and are easier to pass. The preliminary examination for the G.N.C. certificate particularly receives criticism from the subcommittee for being but poorly adjusted to the nurse's experience in the mental hospital at that stage. From the report of the subcommittee it is clear that in the past there have been negotiations between the Royal Medico-Psychological Association and the General Nursing Council, with a view to ending this state of affairs, which have broken down through no lack of readiness to compromise on the part

of the R.M.P.A. While recognizing the great services of the R.M.P.A. to mental nursing ever since it held its first examination in 1891, the subcommittee believes that the time has come for its examinations to be discontinued and for the State certificate to be the only one available. Present holders of the R.M.P.A. certificate would have their names entered on the register without further examination, and the representation of mental nurses on the G.N.C. would be strengthened.

A number of excellent reforms are also proposed relating to scales of salary, hours of duty, interchangeability of pension rights, discipline, feeding, amenities, and the private liberties of the nurse. In these connexions the need for securing an adequate entry to the profession has clearly had great weight with the subcommittee. It is recommended that the mental nurse should continue to enjoy in the future as in the past a slightly higher scale of pay than the general nurse. This is justified by the often unpleasant nature of the work, the less favourable prospects of advancement of the mental nurse, and the isolation in which she must often live. It can hardly be doubted, however, that the effect on public opinion will be that a service which has to offer a special scale of remuneration must suffer from corresponding disadvantages; and an improvement in the status of the mental nurse is not likely to be encouraged in this way. We must hope for the time when the reasons for this discrimination are abolished, when prospects of advancement are as good in mental as in general nursing, when there are psychiatric clinics in all our larger towns and not only in often barrack-like buildings in the heart of the country, and when salary as well as status will be the same for both branches of nursing.

The future of the mental nurse will continue to depend on factors which have their effects on a national scale and which did not come within the terms of reference of the subcommittee. One of the most obvious of these is the balance of opportunities offered by other callings for young women and men. This may be regulated by the laws of supply and demand, or planned under a national wages policy. Another factor of primary importance, referred to at some length in the report, is the education policy of the country and the effect it will have in narrowing the gap between the school-leaving age and the age of entry to hospital. Even under present plans this gap will be one of two years, and it is a wasteful procedure by which adolescents are left to find their feet in the commercial market for so long before they have an opportunity of entering the nursing profession. Some possibilities of bridging this gap are discussed in the report, and the conclusion is regretfully reached that none of them are practicable. Would it not be possible to regard the nurse as a public servant as important as the teacher, and to give her the same facilities for a higher education? This could be of a preliminary type equally suitable for the subsequent training of the nurse, the occupational therapist, and perhaps other health workers too.

¹ H.M. Stationery Office. (1s.; post free 1s. 2d.)

EPIDEMIC OF VIRUS B INFLUENZA

During the past few weeks the weekly recorded deaths from influenza in the great towns of England and Wales have reached the highest levels for the past two years. At the same time many practitioners have doubtless been busy in attendance on illnesses of an influenzal character in their practices and perhaps in their own families. We understand that few actual outbreaks in semi-isolated communities have yet been investigated from the laboratory standpoint, though many sporadic cases of respiratory-tract infection, some typical of influenza, have been investigated during the past month. Serological tests on specimens received from various parts of the country have yielded in a considerable proportion of instances results diagnostic of virus B influenza.

It would appear, therefore, that an outbreak of virus B influenza is now in progress in this country. Hitherto virus B has not been incriminated in any widespread epidemic in Britain, though sporadic cases were detected in 1939¹ and a minor outbreak in 1943.² Nevertheless, its potential power of epidemic spread has been shown by experience in the U.S.A. in the recorded outbreaks of 1936 and 1940.³ Both virus A and virus B cause sharp attacks of fever with general symptoms preponderating over those arising from the respiratory tract. Both are apt to be followed by pneumonia, associated with bacterial invasion of the lung, though perhaps the risk of chest complications has in the past been greater with virus A than with virus B infection. Some workers^{4,5} have thought that virus B influenza was of more insidious onset and associated with a greater intensity of coryza and other nasal symptoms than influenza A. These findings were not confirmed by experience in this country in 1943, when the cases of virus B infection appeared clinically indistinguishable from those of virus A in former years.⁶ The present outbreak may afford an opportunity for further observation on these and other points by those who are able to study sharp outbreaks in any community in which patients are admitted to hospital.*

To those who may wonder whether the present prevalence of influenza is indicative of a post-war pandemic such as that experienced in 1918 the present statistics of the influenza deaths in relation to age may be of interest. It is understood that, as yet, no suggestion of an excessive mortality in the 20-40 age groups has appeared, as in the case of the 1918 epidemic. It is chiefly the older age groups of 50 and over in whom the majority of the recent fatal cases have occurred.

A word of warning may not be out of place. In January, 1943, the virus B "wave" was succeeded by a lull, then by sporadic cases and localized outbreaks of influenza A in the spring and summer, and finally an explosive epidemic of virus A developed in the early winter of that year.⁷ It was as though virus B, which possesses no immunological characters in common with virus A, had disturbed the host-virus equilibrium involving the latter organism, and paved the way for the appearance of a widespread epidemic. These occurrences in 1943 may have been exceptional, but they are worth bearing in mind at the present time.

* Those interested should communicate with S.M.O., Med. III, 35 G. Ministry of Health (Whitehall 4300), if circumstances appear to warrant further investigation.

¹ Lush, D., Stuart-Harris, C. H., and Andrewes, C. H., *Brit. J. exp. Path.*, 1941, 22, 302.

² Stuart-Harris, C. H., Glover, R. E., and Mills, K. C., *Lancet*, 1943, 2, 790.

³ Francis, T., *Science*, 1940, 92, 405.

⁴ Hare, R., Hamilton, J., and Feasby, W. R., *Canad. publ. Hlth. J.*, 1943, 34, 453.

⁵ Nigg, C., Eklund, C. M., Wilson, D. E., and Crowley, J. H., *Amer. J. Hyg.*, 1942, 35, 265.

⁶ Stansfeld, J. M., and Stuart-Harris, C. H., *Lancet*, 1943, 2, 759.

⁷ Andrewes, C. H., and Glover, R. E., *ibid.*, 1944, 2, 104.

BASAL BODY TEMPERATURE AND THE MENSTRUAL CYCLE

It is now over forty years since Van der Velde described changes in the basal temperature of the body during the menstrual cycle. Since his original description in 1904 knowledge of the physiology and pathology of the endometrium has grown, and it is now possible to correlate fluctuations of body temperature with changes in the uterus and ovaries. Pendleton Tomkins, of Philadelphia,¹ in a paper illustrated with numerous valuable graphs, shows that the curve of body temperature in the normal menstrual cycle is biphasic. Before ovulation the temperature is relatively low. Ovulation is signalled by a fall of temperature followed by a sharp rise to a higher level. Another sharp fall one to three days before menstruation brings the temperature down again to the relatively low level which persists until the next ovulation. If conception occurs the premenstrual fall is absent and the temperature remains at the higher level. In an earlier paper Tomkins² recommended that the temperature be taken by the rectum on waking in the morning, before rising, and before taking food and drink or smoking. The reading must be recorded at once on the special graph. Any indisposition, such as a cold or indigestion, should be noted—even a "hangover" may vitiate the record. Coitus and *Mittelschmerz* should also be noted. Records are not necessary during menstruation. The graph is not considered of value until it has been kept for at least two months; ovulation is indicated by a rise in basal body temperature of 0.4 to 0.6° F.

Commenting on this study, Kleitman³ suggests certain modifications. He finds oral temperatures as efficient as rectal provided precautions are taken, such as resting and avoiding hot drinks within an hour or cold drinks within half an hour of recording the temperature. Kleitman also states that an evening is as reliable as a morning temperature. Kleitman⁴ has shown that the intra-uterine temperature is the most reliable, but he considers that for practical purposes the reading of the basal body temperature is sufficient.

Other workers have correlated temperature changes during the menstrual cycle with changes in the ovaries and endometrium. Greulich, Morris, and Black⁵ examined the ovaries in women submitted to laparotomy and found that the fall of temperature about the middle of the cycle is not necessarily evidence of ovulation; the rise which follows does denote ovulation in most cases. The age of the corpora lutea did not always correspond with the temperature readings, perhaps because temperatures were taken only every twenty-four hours or because the rate of development of the corpus luteum varies. Martin⁶ has checked temperature graphs by endometrial biopsy. He recorded 164 biphasic cycles; in 47 of these biopsy in the second phase showed secretory endometrium. In 17 monophasic cycles, where the rise of temperature in the second half did not take place, there was proliferative endometrium but no evidence of secretory change. Similar findings have been recorded by Halbrecht.⁷ Martin also demonstrated that the difference in basal body temperature between the two halves of the biphasic cycle was statistically significant, but there was no statistically significant difference in the two halves of the monophasic cycle. The temperature curve is therefore a reliable means of distinguishing ovulatory from non-ovulatory menstruation.

¹ *J. Obstet. Gynec. Brit. Emp.*, 1945, 52, 241.

² *J. Amer. med. Ass.*, 1944, 124, 698.

³ *Ibid.*, 1944, 125, 82.

⁴ *J. Clin. Endocrinol.*, 1944, 4, 159.

⁵ *Proc. Conf. Prob. Human Fertility*, 1943, p. 37.

⁶ *Amer. J. Obstet. Gynec.*, 1943, 46, 53.

⁷ *Lancet*, 1945, 2, 668.

This method of determining the time of ovulation needs no expensive apparatus or time-consuming laboratory work. Barton and Wiesner⁸ have found it especially useful in helping women to achieve conception—"for example, in the timing of intercourse, the arrangement of leave for Service people, and in artificial insemination." It requires the co-operation of the patient, but this is easily obtained in cases of sterility and in-patients who wish to avoid pregnancy but are unwilling to practise contraception. Further suggested uses for it are as a test of early pregnancy, in evaluating treatment intended to stimulate ovulation, in timing the date for endometrial biopsy, and in searching for early ova. Tomkins believes that it should also prove of value in studying irregular uterine haemorrhage and in assessing the reliability of contraceptive measures.

BOARDING SCHOOLS FOR THE HANDICAPPED

It is now generally admitted that every child has a right to the education of which he is capable of taking advantage. This principle underlies the new Education Act, but its practical achievement is presenting difficulties which are, or appear to be, almost insoluble, especially in these days when the building industry must devote all its energy to the provision of bare shelter for the ordinary citizen. In the larger cities something has already been done by establishing special schools for those subnormal children who cannot fit into and who cannot take advantage of the ordinary elementary school. All who are concerned with such children in rural areas agree, however, that almost nothing has been done for them. True there are some 36 boarding schools at present accommodating 3,650 children, but only 10 of these, housing 1,300 children, are permanent and provided by local authorities; and it is estimated that, where there are no day special schools, boarding places are needed for 4 per thousand registered pupils, and where day-schools exist 2 per thousand. In addition it is very necessary to provide for the boarding of many maladjusted children referred before or after they come into the juvenile court, whether because of their own asocial behaviour or because their parents for one reason or another cannot arrange for their care and control. Most of these will have to be lodged in hostels, which authorities are agreed should not contain more than 20 children. From most of these hostels the children should attend ordinary schools and a child guidance clinic. The schools, whether for subnormal or for maladjusted children, will also have to be small.

The Ministry of Education's circular No. 79 deals solely with bricks and mortar, and urges local authorities to combine to acquire large houses which, with or without the additional provision of prefabricated huts, can be easily adapted for the purpose of residential schools. This may be done by joint education authorities or by one authority initiating the school and receiving children from neighbouring authorities, but it is pointed out that, however achieved, the need is urgent. The problem is certainly complex, for in these two large groups there are so many subgroups that call for separate consideration and treatment; as, for example, the spastic paralysis cases among the subnormals, the need for whose very special physical and mental education is being demonstrated by the all-too-small and handicapped unit at St. Mary's L.C.C. Hospital, Carshalton. The provision of buildings is, however, not enough, and although the new circular does not go beyond this it is to be hoped that the necessity for a carefully chosen and specially trained staff will not be lost sight of, and that neither central nor local authorities will be content to sit back when they can show in their annual reports that a statistically satisfactory number of handicapped children have been given

lodging, without recording what may happen to the lodgers when they are lodged. Progress in social services is certainly being made, and this is indeed gratifying, but the public must watch carefully and see that this progress is on a real and solid basis and not merely a compilation of plausible figures.

CONTROL OF DANGEROUS DRUG TRAFFIC

During the war years there has been considerable delay in furnishing returns of the production and consumption of dangerous drugs to the Advisory Committee of the League of Nations. The latest information vouchsafed, in a recent report by the Advisory Committee, is for the year 1940. Indeed, some Governments which are large producers, manufacturers, and consumers of opium and other narcotics have failed to supply returns under the Opium Conventions of 1912 to 1936. Thus a world review of the international trade is rendered impossible, and would be largely vitiated by the exchange rates of currencies in many of the countries which are parties to the Conventions. Only 34 countries and territories out of some 70 had in 1941 supplied the Secretariat with returns for 1940.

It is noted that addiction to narcotic drugs is not prevalent in the United Kingdom. Of the 505 addicts reported in 1940, 251 were men and 254 women, 80 were members of the medical profession, 3 were dentists, 5 pharmacists, and 2 veterinary surgeons. Heroin is the drug mostly used by addicts. In India codeine is now included with other alkaloids for control of illicit use. China is striving after "absolute suppression of the drug evil," while in territories occupied by Japan all such efforts have been frustrated and illicit traffic and opium-smoking encouraged. In the Shanghai national settlement opium addiction is widespread and promoted by Korean pedlars in heroin. In Aden opium, ganja, and bang within limits are sold freely to addicts. In Syria and the Lebanon 1,952 kg. of opium and 728 kg. of hashish were seized in 1940, while the police destroyed Indian hemp equivalent to 800,000 kg. of prepared hashish. In Iran the area under the opium poppy nearly doubled in 1940, and some 790,000 kg. of opium were produced. The Permanent Central Opium Board is fully justified in urging that international control of the traffic in narcotics, so far from being relaxed, needs vigilant reinforcement and supervision. That national control is tightly maintained in the United Kingdom can be seen from the report for 1944 just issued as a cyclostyle document by the Home Office.

A first interim report by the Committee on Dermatology set up by the Royal College of Physicians in July, 1945, is concerned with a comprehensive dermatological service and it outlines the facilities required—i.e., numbers of beds, medical personnel, and ancillary services. In a national scheme the demands on the skin departments would be greater than now, as more patients would be referred by practitioners and more would wish for specialized advice. The number of beds available is small and insufficient to cope with the long waiting lists. Effective management of many of these cases, though they are not acutely ill, implies as much nursing care as the average medical case, and this is not obtainable in the patient's home. The report assumes that the country will be divided into regions for the purpose of organizing and maintaining a service of dermatology, the centre of each region being situated in, or attached to, the skin department of a university hospital (or, in London, of a teaching hospital), under a full-time head of professional rank. The report presents a scheme for a national service on this basis, with secondary and peripheral centres. The rehabilitation centre for skin cases is important, but this must at first be experimental.

⁸ *Lancet*, 1945, 2, 663.

OCCUPATIONAL EYE DISEASES

BY

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Ophthalmologists and other medical men not connected with industry often forget to inquire into the occupational aspect of disease. In the diagnosis and treatment of eye injuries and diseases it is most important to bear in mind the nature of the patient's occupation. For instance when one examines a patient who complains of a piece of metal flying into his eye it is necessary to ascertain whether he was grinding or hammering at the time of the accident. A grinder gets a superficial corneal foreign body which is easily removed, but a history of hammering, chipping, boring, or milling should make the industrial medical officer and the ophthalmologist beware of the possibility of an intraocular foreign body. When we treat acute or chronic conjunctivitis or keratitis it is most important to bear in mind the likelihood of an occupational cause. Obscure cases of retinitis, retrolental neuritis and ocular palsies, and amblyopia should always make us think of a possibility of chronic poisoning arising from industrial solvents, etc.

Acute and Chronic Keratitis—Rankine (1936) reported that 1,598 workers suffering from a superficial punctate keratitis were seen in the course of two years in an artificial silk factory. The patients complained of blurring of vision, pain in the eyes, headaches, lacrimation, and a feeling of grittiness. It was found that H₂S (hydrogen sulphide) which is present in the air in the acid house in the artificial-silk industry, was responsible for the onset of the keratitis. McDonald and others have shown that the presence of 10 parts in a million of hydrogen sulphide in the air is sufficient to cause a keratitis. Improved methods of ventilation have now reduced considerably its incidence in the artificial-silk industry. The same type of keratitis, also due to hydrogen sulphide, is known to occur in the sugar industry. Workers in furniture trades, metal industries, and straw hat factories occasionally develop keratitis. It is most probably due to the use of benzene and similar solvents of varnishes and shellac. The largest number of cases occur in winter months when ventilation is poorest. Bakers often suffer from a chronic blepharitis and conjunctivitis. Agricultural workers are also known to suffer from a keratitis which may be allergic in origin and is due to various weeds (pigweed, redroot, and others) and also peat dust. Lastly, a symptomless chronic occupational keratitis is found in lathe workers, stone-cutters, grinders, and sand-blasters. The cornea of these workers shows bilateral minute regularly shaped scars with glistening foreign bodies embedded in them. There are also a number of multiple corneal erosions which stain with fluorescein (Davidson, 1939). The sensitivity of the cornea is usually greatly diminished. Many of these cases of keratitis will be diagnosed as acute or chronic conjunctivitis unless the cornea is examined with a slit-lamp microscope.

Lens Opacities—In 1908 Sir Thomas Legge, on examination of 513 workers engaged in the glass industry, reported that 20% of them had lens changes. A committee established by the Royal Society in the same year considered that these lens opacities were due to infra-red rays. They are found in the posterior cortex of the lens. The same lenticular changes are also seen in furnace workers, and some authorities have stated that 17% of these workers show posterior cortical lens changes. It takes 10 to 20 years of work in these industries for these lens changes to develop. The provision of protective goggles for glass workers has considerably reduced the incidence of lens opacities in the industry. Furnace workers are still inefficiently protected.

Industrial Poisons

The most important of these poisons are lead derivatives of benzene, carbon bisulphide, methyl alcohol, arsenic and its derivatives, carbon tetrachloride, and trichlorethylene. These and many other toxic substances used in industry may produce toxic amblyopias, optic neuritis and ocular palsies.

Methyl alcohol is used as a solvent for shellacs and varnishes, in the preparation of perfumes, paint removers, as a solvent for aniline dyes, and in toilet materials. Inhalation of vapour may cause optic neuritis and ocular palsies. Painters working in closed spaces use the fumes of methyl alcohol, and among them optic atrophy has been reported.

Carbon bisulphide is used in the rubber industry, in the artificial silk industry, and in refrigerating plants. Inhalation of the vapour causes amblyopia and optic neuritis, often a bilateral symmetrical appearance, mental disturbances, and general mental confusion.

Lead poisoning may occur in composers, pumbers, accumulators makers, makers of lead pipe, and paint grinders. It causes optic neuritis and ocular palsies.

Arsenic is used in the manufacture of artificial fibres and insecticides, the dyeing industry, pickling, etc. Ocular palsies have been reported. Cosmetics which have some form of arsenic may cause eczema of the eyelids.

Carbon tetrachloride is employed as an industrial solvent, in dry cleaning, etc. Many cases of loss of vision resulted from use of this substance. The loss of the peripheral field is the most prominent feature of this type of amblyopia.

Trichlorethylene is used as a degreasing agent in dry cleaning, etc. It may cause optic neuritis and retinitis.

Benzol and its derivative dimethylbenzol are used in the manufacture of aniline dyes, in dry cleaning, in the manufacture of varnishes, in vulcanizing rubber, and in other industries. The inhalation of the vapour of these substances causes optic neuritis.

Department of Industrial Ophthalmology

To deal with all these problems of occupational eye diseases and eye injuries in industry the Royal Eye Hospital has decided to establish a department of industrial ophthalmology. The ophthalmologist is not usually acquainted with the methods of production used in various industries. He therefore should have the assistance of skilled engineers, safety officers, and makers of preventive appliances to advise him on technical problems. I am fortunate in having secured the help of an expert engineer and safety officer and two representatives of makers of safety appliances. These form a committee which sits with me every Wednesday afternoon. When a patient is referred to me I ask him how he injured his eye, or if there is no history of injury, whether there are any circumstances or conditions at his work which could have caused an inflammation of the eye. He relates the history of the injury, amplifying it with technical details. The members of my committee question him on safety appliances used and explain to me the technical problems. The patients often call this "a court of inquiry."

The largest numbers of cases referred to the department are of course those of corneal foreign bodies from grinders' stones. These patients attend in hundreds every week, and include juveniles from the age of 14. We inquire whether protective appliances were supplied. Many unreasonable, and at other times legitimate objections are given by the workmen against the use of goggles. One lad of 14 objected to wearing goggles which had also been worn by other workmen, he considered it unhygienic. We felt that this was a most reasonable objection and provided him with a suitable pair of goggles for his own use from a stock given to us by various firms. Goggles generally do not provide complete protection, and a good screen or guard fitted to the machine is very much more effective. The provision of such a screen by employers is encouraged. If goggles are provided they must be comfortable to wear. We encourage further research into the production of efficient and comfortable goggles, suitable for various forms of work. Letters are written to the employers of workmen who have attended at this hospital and advice is given on the best means of protecting the workmen's eyes. In many cases the employers have been most co-operative.

Ocular Affections due to Welding

We have dealt with a number of injuries to the eye resulting from electric welding. Welders working with the electric arc often get an "arc eye." This may be due to inefficient protection or to the fact that the welder has not brought the helmet or the screen in front of his face soon enough after striking the arc. Many welders are negligent, they adjust the arc without the shield, and it is only after the arc is struck that the shield is put on. An "arc eye" will follow. The welder's mate may also suffer from "arc eye" from the same cause. Welders often work in workshops which are not screened, and fitters in

the vicinity get an "arc eye." Anyone who exposes his eye to the welder's arc will develop symptoms within about six hours. The eyes begin to burn and are painful. The patient complains of photophobia and lacrimation. He is suffering from a conjunctivitis, and if the reaction has been due to a prolonged exposure he will also have a mild superficial punctate keratitis, with multiple staining areas of the cornea. The best treatment in such cases is instillation of gutt. adrenalin. 1 in 2,000 and a mild analgesic—holocaine 1% or pantocaine 1%. Cocaine should never be used, as it is injurious to the cornea. Cold applications or iced compresses are advisable. The acute condition subsides within a day or two. It has been generally held that welders suffer only from an acute conjunctivitis—an "arc eye" which leaves no further complications; but my experience has shown that repeated exposure to the welder's arc causes a chronic keratitis.

I have recently seen at the hospital a number of welders with a *chronic superficial keratitis*. The cornea of these men had multiple erosions, many of which stained with fluorescein. The patients complained of blurring of vision, grittiness, and a certain amount of photophobia. The conjunctiva remained white in several cases. On investigation it was found that in many instances the protective screens were faulty and allowed transmission of the dangerous radiations from the arc. Welders' screens therefore should be regularly (almost daily) inspected by safety officers. Welding should be done only in welders' booths and not in open workshops. This will prevent many cases of "arc eye" and chronic keratitis in fitters, who often have to work in close proximity to welders.

Chronic Conjunctivitis and Keratitis.—In the department of industrial ophthalmology I had many cases of chronic conjunctivitis referred to me. On investigation it was found that many of these patients worked in dusty workshops with inefficient ventilation. One man, a wood-cutter, was continually exposed to wood dust, which caused a chronic conjunctivitis. He was advised to wear goggles at work, when his condition quickly cleared up. Another patient, suffering from chronic conjunctivitis and a mild keratitis, was working in a mica factory. Mica dust was responsible for her condition. A change of occupation was followed by complete cure. Many similar cases could be quoted.

Several obscure cases of retinitis have been referred to the department. Some of these patients were engaged in welding operations; others were panel-beaters and sheet-metal workers using poisonous degreasing substances (such as trichlorethylene, benzene, paraffin). These cases are still being investigated to exclude a possible occupational cause for the retinitis.

Conclusion

This search for "occupational causes" is, in fact, all-important. Whenever a case of eye disease is being investigated we not merely should search for a "septic focus" but should always inquire into the working conditions.

The establishment of departments of industrial ophthalmology is essential. Such a department at one eye hospital could deal with cases referred from other eye hospitals and ophthalmic departments of the general hospitals. We would thus ensure further success in the fight against occupational injuries and disease.

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The annual report for 1945 of the Manchester, Salford, and Stretford Joint Hospitals Advisory Board puts forward a scheme for the establishment of a co-ordinated psychiatric service. The University of Manchester has been asked to consider setting up a chair for psychiatry, and the new professor would be responsible for all teaching. Provisionally, 150 beds should be provided at six of the existing municipal and voluntary hospitals. Each hospital should be able to give out-patient, in-patient, and "follow-up" services, and the whole scheme should be linked with child guidance clinics. The service proposed in this report would cover a population of approximately one million in and around Manchester, but could be extended later to cover an area much wider than that of the Joint Board.

THE FUTURE OF HOSPITAL SERVICES

(Continued from p. 141)

SURVEY OF NORTH-WESTERN AREA

The Ministry of Health Hospital Survey was undertaken in the north-western area—including Lancashire, Cheshire, and North Wales, and Cumberland and Westmorland—by Sir Ernest Roe Carling and Dr. T. S. McIntosh.* The surveyors, while making no reflection on the work done in the hospitals in this region have many criticisms of the hospital buildings, which, generally speaking, fall far short of a satisfactory standard. The bulk of them were put up in late Victorian times, and outside Manchester and Liverpool they are small and usually situated in the central and noisy parts of towns. The municipal general hospitals are, almost without exception, converted Poor Law institutions and are attempting to perform a function for which they were not designed.

In some parts of the area a shortage of beds is apparent, and a considerable hidden shortage is brought to light whenever a good new service is established. The demand for maternity beds is steadily rising and only partially met. The accommodation for sick children falls far short of need. Provision for medical (as distinct from surgical) cases in voluntary hospitals is disproportionately small. There is a marked shortage of beds for tuberculous patients. Accommodation for private patients is inadequate.

"We hope that the hospital authorities will regard it as part of their duty to the community to provide for these patients and that they will do so in the hospital most suited to the purpose, without regard to whether it is municipal or voluntary."

Specialists are unevenly distributed. Their presence or absence in a locality is apt to depend upon its distance from Manchester or Liverpool. Representatives of the more restricted specialties are to be found only in the main centres. The surveyors agree that highly specialized work, such as neurosurgery and plastic surgery, must be concentrated in such centres but the common specialties and also the intermediate ones, such as genito-urinary and orthopaedic surgery, should be distributed so far as practicable, both to provide service within easy reach of patients and to take some of the burden of outside work of the two university cities.

The Problem in Lancashire

In Lancashire and Cheshire the surveyors have mapped out twenty hospital districts, each of which is or could conveniently be served by a single general hospital, and then have combined them into six administrative areas—North, East, and Central Lancashire, Manchester, Liverpool, and the greater part of Cheshire. Even in the most extensive of these twenty districts—the one based on Preston, with a population of a quarter of a million—the most remote part is only 16 miles from the centre. Most of these districts are considered to require at least one physician, general surgeon, obstetrician and gynaecologist, ear-nose-and-throat surgeon, and ophthalmic surgeon. The specialist staff should be appointed to the district rather than to the particular hospital, and play an important part in the clinical services.

In the opinion of the surveyors, Liverpool hospitals, considered as premises, fall far below a satisfactory standard. The provision, both general and special, requires a general overhaul and comprehensive replanning. A very formidable building programme will be necessary. A new teaching hospital of about 1,000 beds is required.

Of Manchester Royal Infirmary the surveyors say that although built only in 1909 it is already out of date in some respects, though it is still a "good hospital physically." At the reputation of its staff and services gives it a dominating position in the whole area. The encouraging start of co-operation between the Manchester city council and the voluntary hospitals is noted, but co-operation should be speeded up into a firm partnership. Sympathetic consideration should be given

* *Hospital Survey. The Hospital Services of the North-Western Area*. London: H.M. Stationery Office. 1945. (10s. net.)

to the "island site" scheme—a 70 acre area zoned for hospital purposes by the town planning authority and approved by the Joint Hospitals Advisory Board

Cheshire and North Wales

The large Cheshire district based on Crewe with a population of 180 000 has nothing but cottage hospitals and public assistance institutions. A similar district based on Chester has an important and busy voluntary hospital—the Chester Royal Infirmary—giving a wide range of services notwithstanding old buildings and insufficient accommodation. The municipal hospital at Chester is developing its service but cannot do much more without substantial rebuilding. A scheme of improvement and extension increasing the Royal Infirmary beds by 100, has been prepared, but the surveyors prefer the erection of a new hospital.

North Wales is poorly provided with hospital services. Taking both building and staffing into account there is at present no general hospital of the requisite size and quality. New buildings are urgently required, but the need for settling a specialist team in the area is even more urgent. Such specialists will to a great extent need to be paid otherwise than by private fees. The surveyors favour a new hospital at Bangor to serve the counties of Anglesey and Caernarvon, while the counties of Denbigh and Flint would be served by a hospital or hospitals at Wrexham and one to be provided at Rhyl or St Asaph. Wrexham and Chester could work mutual advantages, work in association and share certain members of staff.

The institutional treatment of tuberculosis in Lancashire and Cheshire, in the opinion of the surveyors should be part of a comprehensive hospital service, institutional care should be kept in as close relation as possible to dispensary and domiciliary provision and the preventive and social side of the work and the tuberculosis officers of the area should form a team for carrying out both dispensary and institutional work. They favour a scheme on the lines of that already devised by the Lancashire county authority, but with the important difference that the dispensary areas would include the county boroughs as well as county districts.

Anglo-Scottish Partnership Proposed

At Carlisle the surveyors found a much more comprehensive group of specialists than was to be expected in a town of the size. Cumberland, however, is very badly off for hospitals of all kinds. There is a marked deficiency of beds for surgical cases, both general and special, and the position is still worse for medical conditions and for maternity. On the other hand, Cumberland presents a very good example of three party co-operation—the Carlisle city council, the Cumberland county council and a voluntary hospital, the Cumberland Infirmary.

"In our view it is most desirable that Carlisle should be developed into a centre as complete in its range of services as is practicable, and should aim at a status intermediate between that of a university centre and that of the ordinary hospital district."

It is understood that the Scottish surveyors are recommending that Dumfries, 33 miles from Carlisle, should be a hospital centre based on Glasgow. The surveyors for the North-Western Area consider that Dumfries might find it convenient to make some use of Carlisle's staff and facilities. Indeed, a Carlisle-Dumfries partnership would be a good thing, and a combined population of over 400 000 in North West England and South West Scotland would be served. The fact that the two partners would be based on different university centres—Newcastle and Glasgow respectively—need not be an obstacle. Newcastle is undoubtedly the university centre with which Carlisle should be associated. A further recommendation is that a new general hospital should be built in West Cumberland and the remainder of Cumberland and North Westmorland should be served by Carlisle.

SURVEY OF SOUTH WALES AND MONMOUTHSHIRE

The South Wales and Monmouthshire area has been surveyed by Dr A. Trevor Jones, Prof J. A. Nixon, and Prof R. M. F. Picken. There are nearly two million people in this region,

more than half of whom are crowded into the county of Glamorgan. In the mining valleys the miners largely finance their own hospitals, and prefer these small hospitals to one in a large town or centre some distance away. The surveyors stress upon the great advances which have been made in hospitalization in South Wales during the past forty years. Many hospitals large and small, have been established during that period and others have been extended and improved. The number of hospital beds is 9 423 or 4.9 beds per 1 000 of population. Only in five out of 56 "acute" general and special hospitals are specialists in continuous charge of patients. The five hospitals are all large and in theory are headed by the available hospital beds are under the supervision of practising consultant rank, although in only a minority of the centres close and continuous.

"There are many advantages both to the patient and to the doctor under a system whereby routine work (at hospital) is done by general practitioners. The patient has his own chosen doctor to care for his well being his personal history is well understood by the medical and nursing staff and there is continuity of supervision after discharge from the hospital. We think that this system has had a stimulating effect on the work of the general practitioner, has enhanced his keenness, and kept him abreast of modern developments."

Very little has been done in South Wales to face the problem of the chronic sick. For these patients the worst and oldest buildings are set aside. The inevitable opinion of general practitioners is that there is great need for establishing institutional accommodation for such cases. "It is impossible to overstate the distress, discomfort, and strain which the absence of proper accommodation for the chronic sick involves for the patients and for their relatives." The surveyors were dissatisfied with the standard of medical treatment given to chronic cases even in those institutions at which specialist advice is available. Difficulties of treatment are increased by the haphazard mixture of cases which find their way into the chronic wards. As for isolation hospitals most of them are too small to carry out economically the medical staff required not constructed to permit segregation of cases, and except in the county boroughs not part of a large hospital organization so as to insure the benefit of economic management and common purchasing. Praise is given to the antenatal services of South Wales but maternity wards are overcrowded.

Adequacy of Medical Staff

All the 18 men who confine themselves to specialist practice in general surgery in this area are in responsible charge of beds in Cardiff, Swansea or Newport. The number of hospitals visited by individual surgeons varies from one to as many as nine. The small number of surgeons and the multiplicity of hospitals they attend raise a doubt in the minds of the surveyors whether the best surgical skill is being made regularly available to all patients. The employment of consultant physicians is even more restricted outside the three towns named, only 19 hospitals are regularly visited by a consultant physician. A great demand exists for the consultant facilities afforded by hospital out-patient departments, but the provision has not kept pace with the demand.

In the view of the surveyors no area general hospital or combination of hospitals should be without the constant attendance of at least one general physician, general surgeon, obstetrician and gynaecologist, anaesthetist, radiologist, and pathologist, with less frequent attendance by other specialists. This means a subsidized distribution of specialists but in making such distribution attention is called to the dangers of segregation away from large centres and from contact with colleagues. Something might be done to meet these dangers by the appointment in an advisory capacity of a few peripatetic specialists of great experience and high reputation as in the fishing service, and in the E.M.S. In any case, area appointments away from the centres should not be unduly prolonged without interruption.

While they deprecate any wide practice of major surgery by general practitioners, the surveyors recognize that it is necessary to give an opportunity to practitioners who have carried out combined special and general practice and who satisfy reasonable criteria to join the ranks of specialists, if they so desire on satisfactory economic and other terms. Other general

* Hospital Survey. The Hospital Services of South Wales and Monmouthshire. London: H.M. Stationery Office, 1945. (5s net.)

Reports of Societies

CLINICAL IMPLICATIONS OF DISABLEMENT ACT

At a recent meeting of the Section of Physical Medicine of the Royal Society of Medicine Dr HAROLD BALME read a paper on the clinical implications of the Disabled Persons (Employment) Act, 1944. He mentioned that the register of all persons substantially handicapped, which the Act requires to be compiled is expected to include when completed not fewer than a million to a million and a half names of people who will have the right to claim assistance in rehabilitation and industrial resettlement.

Dr. Balme indicated the directions in which medical assistance will be essential in the successful operation of the Act. He summed them up in the phrases, prevention of residual disability; assessment of loss of functional capacity, and periodical follow-up and review. Certain well established principles had he said, emerged from war experience which should be of the greatest value in making plans for the development of hospital rehabilitation as an integral part of future health services.

(1) *Continuity of Medical Supervision*—Rehabilitation was an essential part of treatment itself and should therefore be prescribed by the physician or surgeon in charge of the case, who should maintain close supervision of the patient's progress both in the in- and out-patient departments and if possible at the residential rehabilitation centre.

(2) *Range of Medical and Surgical Disabilities suitable for Active Rehabilitation*—Active rehabilitation was applicable to much more than orthopaedic disabilities and traumatic surgery. Its principles applied to all forms of medical and surgical disability or loss of physical and psychological function resulting from prolonged immobilization or severe illness.

(3) *Appointment of Trained Staff*—The provision of an adequate hospital rehabilitation service was not a matter which could be safely left to the haphazard devices of any physiotherapist who happened to have been practising massage and electrotherapy there for a course of years. It could be properly entrusted only to a trained staff thoroughly conversant with modern methods, and such staff should wherever possible have a specialist in physical medicine at its head.

(4) *A Balanced and Progressive Programme*—If rehabilitation was to be carried out scientifically it was essential that a carefully thought out programme should be laid down for each type of medical and surgical disability and for each successive grade in the process of recovery, the initial states in the wards, and out-patient department, and the later stages, if possible, away from the hospital atmosphere.

(5) *Care of Psychological Factor*—If rehabilitation was to constitute an integral part of future hospital services the almoner's department must be strengthened in every hospital (or established if not already in existence), and these social workers must be set free from much of the routine financial work which at present absorbed their time.

Assessment of Functional Capacity

A further duty laid upon hospital services in implementing the Act consisted in the provision of scientific guidance as to the exact functional capacity of any patient who would never be able to return to his former occupation. The actual responsibility of finding suitable work for such a man rested with the disablement rehabilitation officer attached to all the larger employment exchanges, but such an officer had no knowledge of medicine or surgery, and must work in the dark unless carefully instructed by those who had direct knowledge of the patient's physical condition and the extent and character of his disability. To express such disability in abstruse medical terms was of little use, what the resettlement officer needed was a clear report stating just what the disabled person could and could not do and what environmental conditions would be prejudicial. Such a report could be supplied on the D.P. 1 Form issued experimentally by the Ministry of Labour, but the ideal method was not by certificate, it was by regular conference between representatives of the hospital and of the employment exchange. A model system had been started at a large local authority hospital near London. All cases in need of rehabilitation were referred to the specialist in physical medicine, who directed their programme of activities and who had been provided with his own almoner for dealing with the personal problems of each patient. A conference was held weekly by this medical director of rehabilitation, the almoner, and the local D.R.O., when each patient likely to require vocational training

for some new occupation was brought under review and explicit recommendations as to suitable work were thus based upon the medical officer's intimate knowledge of the man's disability and functional capacity, the almoner's knowledge of his personal circumstances, and the D.R.O.'s knowledge of available jobs or courses of training.

Careful supervision and periodical review were still necessary for the successful performance by the disabled person of his new task and in many cases this supervision would be maintained by an industrial medical officer. But it was the hospital which actually treated the patient and saw him through to the point at which he was fitted for a new job which always ought to take the initiative in follow up.

In conclusion Dr. Balme mentioned four types of medical rehabilitation centres which should be provided among the facilities for rehabilitation referred to in the White Paper, the basis of the Industrial Injuries Bill.

(1) An efficient physiotherapy department at every hospital sufficient to give proper rehabilitation to all in-patients.

(2) A general outpatient rehabilitation centre in every town or district, capable of treating patients attending the casualty or outpatient departments of the local hospitals.

(3) Residential rehabilitation centres for patients requiring long stay rehabilitation.

(4) Special rehabilitation centres for particular disabilities.

He added that the Ministries of Health and Labour were now providing an intensive six-months course in medical rehabilitation for selected physical training instructors released from the Forces, of whom 150 should be available in the next twelve months. But the greatest need would be the inclusion of regular instruction in rehabilitation as part of the ordinary medical curriculum, and the integration of this important development in social medicine in the education of all future doctors.

PITFALLS IN PULMONARY DIAGNOSIS

In an address to the Manchester Medical Society on some pitfalls in the diagnosis of pulmonary disease Dr R. ELLIS said that the earliest detection of tuberculosis usually defied clinical examination. Even in some advanced cases with deep-seated cavities the physical signs might be virtually absent or at most suggest much less disease than actually existed. Only x-ray examination could reveal the disease in its earliest stages. A diagnosis of chronic bronchitis in young persons was risky because there was often a more gross underlying pathology. In a number of Service cases in which this diagnosis had been made bronchiectasis was found more often than either the physical signs or x-ray appearance of the lungs would suggest. Bronchograms in some of these cases showed bronchiectasis to the extent of which seemed to bear some relation to the degree and frequency of the "bronchitis." Bronchial carcinoma presented special difficulty in early diagnosis, because there were often so few symptoms in the early stages that the patient did not seek advice in time to benefit from lobectomy or pneumonectomy. Some of the more chronic cavitating neoplasms of lung might simulate chronic lung abscess. Misleading histories could lead to errors in diagnosis by misinterpretation of the physical signs. One patient who gave a history consistent with spontaneous pneumothorax and who had physical and x-ray signs resembling high pressure pneumothorax actually had a very large cyst of the left lung. Another described symptoms of acute bronchial obstruction, which by exclusion, was considered might be due to a bronchial papilloma. Bronchoscopy revealed a papilloma, but necropsy showed that this papilloma was the distal end of a large bronchial carcinoma which had grown down the main bronchus to the hilum.

Dr Florencio Bustiza, professor of plant physiology at the University of Madrid and president of the Microbiological Section of the Royal Academy of Pharmacy in Madrid, has left for Spain on the conclusion of a short visit to Britain, after a tour of the U.S.A., to gather information about medical research work. He was born in England, where he received his early education. Dr. Bustiza, who has lectured and written extensively in Spain on British medical discoveries, including penicillin, came, among others, Sir Alexander Fleming, Sir Howard Florey, and Dr. Chaun. He visited the London School of Hygiene and Tropical Medicine, the National Institute for Medical Research, the Wellcome Research Institute, the Lister Institute, the Imperial Cancer Research Institute, the Botanic Gardens, Kew, and the John Innes Horticultural Institute. He was entertained to lunch at the House of Commons by Mr H. N. Linstead, M.P., secretary of the Pharmaceutical Society of Great Britain.

Correspondence

Principle and Unity

SIR,—In your restrained and helpful leader (Feb. 2, p. 167) you speak of the Socialist Medical Association being "content with nothing that stops short of the socialization of medicine." May I enter a plea once more for the use of the word "nationalization" rather than "socialization" when we use the term in the sense of "any form of service which leads directly or indirectly to the profession as a whole becoming full-time salaried servants of the State."

As I pointed out in my Cardiff address (*Journal*, March 17, 1945, p. 357), to "socialize" medicine may mean only to make medicine more accessible to the public—an achievement which the public ardently desires and which we all, surely, approve. To "nationalize" medicine can only have the meaning given above. The ambiguity is fostered by the Socialists—I must not say deliberately—and the public is greatly deceived in consequence.—I am, etc.,

London, W.1.

HORDER.

Mitral Regurgitation

SIR,—I was glad to see Dr. Geoffrey Bourne's timely letter on this subject (Jan. 26, p. 143). Twenty-five to thirty years ago most of us remember that mitral regurgitation was a commonly made diagnosis. It led to the error of mistaking many harmless systolic murmurs as evidence of this. Then the pendulum swung until the medical students in some schools of medicine grew up to believe that a systolic apical murmur was never evidence of organic disease. Latterly this view has been modified, as Dr. Bourne has pointed out, and it is now suggested that the murmur, if indicative of organic disease, indicates mitral stenosis. This, as Dr. Bourne points out, is mechanically impossible, however loud or rough the murmur may be (though, of course, mitral stenosis may also be present, but clinically undetectable).

Quite apart from systolic murmurs arising from dilatation of the left ventricle, as in hypertension, myocardial disease, thyrotoxicosis, and so forth, there is much evidence to suggest that the systolic murmur may be the dominant sign of mitral valve involvement by rheumatism. Evidence of this is found, first, in rheumatic heart disease of childhood, where such gross cardiac signs may be present as to leave no doubt that the heart is organically diseased and yet the only murmur is an apical systolic. Moreover, if these cases are watched for several years many of them, indeed one might almost say most of them, do not develop presystolic or diastolic murmurs at the apex. These systolic murmurs are nearly always loud, well conducted, and vary little in their intensity with posture and respiration. These are the signs by which we used to be taught to recognize an "organic" murmur. They are also the characteristics of the systolic murmur when it is combined with an apical diastolic, leaving no doubt as to the diagnosis of mitral stenosis. Is it not justifiable, therefore, to make a diagnosis of rheumatic mitral regurgitation where the systolic murmur alone is present, especially when there is other evidence of organic heart disease such as enlargement and a history of rheumatism? Further, I would suggest that a murmur having these characteristics and not accompanied by other clear evidence of organic heart disease should be regarded with suspicion.

This leads to a consideration of the second group of cases which the apical systolic murmur is of great importance—namely, the ones to which Dr. Bourne has referred in which bacterial endocarditis has supervened. At the heart clinic of the Royal Infirmary we have seen a number of cases of clearly proven bacterial endocarditis following on rheumatic valvulitis, some of which have been treated with penicillin with good response yet with the apical systolic murmur the sole murmur before and after treatment. It would be unfortunate if Dr. Bourne's or this letter gave the impression that most systolic murmurs signified mitral disease. The majority do not, but it is essential for the student to be aware of the possibility of an apical systolic murmur pointing to organic cardiac disease. Perhaps a suitable division of systolic murmurs would be into "significant" and "insignificant." Significant murmurs at the apex would include those caused by left ventricular dilatation

and those caused by organic changes in the mitral valve cusps. Both could be styled mitral regurgitation, but it would be wise to qualify the diagnosis by the description of the cause; e.g., mitral regurgitation—rheumatic carditis, or mitral regurgitation—hypertensive heart disease. Insignificant murmurs might include those due to temporary disturbance in the size of the valve ring, as in fevers and anaemias, causing a mitral regurgitation which will disappear with treatment, and also a whole host of systolic murmurs which have no pathological significance at all. These will include murmurs that vary in intensity with posture and respiration, are not usually loud and rarely conducted, and are free from association with any other signs of cardiovascular disease.

Such a classification, though a trifle dogmatic, might help the student to clarify his ideas on a subject in which teaching has unfortunately differed so much in the various medical schools—I am, etc.,

Liverpool.

E. NOBLE CHAMBERLAIN.

Juvenile Delinquency and its Remedy

SIR,—The view expressed in the annotation (Jan. 19, p. 94) on Mr. F. W. Skinnard's article that the lack of a suitable occupation is an important (*precipitating*) factor in causing juvenile delinquency will be readily conceded. It is, indeed, but a corollary to the assertion of Basilides in the second century A.D. that the child is only innocent in the sense that it has not had the opportunity to sin. Several other points however, call for criticism.

The "chief point," it is stated, "and one that ought never to be forgotten," is the "fundamental difference" between juvenile delinquency and adult crime. Now this is a statement which can find no support at all in psychiatric research; on the contrary, everything goes to show that most adult crime have their origin in maladjustments of early childhood. Thus it is but a matter of the chronological age at which antisocial acts become manifest. To say that a "child charged with an indictable offence" cannot be "the embryo of the habituated adult offender" because juvenile delinquency is apparently on the increase whereas adult crime is not is no valid argument for the following reasons.

1. As you remark, the increase in persons under 16 charged with indictable offences (which is not the same thing as an increase in the number of delinquencies committed) was noticeable after the passing of the Children Act, 1908, and, especially of the Children and Young Persons Act, 1933, the public and the police becoming less reluctant to charge children with offences after special provision had been made for dealing separately with such cases; also the younger the offender the easier as a general rule is the detection of the offence (Cf. Carr-Saunders *et al.*, *Young Offenders*, 1942, pp. 43 ff. *Criminal Statistics*, 1934, pp. viii-ix, xiii-xv.)

2. The fact that the "vast majority of adult criminals have no police record as children" does not mean that they did not commit any antisocial acts; "the number of offences actually committed by children is vastly greater than the number of charges brought" (*Criminal Statistics*, 1934, p. xiv); this is all the more significant if we recall that many adult criminals were children before the passing of the special Acts, and thus were not charged and had no police record. Also, it is well known to psychiatrists that it is largely a matter of chance whether a child's maladjustment to society first manifests itself in antisocial acts which transgress definite laws, or in neurotic traits, educational difficulties, etc. (The mind cannot differentiate as clearly between these two forms of maladjustment as does omniscient society.)

3. Evidence confirming the relation between adult and juvenile crime is afforded by a recent English survey, stating that "there was found to be a relationship between the juvenile and adult crime rates—i.e., when of two counties with the same urbanization index one had a higher juvenile crime rate, its adult crime rate was usually higher, too" (Carr-Saunders, p. 49); and by an American study of the adult prison population in 1930 where it was found that 54.8% had been less than 21 years of age when committed (Barnes and Teeters, *New Horizons in Criminology*, 1944, p. 111).

4. Recent work has shown the importance of the factor of emotional and social maturation in controlling the course of

"Cord Round the Neck"

SIR.—In the course of attendance on about 5000 confinements I have never seen a stillbirth which I could ascribe to the above cause. I think it is a possible cause in the absence of a medical man or a trained midwife, but not otherwise. On one occasion I feared the child would be strangled so I cut the cord at once. The cord was twice round the neck and taut from the navel to the neck and from the neck to the placenta. The child had been shot out suddenly, so that there was an extra pull on the cord. I was unable to get my fingers underneath it. I am inclined to agree with Mr Mortimer Reddington (Jan 19, p. 109) that such a diagnosis should be regarded with grave obstetric doubt—I am, etc.,

FRIDAY

ROBERT ANDERSON

Medical Future of the Colonies

SIR.—I have just received the *Journal* of Nov. 17, 1945 and in view of the Commission on Salaries inquiry in the West African Colonies appointed by the Secretary of State for the Colonies to start early in Jan., 1946 I read with great interest the leading article on the medical future of the Colonies (p. 693). On reaching the first sentence of the concluding paragraph I received a shock. "These reforms are suggested only for the European medical officers." This at once raises the racial question with its unscientific invidious treatment meted out to the non-Europeans in the services of the different British colonies. Does the B.M.A. support this distinction based on "colour"? Does the B.M.A. hold no brief for its non-European members who are employed by the British Colonial Governments?

I may claim to some extent to be representative of the non-European medical officers in the Colonies in general and of Sierra Leone (West Africa) in particular, having just retired after 32½ years' service in the Sierra Leone Medical Service as distinct from the Colonial Medical Service. I have been a member of the B.M.A. since 1912. Why should this editorial deal with the grievances of only one part of its members pointedly? Non-Europeans equally with their European colleagues are entitled to all the facilities of the Association and to the help of the B.M.A. in the alleviation of their legitimate service grievances.

Can it be, then, that the writer seriously considers that we have no grievances or that they are too trivial to be considered? Very early in the article it is stated "It is no exaggeration to say that before this war most people were profoundly ignorant of conditions in this Empire." This persistent overlooking and ignorance of the non-European civil servants in the Colonies is one of them.

The purport of the rest of this letter is to show very briefly the invidious distinctions and inequalities of conditions of service between European and non-European medical officers in one Colony—Sierra Leone—since the formation of the West African Medical Service by Chamberlain in 1902. Prior to this since 1865 African medical officers had been continuously in Sierra Leone, frequently in those early days half or two-thirds of the medical staff were African, receiving the same pay and promotion as their European colleagues. In the 'seventies one was head of the medical department of the Gambia with a junior European under him and in the 'nineties a similar state existed on the Gold Coast. The Africans had all been trained in the medical schools in the U.K. and passed the same (frequently higher) examinations and been registered in exactly the same way as their European colleagues.

With the formation of the W.A.M.S. the colour bar was introduced and no West African could enter the West African Medical Service. Thus there were two services side by side—the W.A.M.S. (European) and the local Colony service (African). In 1943 the W.A.M.S. was absorbed into the larger Colonial Medical Service, and though in the more recent advertisements for recruits in the medical press and the official regulations no mention is made of it the colour bar still exists, as so far no non-European has been appointed to West Africa and African applicants have been offered posts in the local Colony services. Thus there are still two services. So, regardless of what policy may in the future be adopted towards the training of medical men from the indigenous peoples, there is at present a definite body of non-European personnel in the

West African Colonies (three hold specialist posts and areas have been awarded the M.B.E.), and they cannot be passed over so easily. Not only were these non-European medical officers on a much smaller salary scale, but until quite recently there was no promotion for them from the grade of medical officer and though qualified they were not employed on the health side. In addition their European colleagues have the following privileges all of which have a definite colour line: longer vacation leave and local leave with expenses paid on the way; good furnished quarters, or an allowance in lieu; free conservancy when in Freetown; the capital, free power, water supply, and exemption from municipal rates; per diem on a higher scale and if re-employed when on per diem receive an additional 10% and then still have a much longer period of full pay before coming on to half pay.

I have had interviews and correspondence with several of the medical and Dominion secretaries of the B.M.A. since 1922 and have applied for the help of the B.M.A. to redress the above inequalities. On the above facts are on the side in the B.M.A. office—and in spite of this we non-Europeans are passed over—*I am, etc.*

M. C. F. EASON
Sierra Leone Medical Officer (General Practice)

FRIDAY

Medical Journals for Hong Kong

SIR.—Would you allow me the hospitality of your columns to make an appeal on behalf of my colleagues in Hong Kong? Below is an extract from a letter just received from one of the Chinese doctors who remained at his post throughout the 3½ years of Japanese occupation, at my earnest request in order to provide medical and health services for the prisoners of war and civilian internees, their unattended wives, children and dependants, and for the general community. Such men remained loyal to the Allied cause despite every effort by the Japanese military and civilian authorities to win them over with alluring promises of advancement. Hardship, torture, starvation and even imprisonment and all that went with it including mistreatment and loss of health and honour, failed to break their spirit and they courageously carried on their duty even after my removal by the Kempeitai from the island. I quote from one of several similar letters received from the Far East:

"The doctors here are terribly short of medical literature. I would be useful to collect some back numbers of the *Lancet*, *British Medical Journal*, *Practitioner*, *British Journal of Surgery*, etc. that are wanted by our British professional brothers, to be circulated among doctors of the various hospitals. No doubt all of us here in Hong Kong want to know what has happened in the past few years. Honestly we are not jealous at the aid and doctoring and wealth brought back by friends who went away from Hong Kong during the Japanese occupation, but we do want to catch up intellectually with what we missed."

On the receipt of a postcard I shall be very happy to collect any copies of such medical periodicals as can be spared by colleagues living within say, three miles of Charing Cross and to send them to Hong Kong for distribution. A generous response to this appeal will serve as a token of our profound admiration towards Chinese, Portuguese, and European medical and dental colleagues who sacrificed so much for the sake of humanity and for their allegiance to the British Commonwealth of Nations and our Allies—I am, etc.,

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P. S. SELWYN-CLARKE
Director of Medical Services Hong Kong

Health Service Forecast

SIR.—We are told in the press that the Minister of Health has nearly completed his Bill and will divulge its contents in the near future. In these circumstances it may be useful to note a very significant leader in the *Tribune* of Jan. 11, a newspaper with which Mr Aneurin Bevan is understood to have been closely associated. The statement opens by expressing confidence that "the Bill will have a swift and easy passage when it is introduced in the House later in the year." It is stated quite categorically "that everyone will subscribe at a flat annual rate and that 'the poorest subscriber will be entitled to specialized medical service, and private rooms in hospitals will be allotted to those who need them'."

illness, if there is one. Indeed, this is happening to-day, so that some of the younger psychiatrists are hardly familiar with psychotherapy, in the proper use of the term, though eager enough in mechanical treatment. That this leads to abuses is obvious. For example, I have seen a man who was badly concussed in a motor accident and who had depression afterwards (partly because he had to pay damages and partly because he had killed a woman and was reprimanded for dangerous driving by the judge); this man was given electrical convulsions for his depression, and when I saw him some months later was more or less demented. Again, I have successfully treated by psychotherapy a mild homosexual who had been depressed because of his condition and was treated fruitlessly by induced convulsions without the psychiatrist even inquiring into his sexual life. I have seen a young obsessional advised to have leucotomy without psychotherapy being tentatively suggested. One could easily multiply examples.

It is essential for anyone who attempts to practise psychiatry to learn the intricacies of psychotherapy and to be familiar as well with the mechanical treatments. No self-respecting psychiatrist should be satisfied with restricting his activities to either psychotherapy or organic treatment. If, for example, Dr. Winnicott rejects treatment other than psychotherapy, how does he treat such illnesses as general paralysis, or does he leave this to others less doctrinaire? In my opinion, unless we as psychiatrists can diagnose and treat *any* mental or nervous condition, whether organic or psychogenic, which may occur in our patients, we shall never win or hold the respect of our colleagues in other specialties.—I am, etc.,

London, W.1.

CLIFFORD ALLEN.

Responsibility for the Anaesthetic

SIR,—At the risk of labouring an old controversy I feel I cannot allow the opinion of Mr. A. Lyall (Jan. 26, p. 144) that "the surgeon rather than the anaesthetist is the person who should decide which anaesthetic should be given" to go unchallenged. This opinion is based on the tacit assumption that whereas the surgeon is a clinician, the anaesthetist is a mere technician—an assumption which is out of date, if it were ever true. That the surgeon should request certain operating conditions is fair enough; it is up to the anaesthetist to provide them so far as is compatible with the safety of the patient; but should the anaesthetist, having assessed the patient clinically, decide that a certain method would be harmful, and wish to employ some other, even if this lacked something of the ideal, the surgeon should abide by his choice.

Whereas in so many cases the surgeon and anaesthetist will obviously agree, and in so many others there will be no definite indications or contraindications for this or that method, there will be the case in which a difference of opinion will arise. When this is so the anaesthetist, particularly the junior anaesthetist, should remember that he will be held responsible for the method of anaesthesia chosen should things go wrong, and is in no way "covered" by the surgeon as would be a student. From these considerations I think it is clear that there is a strong moral and legal obligation binding the anaesthetist: that he should never administer an anaesthetic or employ a method which, on grounds of clinical experience, he considers harmful to a patient—and harmful is a relative word. Even should such an occasion rarely come about, the principle should be clear, and if, after consultation, an impasse should arise, the anaesthetist should remember that his first duty is to his patient.—I am, etc.,

County Hospital, Orpington

BRIAN D. JOHNSON.

Poisoning by *Amanita phalloides*

SIR,—The interesting article by Drs. J. Dubash and D. Teare on "mushroom" (*Amanita phalloides*) poisoning (Jan. 12, p. 45) reminds me of three cases I saw about three years ago, and as the authors remark how few cases have been reported they might be worth recording.

The first sufferer was not my patient, and I unfortunately have no notes on her, but I remember that the outstanding features were jaundice and hallucinations and that she was about 25. While in her hallucinated state she made rather a good remark. It was bedtime in the ward, and when the nurse approached with her vessel she sat up, smiled, and said: "Good, just what I feel like,

and I'd like two lumps in mine." She made a good recovery within a few weeks.

The other two were a mother and daughter, the only two out of five people at the same meal to have eaten mushrooms, and the only two to fall ill. The fungi had been picked in a field near Ipswich. They were ingested on a Saturday morning, and by evening the mother had started to vomit. This continued all night, and on Sunday morning a violent diarrhoea began, with colicky abdominal pains and severe cramps in legs, feet, and hands. By Monday, when she was admitted to hospital, she had improved. A few days later she was constipated and had marked anorexia. She then had considerable tenderness beneath the right costal margin but no other physical signs, until she developed a typical erythema multiforme on trunk, arms, and legs eight days after eating the fungi, which cleared within three days. Her recovery was the uneventful.

The little girl, aged 5, had eaten only a piece of one fungus, and was not taken ill till the Sunday morning, when she was suddenly seized with severe diarrhoea and vomiting. By Monday she was delirious, and in hospital was noted as thin but not notably dehydrated, "parchmenty" in colour and texture of skin, and completely comatose. She was shocked and pulseless, but not cyanosed or jaundiced. Her respirations became more and more rare and gasping and she died that morning. Necropsy revealed a very intense uniform fatty degeneration of the liver.

These last two cases at least illustrate one point—namely, the greater susceptibility of children to the poison, phallin.—I am, etc.,

Milton, Berks.

W. P. U. JACKSON.

Nicotinic Acid Amide in Diabetes

SIR,—Ever since my student days diabetes mellitus has fascinated and intrigued me. At that time I evolved a theory that this only too rampant disease was a deficiency one, the deficiency existing in some vitamin, known or unknown. It was my contention that the islets of Langerhans required an adequate quantity of some special vitamin in order to function normally and that a lack or inadequate quantity would result in islet of Langerhans insufficiency. In order to pursue this question I required an intelligent and co-operative diabetic who was not partaking of insulin therapy. This last essential was necessary in order that the results could not be attributable to the insulin intake. To be brief, massive doses of different vitamins were tried (but not D, E, or K), without any improvement in the blood sugar manifesting itself. One massive dose of nicotinic acid discouraged further investigation "up that alley" by virtue of the almost unbelievably violent recurrent flushing of the entire body. However, I resorted to the nicotinic acid amide instead, and it is the result of this "experiment" that I wish to report.

The patient, a highly intelligent and co-operative man of about 40 years of age, is a foreman in a garage and agreed to try the administration of the amide.

1. On a rigid diet of about 1,200 calories (of which approximately 70 g. was protein, carbohydrate 90 g., and fat about 60 g.) the "fasting" blood sugar was 160 mg. per 100 c.c.m. of blood. In the normal the blood sugar drops below fasting level in two hours. I endeavoured to take the blood from the patient about 2½ hours after the same meal, thus having the blood at the most suitable time.

2. After the administration of 1,200 mg. of nicotinic acid amide in the form of six tablets each containing 200 mg., for a month, the blood sugar registered 60 mg. of sugar per 100 c.c.m. of blood—i.e., a drop of about 100 mg.: a tremendous fall.

3. The patient was then instructed to "eat a normal diet" but to proceed with the administration of his amide. However, becoming rather worried over his "low sugar," he of his own accord reduced the tablets to 400 mg. daily. After about 14 days his blood sugar was again estimated, and registered 120 mg. of sugar per 100 c.c.m. of blood—an increase of 60 mg. over the previous result but 40 mg. below his blood sugar when he maintained a rigid diet but without any tablets, and he was now enjoying "normal" meals.

4. I thereupon instructed the patient to proceed with the "normal" diet, but to increase the dosage of the nicotinic acid amide to the original 1,200 mg. daily. The subsequent blood-sugar estimation registered 100 mg. per 100 c.c.m. of blood. (The normal blood sugar is 80 to 120 mg.)

I have not investigated the patient as fully as I would have liked because of lack of facilities and time, neither have I pursued the investigation in a great number of cases, but the results appear, so far, vastly encouraging. The nicotinic acid amide may be what we have been looking for.—I am, etc.,

N. WATTS.

W. GORDON.

"Cord Round the Neck"

SIR.—In the course of attendance on about 5000 confinements I have never seen a stillbirth which I could ascribe to the above cause. I think it is a possible cause in the absence of a medical man or a trained midwife, but not otherwise. On one occasion I feared the child would be strangled so I cut the cord at once. The cord was twice round the neck and taut from the navel to the neck and from the neck to the placenta. The child had been shot out suddenly, so that there was an extra pull on the cord. I was unable to get my fingers underneath it. I am inclined to agree with Mr Mortimer Reddington (Jan 19, p. 109) that such a diagnosis should be regarded with grave obstetric doubt—I am, etc.,

FRIDAY

ROBERT ANDERSON

Medical Future of the Colonies

SIR.—I have just received the *Journal* of Nov. 17, 1945, and in view of the Commission on Salaries inquiry in the West African Colonies appointed by the Secretary of State for the Colonies to start early in Jan., 1946, I read with great interest the leading article on the medical future of the Colonies (p. 693). On reaching the first sentence of the concluding paragraph I received a shock. "These reforms are suggested only for the European medical officers." This at once raises the racial question with its unscientific invidious treatment meted out to the non-Europeans in the services of the different British colonies. Does the B.M.A. support this distinction based on "colour"? Does the B.M.A. hold no brief for its non-European members who are employed by the British Colonial Governments?

I may claim to some extent to be representative of the non-European medical officers in the Colonies in general and of Sierra Leone (West Africa) in particular, having just retired after 32½ years' service in the Sierra Leone Medical Service as distinct from the Colonial Medical Service. I have been a member of the B.M.A. since 1912. Why should this editorial deal with the grievances of only one part of its members pointedly? Non-Europeans equally with their European colleagues are entitled to all the facilities of the Association and to the help of the B.M.A. in the alleviation of their legitimate service grievances.

Can it be, then, that the writer seriously considers that we have no grievances or that they are too trivial to be considered? Very early in the article it is stated: "It is no exaggeration to say that before this war most people were profoundly ignorant of conditions in this Empire." This persistent overlooking and ignorance of the non-European civil servants in the Colonies is one of them.

The purport of the rest of this letter is to show very briefly the invidious distinctions and inequalities of conditions of service between European and non-European medical officers in one Colony—Sierra Leone—since the formation of the West African Medical Service by Chamberlain in 1902. Prior to this since 1865 African medical officers had been continuously in Sierra Leone, frequently in those early days half or two-thirds of the medical staff were African, receiving the same pay and promotion as their European colleagues. In the 'seventies one was head of the medical department of the Gambia with a junior European under him and in the 'nineties a similar state existed on the Gold Coast. The Africans had all been trained in the medical schools in the U.K. and passed the same (frequently higher) examinations and been registered in exactly the same way as their European colleagues.

With the formation of the W.A.M.S. the colour bar was introduced and no West African could enter the West African Medical Service. Thus there were two services side by side—the W.A.M.S. (European) and the local Colony service (African). In 1943 the W.A.M.S. was absorbed into the larger Colonial Medical Service, and though in the more recent advertisements for recruits in the medical press and the official regulations no mention is made of it the colour bar still exists, as so far no non-European has been appointed to West Africa and African applicants have been offered posts in the local Colony services. Thus there are still two services. So, regardless of what policy may in the future be adopted towards the training of medical men from the indigenous peoples, there is at present a definite body of non-European personnel in the

West African Colonies (three hold specialist posts and areas have been awarded the M.B.E.), and they cannot be passed over so easily. Not only were these non-European medical officers on a much smaller salary scale, but until quite recently there was no promotion for them from the grade of medical officer and though qualified they were not employed on the health side. In addition their European colleagues have the following privileges all of which have a definite colour line: longer vacation leave and local leave with salaries paid on the same good furnished quarters, or an allowance in lieu of conservancy when in Freetown the capital, free accommodation, water supply, and exemption from municipal rates, per diem on a higher scale and if re-employed when on per diem receive an additional 15% and then still have a much longer period of full pay before coming on to half pay.

I have had interviews and correspondence with several of the medical and Dominion secretaries of the B.M.A. since 1922 and have applied for the help of the B.M.A. to redress some of the above inequalities. The above facts are on the file in the B.M.A. office—and in spite of this we non-Europeans are passed over so easily—I am, etc.,

M. C. F. EASON
Sierra Leone Medical Officer (General Practice)

FRIDAY

Medical Journals for Hong Kong

SIR.—Would you allow me the hospitality of your columns to make an appeal on behalf of my colleagues in Hong Kong? Below is an extract from a letter just received from one of the Chinese doctors who remained at his post throughout the 3½ years of Japanese occupation, at my earnest request in order to provide medical and health services for the prisoners of war and civilian internees, their unattended wives, children and dependants, and for the general community. Such men remained loyal to the Allied cause despite every effort by the Japanese military and civilian authorities to win them over with alluring promises of advancement. Hardship, torture, starvation and even imprisonment and all that went with it including mistreatment and loss of health and honour, failed to break their spirit and they courageously carried on their duty even after my removal by the Kempeitai from the island. I quote from one of several similar letters received from the Far East:

"The doctors here are terribly short of medical literature. I would be useful to collect some back numbers of the *Lancet*, *British Medical Journal*, *Practitioner*, *British Journal of Surgery*, etc., that are wanted by our British professional brothers, to be circulated among doctors of the various hospitals. No doubt all of us here in Hong Kong want to know what has happened in the past few years. Honestly we are not jealous at the aid and doctoring and wealth brought back by friends who went away from Hong Kong during the Japanese occupation, but we do want to catch up intellectually with what we missed."

On the receipt of a postcard I shall be very happy to collect any copies of such medical periodicals as can be spared by colleagues living within say, three miles of Charing Cross and to send them to Hong Kong for distribution. A generous response to this appeal will serve as a token of our profound admiration towards Chinese, Portuguese, and Eurasian medical and dental colleagues who sacrificed so much for the sake of humanity and for their allegiance to the British Commonwealth of Nations and our Allies—I am, etc.,

THE WHITE HOUSE, Albany Street
London, W.1
P. S. SELWYN-CLARKE
Director of Medical Services Hong Kong

Health Service Forecast

SIR.—We are told in the press that the Minister of Health has nearly completed his Bill and will divulge its contents in the near future. In these circumstances it may be useful to note a very significant leader in the *Tribune* of Jan. 11, a newspaper with which Mr Aneurin Bevan is understood to have been closely associated. The statement opens by expressing confidence that "the Bill will have a swift and easy passage when it is introduced in the House later in the year." It is stated quite categorically "that everyone will subscribe at a flat annual rate and that 'the poorest subscriber will be entitled to specialized medical service, and private rooms in hospitals will be allotted to those who need them'."

The policy which the Minister has announced with regard to the purchase of practices finds its explanation in the following paragraph: "Apart from areas deemed to be fully served by doctors, the medical practitioner will be free to set up practice anywhere; private practices may continue so long as they are in public demand, but, as they fall vacant, they will be filled in conformity with the district's special needs instead of being offered to the highest bidder."

The free choice of doctor which is dealt with in the B.M.A.'s Principle III is explained (and limited!) in the following paragraph: "There will be no interference with the right of the patient to choose his own doctor and there will be nothing to stop him from paying a private fee, *in addition to his annual subscription* (the italics are mine), if he can find no better use for his money." We have been warned.—I am, etc.,

House of Commons.

E. GRAHAM-LITTLE.

Questionnaires, Past and Future

SIR,—May I suggest that one question, such as the following, is all that is necessary: "Do you wish to enter a centrally controlled service?" If the service be centrally controlled the central authority could convert, by regulation and without reference to Parliament, an originally attractive service into one which would be repugnant to both patient and doctor. If the present system, which in the main is on a basis of peripheral control by patients and doctors, were set free from unnecessary financial restrictions nothing would stand in the way of the rapid adaptation of its structure to meet the various and varying demands made upon it to the advantage of all concerned (except those whose pleasure is to exercise power over the lives of their fellows). A similar question to the one suggested above was recently put to 30,000 doctors. Of the 10,000 who made the effort to reply, 77% were opposed to a centrally controlled service. * Full details of this questionnaire are, I believe, available for the use of the Negotiating Committee.

As part of a comprehensive and long-term policy directed against the freedom of the individual all official proposals, actual and foreshadowed, conform consistently to a centrally controlled type of organization. In this the executive of the B.M.A. acquiesces. The Negotiating Committee avoids the fundamental issue and discusses mere details.—I am, etc.,

Bexley, Kent.

E. U. MACWILLIAM.

A Burning Topic

SIR,—At a time when the future of the medical profession in this country and the immediate prospects of so many of its members are in the balance, it can only cause irritation among your readers if you continue to give up columns of space to letters, however flippant or however magisterial, advocating that a venereologist should be called a venereologist (or alternatively a "moskovend" or a "priapologist") or that the operation of myringotomy should be called "syringomyringodiacentesis." There are more burning topics. For example, the present plight of those many practitioners who through war service, voluntary or otherwise, have lost their practices, and on demobilization find that they are debarred from acquiring new ones, so that they can now only go to work as salaried employees in other men's practices.

There is a feeling in the air that in future general practitioners will be paid, not according to how good they are at general practice, but according to the letters after their names. The natural course, then, for those now suspended in this limbo, especially for those with definite specialist ambitions (which they may have forgone for the security of the practices they have now lost), would be to use the Government scheme for rehabilitation, by a Class I or a Class III appointment, to acquire some higher or specialist qualification. This, it seems, is completely ruled out under the scheme. Neither the man who has spent any time in general practice nor the specialist is allowed anything beyond a contemptible two-week refresher course. If one pays a visit to the H.Q. of this postgraduate scheme one may be confronted by an individual who at the mention of the word "right" or "claim" jumps up from his chair, flourishes a disability at one, and declares that he has no claim against the country; and while one is still gasping from the impact of such mawkishness the interview comes to an end.

One is led to understand that the only people to benefit by this scheme are those who have avoided war service or served in the E.M.S. long enough to become graded specialists. Was this the country's intention in setting aside this sum for rehabilitation of Service doctors? Have we (who have lost most and need most rehabilitation), in fact, no claim on these facilities nor right to ask for them? Can we not now use these opportunities, which we had so counted on during long evening hours of study in the Forces?

I suggest that we hear no more of "moskovends" or of "syringomyringodiacentesis," and that the space thus released be given over to one weekly letter on this subject until enough interest has been aroused to get something done.—I am, etc.,

Tacolneston Norfolk.

W. J. GARDNER.

A Tribute to Honorary Staffs

SIR,—Undergoing rehabilitation at my old London teaching hospital I have been forcibly struck by the very apparent ageing and tiredness of those of the honorary staff who remained behind to carry on during the war years. This change is apparent enough when I recall their pre-war appearances, and it becomes even more obvious when I compare them with their youthful-looking colleagues now returned from the Services. An acid tongue might remark that everyone knows how little work was done in the Services, but in the case of Service specialists I am quite certain that most have done their full share. The difference is due to the drag of everyday wartime civilian life, the frustration of shortage of nurses, of laboratory staff, of instruments, etc., the drag of travelling, and, not least, the very considerable amount of time spent by many under constant threat of enemy air activity.

Not only do I wish to pay a belated tribute to their devotion and loyalty, but I want to point out that the teaching hospitals are now faced with having tired men both to teach the new generation and to help deal with the very difficult years stretching before the medical profession. My humble suggestion is that during the next few years these leaders of our profession should be rehabilitated by six months in Canada and the U.S.A., studying their own specialty and incidentally resting, feeding, and rejuvenating.

Feeling that the motives behind a letter of this nature might be misunderstood, I would prefer to remain

"EX-MAJOR, R.A.M.C." (Non-specialist).

A United Nations Medical Association

SIR,—Now that the United Nations Organization is meeting in London, is it not apposite to consider the possibility of forming a United Nations Medical Association? The excellent achievements of the League of Nations Health Organization are known and appreciated (though not perhaps as widely as they should be). Undoubtedly this or a similar body must continue to study and organize public health projects of international importance. But some of us working with U.N.R.R.A. recognize the need for an organization somewhat similar to the B.M.A. or the A.M.A. The social and professional benefits which such an organization could offer to our numerous displaced and distressed colleagues in many countries are apparent to all who have worked in the camps. These, our colleagues, have now no homeland, no books or journals (though we try to make good this deficiency). The aid which might come to them through U.N.M.A. should be socially and psychologically preferable to selective charity from any other source. It would enable them to identify themselves with their professional fellows in every land.

The above is, of course, but an expedient reason for proposing the function of such a body as U.N.M.A. at the present time. Other important professional reasons will be obvious. Furthermore, it is reasonable to suppose that so large an international body of mainly cultured, tolerant, and enlightened people would form a considerable contribution towards maintaining world peace. The first step that suggests itself in the development of such an organization is the publication of a U.N.M.A. journal to be printed in English and several other languages. The choice and decision as to these languages should not lead to as much dispute as some might anticipate. It requires no fertile mind to imagine the interest and value such a pioneer journal should otherwise possess.—I am, etc.,

U.N.R.R.A., Austria.

F. M. PURCELL.

Obituary

SIR COMYNS BERKELEY, M.D., M.Ch.

F.R.C.P., F.R.C.S., F.R.C.O.G., M.M.S.A.

The death on Jan. 27 of Sir Comyns Berkeley, which we announced last week with great regret, removes one who had been for the best part of half a century in the front rank of obstetric and gynaecological surgeons in this country. He was a leading figure of the Middlesex Hospital, which he entered as a student in 1888, just ten years after his friend and mentor, Sir John Bland-Sutton, had entered it. Comyns Berkeley had the bearing of a physician of a more sumptuous age—one could imagine him attending at St. James's Palace for the delivery of Queen Anne, though with him in charge her maternal record would have been much less disappointing—but no man was more alive to practical issues or did more to raise the standard of midwifery in this country.

George Harold Arthur Comyns Berkeley was born in Chelsea on Oct. 16, 1865. At the age of 13 he went to Marlborough, and at 18 to Cambridge (Caius), where he remained for five years, taking the B.A. (Natural Sciences Tripos) in 1887. Then came his years at Middlesex, and he qualified M.B., B.Ch. in 1892. Though he worked for a time as house-physician at the Brompton Hospital and at the Hospital for Sick Children, Great Ormond Street, the bent of his career quite early was towards obstetrics, and he served his own hospital, Middlesex, as obstetric house-surgeon, obstetric registrar, and tutor in obstetrics and diseases of women. In 1903 he was elected to the visiting staff of the Middlesex, and his association with that hospital, and



[C. Vandysk, Ltd.]

his deep affection for it, continued until the end of his life. He was also consulting surgeon to the City of London Maternity Hospital and to the Chelsea Hospital for Women, and consulting gynaecological surgeon to the Hornsey, Eltham, and Clacton Hospitals, and to the London County Council Radium Centre at Lambeth. During the war of 1914-18 he was surgeon-in-charge of the Clacton Military Hospital, Eastern Command.

No man exercised a larger influence on the standard of midwifery in this country. He was at one time or another examiner in midwifery and diseases of women to every university in England and Wales except two, to two of the Scottish universities, to the English Conjoint Board, and to the Society of Apothecaries. His long-continued work for the Central Midwives Board included the role of examiner, member of the Board, and eventually for ten years its chairman. Under him the Board tightened up its regulations, insisted on the observance of them in the letter as well as in the spirit, and greatly raised the status of midwives by the enforcement of an examination system and discipline which, hardly as it might bear upon women who had drifted into midwifery without adequate training or preparation, was no more than the importance of their work demanded. He also endeavoured to secure that medical students as well as pupil-midwives should have a sufficient number of cases. He did much to establish pre-maternity supervision—really a quite modern practice. He was interested also in general nursing, and the Royal College of Nursing for many years had the benefit of his presence as honorary treasurer and friend.

In his surgical practice he was a most careful operator, insistent upon every antiseptic and aseptic precaution, and on the fastidious preparation of the patient. He was exceptionally fortunate in having during his years of operative work at the Middlesex the same anaesthetist, his friend Dr. Herbert Charles. Berkeley was not afraid of speaking his mind on any subject or of expressing dissent from new departures in obstetric practice

which seemed to him unwise or precipitate. At the Portsmouth Meeting of the British Medical Association in 1923 he delivered an address on the use and abuse of the obstetric forceps, and afterwards, he said, received considerable abuse, with the result that his banking account suffered for a time. He had his own views as to the reason for the stubborn figure of maternal mortality a few years ago. He thought it was due to lack of antenatal care, either the neglect of the local authorities to make provision or the unwillingness of women to avail themselves of it. Ignorance, carelessness, undue haste were to him the three malignant spirits which attended childbirth. His services were secured by Sir George Newman, then Chief Medical Officer of the Ministry of Health, to advise medical officers of the Ministry in an investigation into maternal mortality. The reports of that investigation pay high tribute to his services. Radium treatment in gynaecological conditions interested him, and he was a member of the National Radium Committee and vice-chairman of the National Radium Trust. He first used radium in carcinoma of the cervix in 1912, but took a conservative attitude.

Comyns Berkeley joined the British Medical Association in the early 'nineties. In 1925 he was elected president of the Metropolitan Counties Branch, when his presidential address bore the title "Save the Women and Children." In the following year he was president of the Section of Obstetrics and Gynaecology at the Nottingham Meeting. Though he took no particular part in medico-political affairs, he was a most loyal member of the Association and a diligent reader of its *Journal*. Even when he was away on long visits abroad he insisted on copies of the *B.M.J.* being saved for him and carefully studied them on his return. He was himself an editor; under his direction for over twenty years the *Journal of Obstetrics and Gynaecology of the British Empire* became one of the leading special journals. He was a most prolific writer, being the author of many books and treatises which passed into a number of editions. These include a *Handbook for Obstetric Doctors and Midwives*, of which a twelfth edition appeared in 1943; *Gynaecology for Nurses*, which is still in great request; and an *Atlas of Midwifery*. The title of this last work was changed in later editions to *Pictorial Midwifery*; it contains some 250 pictures illustrating practically all the points in connexion with the teaching of midwifery which lend themselves to pictorial representation. He edited the two popular textbooks known as *Midwifery by Ten Teachers* and *Diseases of Women by Ten Teachers* each of which has reached a seventh edition. With his junior colleague Victor Bonney he wrote the well-known and deservedly praised *Textbook of Gynaecological Surgery*, now in its fourth edition; also *Difficulties and Emergencies of Obstetric Practice* (third edition, 1920) and *Guide to Gynaecology in General Practice*.

Sir Comyns Berkeley, who was knighted in 1934, was a Fellow of all three Royal Colleges—Physicians, Surgeons, and Obstetricians and Gynaecologists, and of the last-named he was for long a member of Council and its first treasurer. He was also Honorary Master of Midwifery of the Society of Apothecaries. Just before the war he was nominated an honorary member of the German Society for Gynaecology. Socially he was a man much sought after, a popular member of the Garrick and other clubs, a keen golfer and rider to hounds, and an admirable host. But his life was largely absorbed by his profession, which he pursued with undeviating energy and zest until well beyond the age of normal retirement. In recent years his health seemed precarious, and the death of Lady Berkeley during the war was a heavy blow.

Mr. VICTOR BONNEY writes:

As Comyns Berkeley's oldest surviving friend and colleague I want to add something personal to the obituary notice. My recollection of him goes back to 1891 when he was house-surgeon to Mr. Henry Morris and I a young student, but we did not come into near contact till 1898, when I went to Chelsea Hospital for Women as resident surgical officer, he then being the junior assistant surgeon. From that time forwards our association was very close, and for many years we worked as a team of two.

At the end of the last century most of the gynaecologists were not fully trained surgeons, but physicians on whom a degree of surgical proficiency had been grafted, but we had the advantage of a close association with Bland-Sutton, and both of us owe a great deal to him. We endeavoured to advance gynaecological surgery and took up Wertheim's operation (then newly invented) with enthusiasm.

In all our early cases of this operation we assisted one another, and at intervals thereafter published the results we had obtained.

The idea of writing a textbook on gynaecological surgery took shape in 1905, but the question of illustrations held it up as neither of us could afford the heavy expense of a professional artist. I therefore had to teach myself to draw, and the process was a long one. The text was written conjointly between 9 p.m. and 2 a.m., and to keep us awake we consumed a bottle of old port at each sitting. The book appeared in 1911. Thereafter we collaborated in four other books, the last (in conjunction with Douglas Macleod) not long before the last war.

From 1914 to 1918 we were the surgeons to the military branch of the Middlesex Hospital at Clacton-on-Sea. It was a first-line base hospital and over 10,000 wounded soldiers passed through our hands. It was necessary to carry on the teaching and surgical work at Middlesex and Chelsea Hospitals, so we arranged that each of us should spend half the week in London and half at Clacton. The half in London, when each of us did his own work and that of his colleague, was very strenuous.

The record of his life's work, even in epitome, is an amazing one, and it might be thought that the spending of so much energy on intensive labour would leave little room for the graces and pleasures of existence. But not at all; he possessed a native humour, a geniality, a toleration, and a kindness of heart which made him an ideal companion, and at any social gathering, private or public, where fun and good fellowship were called for he was a priceless asset. A *bon viveur* by nature and inheritance, joying in good company, especially when it was intimate and gossipy, and possessing an intense relish for the pleasant things of life, he held with the poet that "laughter and the love of friends" were of all things the most worth winning. I with many other of his host of friends will remember with affectionate regret the dinners, perfect in substance and service, that he used to give at his own house or at the Garrick, nor less those jovial suppers of perfect Stilton and audit ale which, at 2 a.m., succeeded several hours spent in hard literary work.

In the last few years of his life domestic misfortune beset him; his house in Wimpole Street was badly damaged by a bomb, as likewise was the house he removed to and the office wherein he worked; and presently his health began to fail, and the death of his dearly loved wife was the final blow. Nevertheless, with indomitable resolution he continued editing his journal and presiding over his Board, and undismayed carried on to the end.

In paying this tribute to the life's work of a very old and loved colleague and friend I cannot but think it teaches these two great lessons: first what enormous capability there is in unfaltering persistence—in 50 years I never saw Berkeley lounge or be idle, he was always doing something; and secondly that time is much more spacious than most of us think, there being within it, if fully utilized, ample room for both great work and great play.

W. E. THOMAS, M.D., J.P.

Prof. GILBERT I. STRACHAN sends the following appreciation:

William Evans Thomas, who died at Porthcawl on Jan. 20 in his 83rd year, was a native of Bala in North Wales. Soon after graduation at Edinburgh he settled in practice in the Rhondda Valley, where, at Ystrad Rhondda, he practised for almost sixty years. He was a keen clinician and kept well abreast of modern advances in his profession, so that his practice became one of the largest in the Rhondda Valley. In spite of this he found opportunity to take a leading part in public affairs, and much of his time and energy in this respect was devoted to the interests of the British Medical Association. He was at different periods honorary secretary and chairman of the North Glamorgan and Brecknock Division, twice president of the South Wales and Monmouthshire Branch, chairman of the Welsh Committee, and vice-chairman of the Welsh Contract Practice Committee. He was also a member of the Representative Body and for a number of years a member of Council. He was one of the original members of the Rhondda Urban District Council, also a member of the governing bodies of the Welsh National Tuberculosis Association, of the National Museum of Wales, of the University College of South Wales and Monmouthshire, and of the Welsh National School of Medicine, as well as of the Board of Management of Cardiff Royal Infirmary. Twenty-five years ago he was appointed a Justice of the Peace.

This sketch far from exhausts the many activities of this remarkable man, who in private life was one of the most cheerful of companions, with an impish sense of humour and a perfect "leg-puller," while he was an ideal host. "W. E.," as he was always known, had the keen-witted enthusiasm of his race; he was always angered at any example of injustice and was ready to fight at any time in the interests of the under-dog. A Welsh-speaking Welshman, he was intensely proud of his country, its achievements, its art, its culture, and its language; and as the best type of Welsh patriot he could always be relied on to maintain the interests of gallant little Wales. His busy life left him but little time for recrea-

tion or sport, and he had small inclination in this direction; work was his mainstay, and many a summer "holiday" was spent at a B.M.A. Annual Meeting.

The death of "W. E." represents the snapping of still another of the few links that connect us with that generation of medical men, the old school, who almost grew up with the Welsh coalfields. They were a hardy and conscientious body of men, and their earlier days on foot or on horseback in all weathers were in marked contrast with the comfort of the latter-day motor-car. Dr. Thomas had the knack of appealing to younger men, with whom he kept constantly in touch, so that his range of acquaintance was enormous; in this way his passing creates a wide gap which it will be difficult to fill, and his absence will be felt by a wide circle far beyond his own generation. At the funeral at Glyn Taff Cemetery, Pontypridd, representatives of many public bodies, including the Welsh National School of Medicine, were present to pay their last respects. It was well said of him that few men had touched life at so many points as he had.

ALFRED EDDOWES, M.D., M.R.C.P.

Dr. Alfred Eddowes, who died on Jan. 15 at Woodford Green at the age of 95, joined the British Medical Association as long ago as 1875, and held office in the Section of Dermatology at three Annual Meetings—as secretary in 1901 at Cheltenham, as vice-president in 1910 in London, and as president in 1914 in Aberdeen.

The son of a medical man, he was born at Pontesbury, Salop, and from Shrewsbury School went to the University of Edinburgh, where he won a medal in physiology and graduated M.B., C.M. in 1873, taking the M.D. three years later. After postgraduate study in London at St. Bartholomew's Hospital, and in Vienna, Hamburg, and Paris, Eddowes was resident medical officer at the Royal Salop Hospital for over four years, and then worked in general practice in his native county for eleven years. Coming to London he specialized in dermatology, took the M.R.C.P. in 1897, and became physician for skin cases at the West End Hospital for Nervous Diseases, and also physician to the skin department of St. George's and St. James's Dispensary and to the St. John's Hospital for Diseases of the Skin in Leicester Square. Later he joined the staff of the Western Skin Hospital and was honorary dermatologist to the Artistes' Section of the Stage Guild. He was elected a corresponding member of the French Society of Dermatology and of the Italian Society of Dermatology and Syphilology.

Universities and Colleges

UNIVERSITY OF OXFORD

In a Congregation held on Jan. 24 the following medical degrees were conferred:

D.M.—
B.M.,
A. J. Os, ... S. P. Rawlins, C. G. White, I. C. Todd
(in absence).

UNIVERSITY OF CAMBRIDGE

The Trustees of the Nuffield Foundation have offered to the University financial support for an investigation (under Prof. F. C. Bartlett at the Psychological Laboratory) on causes and results of ageing, dealing with characteristics and changes of human function which are associated with different age groups, with particular reference to adult groups. The grants that the Trustees have in mind are a non-recurrent one of £2,000 for initial capital outlay, and a recurrent grant of £6,000 a year for three years in the first instance, with the possibility of renewal for a period not exceeding three years, making six years in all. Should the whole of the grant not be expended in any year, the unexpended balance should be carried forward for use later in the grant period.

The Cambridge University Reporter for Jan. 29 contains a report by the Council of the Senate on the establishment of a professorship of radiotherapeutics, and a report by the General Board on the constitution of a department of radiotherapeutics. The Faculty Board of Medicine has recommended unanimously that a professorship in this subject should be established for Dr. J. S. Mitchell, who was medical officer in charge of the radiotherapeutic centre at Addenbrooke's Hospital until he went to Canada on Government service in 1944. This recommendation is approved by the Council, who further recommends that the chair should be limited to one term and primarily assigned to the Faculty of Medicine, and that the professor shall not engage in private practice. The General Board

recommends that a department of radiotherapeutics be constituted and placed in the Faculty of Medicine, and that the head of this department be the professor of radiotherapeutics. If the University approves the proposed constitution Dr Mitchell will work partly in Addenbrooke's Hospital, in the post from which he had leave of absence, and partly in a university department to be equipped and maintained by the University. What the General Board now proposes is the second step in the development of a school of clinical research and postgraduate teaching along the lines described in an earlier report on the constitution of a department of experimental medicine. The opportunity to constitute a department of experimental medicine arose from the offer of the Medical Research Council to provide the whole stipend of Dr R. A. McCance as professor of experimental medicine, whose department was set up in May, 1945.

On the nomination of the Faculty Board of Medicine Prof. R. A. McCance has been appointed asessor to the Lucas Professor of Physics for the year 1946.

At a Congregation held on Jan. 25 the following medical degrees were conferred by proxy except on those whose names are marked with an asterisk:

MD—J. F. Paterson
MB, BChir.—R. C. Allison, D. J. Anson, J. C. Baylis, W. Backley, E. W. Deane, A. McK. Elliott, A. E. Platt, A. L. Leitch, J. Glazer, D. Hamilton, J. Jordan, P. B. Kunkler, P. A. Merron, P. D. W. H. G. Peck, B. R. Pollard, J. W. T. Redfern, J. T. Rossiter, C. C. D. Sturt, E. B. G. Smith, R. H. Thompson, P. Watten, R. H. Winkler, C. J. Wilkin

UNIVERSITY OF LONDON

The headquarters staff of the University at Richmond College has now returned to the Senate House in Bloomsbury (tel. Museum 8000). The department of the superintendent of examinations and the publications department will remain at South Kensington until further notice.

Mr. John B. Hunter, M.Ch., F.R.C.S., has been appointed as a representative of the Faculty of Medicine on the Senate for the remainder of the period 1942-6, in place of the late Sir Girdling Ball. Mr. Hunter is succeeded by Dr. H. E. A. Boldero, F.R.C.P., as representative of the General Medical Schools on the Senate for the same period.

Under the present regulations, applications for grants in aid of research are invited annually and are to be received at the University by March 31 in each year. It has now been decided that more frequent allocation is desirable, and the revised dates of application for grants from the Central Research Fund, the Dixon Fund, and the Thomas Smythe Hughes Medical Research Fund will now be March 31, July 31, and Nov. 30 in each year.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The following candidates were successful at the recent Primary Fellowship examination conducted by the College:

J. A. Alexander, M. Burdman, E. F. Chin, Daphne W. Chun, N. A. Cust, E. O. Dixon, A. N. B. Fitzhardinge, I. G. Graber, D. P. Greaves, F. J. Hedden, A. M. Khan, T. L. T. Lewis, R. J. Manekshaw, R. Nigam, N. K. Parikh, W. H. Power, D. B. Robertson, D. P. Robertson, G. P. A. Sechurn, Homa V. G. M. Shaibany, D. H. Thompson, B. H. Wadiaz, R. W. E. Watts.

SOCIETY OF APOTHECARIES OF LONDON

Lord Moran, P.R.C.P., will deliver a lecture entitled "Into Battle" at Apothecaries' Hall, Black Friars Lane, Queen Victoria Street, E.C., on Tuesday, March 12, at 8 p.m. Members of the medical profession and senior students are cordially invited to attend.

The Services

The following have been mentioned in dispatches in recognition of gallant and distinguished services in the field: Major (Temp.) R. Mackay, M.C., Capt. A. H. Weston and J. E. Wooding, R.A.M.C., and Capt. P. R. Das-Gupta, I.M.S.

The Efficiency Decoration has been conferred upon the following officers of the Territorial Army: Lieut.-Col. (Temp. Col.) C. R. Croft, Majors (Temp. Lieut.-Cols.) P. R. Mitchell, O.B.E., and H. G. Wimbush, and Capt. (Temp. Major) G. S. Adams and G. T. Pitts, R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Previously reported missing, now reported to have died on Feb. 15, 1942, in Japanese hands—Squad. Ldr. Eustatius William Barton Griffiths, R.A.F. Reserve.

Died while a prisoner of war in Japanese hands—Fl. Lieut. Raymond George Blackledge, R.A.F.V.R.

Died—Fl. Lieut. James Lawrence Connor, R.A.F.V.R.

Died of wounds in India—Lieut. Austin Stuart Carruthers, R.A.M.C.

Killed on Active Service with C.M.F., May, 1945—Capt. Cecil Willoughby Richards, R.A.M.C.

Medical Notes in Parliament

Pneumoconiosis Investigations

Mr. PETER FREEMAN suggested on Jan. 22 that the Minister of Fuel and Power should have a special inquiry made into the question of stone-dusting and coal-dust problems in connexion with coal-cutting and conveying machines underground, with reference to the effects of both kinds of dust upon miners' lungs, and as contributory causes of lung diseases. Mr. SHINWELL said measures to reduce dust in coal mines were already the subject of investigation and action by the industry and by the Inspectors of Mines. Though he was satisfied that much progress was being made, particularly in South Wales, this would have to be accelerated. In addition a joint committee, composed of representatives of his Department and the Medical Research Council, was securing a research unit in South Wales dealing with the cause, treatment, and prevention of pneumoconiosis. There had been an increase in the incidence of lung diseases among miners, but this was not attributable to stone dust.

Research in Atomic Energy

Mr. ATTLEE announced on Jan. 29 that Lord Portal of Hungerford had been appointed as head of an organization for production of fissile material for use in research into and experiments with atomic energy. Prof. J. D. Cockcroft had been selected for the post of director of the atomic research station at Harwell, near Didcot. On Jan. 31 Mr. Attlee added that the Government intended research and production should be carried on in this country on a scale sufficient for the development of atomic energy in co-operation with other nations. He could not estimate when any stated rate of output of the material would be achieved.

Discussions by the Minister of Health

On Jan. 31 Sir HENRY MORRIS-JONES asked Mr. Bevan why, in his recent interview with some representatives of local authorities concerning his proposals for hospital administration in his forthcoming National Health Bill, they were forbidden by him to consult their associations or to divulge his proposals. Mr. BEVAN replied that the Government's proposals for a National Health Service would be published in the proper manner by the submission of a Bill to Parliament. Before settling final details of that Bill he was seeking advice on various points from expert representatives from local government and other fields. He did not ask them to commit the local authorities or other bodies to any particular proposal. His discussions with them must obviously be confidential.

Medical News

The following radiological meetings are announced: Thursday, Feb. 14, at 8 p.m., at British Institute of Radiology (32, Welbeck Street, W.), Dr. L. G. Blair, "Interpretation of Children's Chest X-rays." Friday, Feb. 15, at 2.30 p.m., at Royal College of Surgeons of England (Lincoln's Inn Fields, W.C.), Diagnostic Section of Faculty of Radiologists, Dr. E. Rohan Williams and Mr. Leonard G. Phillips, "The Value of Antenatal Radiological Pelvimetry," followed by a discussion to be opened by Mr. Aleck W. Bourne. Friday, Feb. 15, at 8 p.m., Radiology Section of Royal Society of Medicine at 1, Wimpole Street, W., discussion on "The Radiotherapy of Brain Tumours."

The Association of Scientific Workers, in co-operation with kindred organizations, has arranged a conference on "Science and the Welfare of Mankind" to be held at the Beaver Hall, Garlick Hill, London, E.C.4, on Friday, Feb. 15, at 7 p.m. (chairman, Sir Robert Robinson, P.R.S.), Feb. 16 at 2.30 p.m. (chairman, Sir Richard Gregory, F.R.S.), and Feb. 17 at 10 a.m. (chairman, Prof. A. V. Hill, F.R.S.) and 2.30 p.m. (chairman, Sir Robert Watson-Watt, F.R.S.). The subjects of the four sessions are science and world needs, implications of recent scientific development, the responsibilities of scientists in modern society, and the organization of science. Inquiries should be sent to the Association of Scientific Workers, 73, High Holborn, W.C.1 (telephone, Chancery 5607).

Dr. Geoffrey Evans will read a paper on "Physical Methods in the Treatment of so-called Psychosomatic States" before the British Association of Physical Medicine at 11, Chandos Street, W., on Wednesday, Feb. 20, at 5.30 p.m.

A meeting of the Clinical Society of the Royal Eye Hospital will be held at the hospital on Wednesday, Feb. 20, at 5.30 p.m., when a talk will be given by Dr. Clifford Hoyle on "Hypertensive and Arteriosclerotic Heart Disease."

The following Chadwick Public Lectures have been arranged: Feb. 19, 2.30 p.m., at Royal Society of Tropical Medicine, 26, Portland Place, W., Dr. A. G. G. Thompson, "Land Utilization in Relation to the Public Health"; March 5, 4.30 p.m., at University of Sheffield, Dr. S. A. Henry, "Medical Service in Industry"; May 7, 2.30 p.m., at Caxton Hall, Westminster, Major Eyre Carter, "The Rehabilitation of Stateless Persons and its Hygienic Bearings"; June 20, 4 p.m., at Chelsea Physic Garden, Swan Walk, S.W., Dr. Ellen Delf, "Plants in the Service of Mankind." Admission to the lectures is free, and further particulars may be had from the secretary of the Chadwick Trust, 204, Abbey House, Westminster, S.W.1.

The Microbiological Panel of the Food Group of the Society of Chemical Industry will meet on Wednesday, Feb. 20, at 6.30 p.m. in the rooms of the Chemical Society, Burlington House, Piccadilly, W.1, when Mr. S. E. Jacobs, Ph.D., will read a paper on some aspects of disinfection. Members may introduce friends in person.

The London Industrial Groups of the Royal Society for the Prevention of Accidents has arranged a one-day conference with a view to encouraging the practical application of the findings of research. It will open at Caxton Hall, Westminster, at 10 a.m. on Monday, Feb. 25. Dr. R. S. F. Schilling will speak on the work of the Industrial Health Research Board, Mr. H. C. Weston on lighting and vision in relation to accidents, Mr. Eric Farmer on the human factor in accidents, and Dr. T. Bedford on heating and ventilation in relation to accidents. The conference fee, including buffet luncheon, tea, and copy of printed proceedings, is 15s. for each delegate, payable to the Royal Society for the Prevention of Accidents; it should be sent to the chairman, London Industrial Co-ordinating Committee, 52, Grosvenor Gardens, S.W.1.

A series of lectures will be given at the Royal Institute of Public Health and Hygiene (28, Portland Place, W.) on Wednesdays, at 3.30 p.m., from Feb. 27 to April 10, both dates inclusive. Details will be published in the diary column of the *Supplement* week by week.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales infectious diseases were less prevalent than in the preceding week. Acute pneumonia was lower in incidence by 135 cases, measles by 51, diphtheria by 47, scarlet fever by 24. The only rises were 61 for whooping-cough, and 27 for dysentery.

Only very small changes occurred in the local returns of scarlet fever. The largest variations in the incidence of measles were increases of 28 in Suffolk and 23 in London, and a decrease in Durham of 25. A rise in the notifications of whooping-cough was recorded in several counties, including Yorks West Riding 43 more, London 26, Norfolk 26, Warwickshire 25, and Kent 24; the largest fall was Southampton 34. Diphtheria incidence fell in Durham by 17, Northamptonshire by 14, and Glamorgan-shire by 13, and rose in Northumberland by 15.

An outbreak of dysentery involving 38 persons was reported from Peterborough R.D. A further 114 cases were notified in Leicestershire, bringing the total cases of dysentery in this county during the past four weeks to 528. In the three preceding weeks the outbreak was confined to the Melton Mowbray district, but another centre of infection appeared during the week and the returns were Melton Mowbray U.D. 54, Melton and Belvoir R.D. 26, Leicester C.B. 34. The other large returns were Lancashire 58, Yorks West Riding 32, London 20, Northumberland 20, Essex 12, Warwickshire 10, Surrey 10.

Peripheral neuritis has been reported at Rhuddlan, Flintshire, where about 30 persons have been hospitalized with paralysis, mainly in the feet and legs. Other cases have been recorded in the Merseyside district as far apart as Bebington, Port Sunlight, Birkenhead, and Wallasey.

In Scotland the chief feature of the returns was the large increase in dysentery, from 37 to 75; the main centres of infection were Glasgow (20 cases), Lanark County (11), Dundee (11). An increase of 12 in the notifications of cerebrospinal fever was reported from Glasgow. Other infectious diseases were less prevalent, the falls being: measles 51, diphtheria 22, and whooping-cough by 23.

In Eire measles notifications fell by 41, diphtheria by 13, and whooping-cough by 23.

In Northern Ireland the notifications of diphtheria rose by 16 cases to a total of 28, the highest level of recent months. Scarlet fever was higher by 11 cases.

Week Ending January 26

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,420, whooping-cough 1,329, diphtheria 428, measles 907, acute pneumonia 1,450, cerebrospinal fever 76, dysentery 358, paratyphoid 3, typhoid 1. Influenza was responsible for 273 deaths in the great towns, the largest weekly total since the outbreak in the autumn of 1943.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Jan. 19.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland. Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland. A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	62	6	44	2	2	77	5	25	3	1
Deaths	—	2	4	—	—	—	1	—	—	—
Diphtheria	478	41	135	63	28	518	15	133	97	15
Deaths	2	—	3	1	—	12	—	1	2	2
Dysentery	371	20	75	—	—	377	45	75	23	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute	2	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	63	11	4	—	—	54	12	3
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	61	5	4	9	1	50	4	7	12	2
Deaths	—	—	—	10	—	—	—	—	3	—
Measles	726	109	105	112	4	12,054	290	576	25	182
Deaths	1	—	—	1	—	16	—	1	—	—
Ophthalmia neonatorum	51	4	9	—	—	51	2	18	—	1
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	1	—	12(A)	—	—	1	—	11(B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal ..	1,310	85	85	10	11	1,399	77	14	8	11
Deaths (from influenza)† ..	174	23	30	3	6	56	6	3	—	—
Pneumonia, primary	—	—	510	22	—	—	—	344	32	23
Deaths	—	73	16	20	—	—	92	21	—	—
Polio-encephalitis, acute ..	—	—	—	—	—	1	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute	6	—	—	2	—	9	1	—	1	1
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	3	5	—	—	—	1	9	—	1
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡	131	14	10	1	—	137	9	21	—	1
Deaths	—	1	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	1,331	131	214	26	36	1,564	73	245	15	42
Deaths	1	—	—	—	—	1	—	2	—	—
Smallpox	1	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	3	—	3	2	1	11	—	2	5	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough†	1,251	117	79	19	10	1,785	50	190	47	2
Deaths	6	1	4	—	—	12	1	1	1	—
Deaths (0-1 year) Infant mortality rate (per 1,000 live births)	45b	62	65	32	21	494	48	59	33	2
Deaths (excluding still-births) Annual death rate (per 1,000 persons living)	6,152	971	827	232	185	6,864	1091	738	273	171
Live births	6,792	1,008	802	372	233	6,778	728	802	353	244
Annual rate per 1,000 persons living ..	—	16.0	23.8	—	—	—	16.0	23.2	—	—
Stillbirths	226	37	25	—	—	221	16	29	—	—
Rate per 1,000 total births (including stillborn) ..	—	—	30	—	—	—	—	35	—	—

* Includes cases since November, 1944.

† Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ Includes puerperal fever for England and Wales and Eire.

¶ Imported.

Letters, Notes, and Answers

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ANY QUESTIONS?

Masturbation in Children

Q.—How should one tackle the problem of masturbation in children? A working-class mother said of her daughter (aged 7): "She always plays with herself at night. I can't get her out of it." I have met many similar cases. What should one say or do?

A.—To give instructions for a specific case is difficult, for the causes of such a condition are many and variable, and we can suggest only the most common.

Physical.—Apart from any gross physical irritation, a common reason for masturbation in such a child is intestinal toxæmia with acid urine producing enough local irritation to cause the trouble. Attention to the bowels and giving barley-water may assist.

Psychological.—Any child may tend to be auto-erotic: (a) because it has been overstimulated sensuously as a young child; (b) because it has felt unhappy or that it is unloved, and finds solace in this way; (c) because it may find the world of reality too difficult, and therefore tends to return to infantile sensuousness as an escape from reality, and in its masturbation lives in a world of fantasy. It is obvious that in none of these cases is punishment called for: it may correct the habit in case (a), but it will make the child worse if (b) or (c) applies. Nor should the child be threatened, for if it is, and yet cannot help masturbating, it may develop an anxiety neurosis from fear of consequences, with night terrors—a common cause of such fears. Indeed, the child's attention should not be called to the condition at all. On the positive side, love and affection, help and encouragement over its difficulties in life, are important; so is encouragement to work with plasticine, to knit and to make things—that is to say, use of the hands in positive creative work rather than their use for sensuous pleasure alone. The mother should, of course, be told not to believe the old wives' stories about the awful consequences of masturbation, and therefore make the child worse by her anxiety. Masturbation is psychologically undesirable, as it is a signal of emotional disturbance, but not a disaster; more harm can be done by worry, anxiety, and threats than by neglect.

Pills for Sea-sickness

Q.—What is the composition of the U.S. Army's "motion-sickness pill"? Can the formula of this wartime secret now be divulged?

A.—The composition of the U.S. Army's motion-sickness pill does not appear to have been disclosed. It can provisionally be assumed, however, that, as in the case of the corresponding British and German remedies, the essential ingredient is hyoscine, 1/100 gr. (0.65 mg.). Various adjuvants have been tried, such as vitamin B₁, but it is doubtful if they make any material difference.

Marriage and Dysmenorrhœa

Q.—An unmarried girl of 22 complains of severe attacks of dysmenorrhœa. First the pain was severe and mild in rotation, now the pains are irregular in severity. The patient has had a comparatively sedentary occupation in the Forces, but off duty she leads an active outdoor life. When she has visited her fiancé pain has been minimal. I have always understood that dysmenorrhœa tends to disappear after marriage. Is this dependent on the stretching of the tissues after labour, or does it result, as the above case would seem to suggest, from sexual stimulation? Would a hormone preparation help?

A.—The erratic appearance of the pain makes it fairly certain that there is not a local organic cause for it and, as in many cases of dysmenorrhœa, some psychological or environmental factor is most likely to blame. On such a basis several adequate explanations could be put forward, and there seems no need to postulate an underlying endocrine disturbance. Separation from her fiancé with its attendant anxieties and nervous strain, doubts and fears often groundless but natural in lovers, unhappiness for one reason or

another, uncongenial work, etc., all might give this girl dysmenorrhœa, and the intensity of the pain would vary according to her circumstances and state of mind at the time. Pelvic congestion due to roused but ungratified sexual feelings might also play a part. Such factors would cease to operate when the girl met her fiancé and painless menstruation might follow. It is tempting to inquire whether coitus took place when they met. No form of endocrine therapy is likely to help. Early marriage, a settled home life with physical and mental contentment, seems the right answer. Meanwhile, however, regular physical exercise and the full and proper employment of leisure should help.

Dysmenorrhœa does tend to improve with marriage, but more especially with childbearing. The latter has a good effect particularly in cases of spasmodic dysmenorrhœa when the pain is related to uterine contractions (? incoordinate). Pregnancy in itself perhaps plays a part by altering the vascularity, development, and arrangement of the musculature, but the dilatation of the cervix during labour is probably more important in determining co-ordinate muscular action thereafter. As indicated above, marriage acts mainly by ensuring a settled and contented mind after the period of emotional strain associated with "engagement." Other mechanisms may also operate. A full sex life may increase the blood supply to the uterus and minimize ischaemia, which is believed to be a pain-producing factor. Or the practice of regular coitus may reduce the pelvic congestion resulting from sexual stimulation without satisfaction which ends prolonged courtship. It follows that marriage does not always relieve dysmenorrhœa, and under some circumstances it may precipitate it in a girl whose periods have previously been painless. This may happen if the marriage lacks harmony or introduces anxiety of any kind, if there is dyspareunia or failure to achieve sexual satisfaction on the woman's part, etc.

Acne Vulgaris

Q.—An otherwise healthy married woman of 22 has for several years had pimples on her face. Could the underlying cause be some female hormonal imbalance? Recently, during pregnancy, her skin became unusually clear. The pimples, however, returned soon after the pregnancy had ended in an accidental abortion. Would endocrine therapy be of any value?

A.—Acne vulgaris, as described above, requires the operation of at least two complementary factors—the age-endocrine factor and a seborrhoeic make-up. In some cases endocrine therapy has been used with success, but it may still be considered in the experimental stage. For treatment of the skin a 1% sulphur cream is a safe and usually efficient application.

Delayed Resolution after Pneumonia

Q.—Is there any treatment for delayed resolution after acute lobar pneumonia? Is physiotherapy of any use? Is delayed resolution more apt to occur with the use of sulphathiazole as compared with sulphapyridine?

A.—Delayed resolution after acute pneumonia is frequently due to obstruction of the bronchi and to small collections of pus in the pleura, which should be dealt with without delay. That due purely to the failure of the exudate in the alveoli to become liquefied and absorbed is relatively uncommon. If recognized early a further full course of sulphonamides, or penicillin if the organism is penicillin-sensitive, should be given. As soon as the patient's condition permits it breathing exercises designed to promote basal expansion should be started. Short-wave therapy has been recommended and can be tried, but has usually given disappointing results.

There is no real evidence that delayed resolution is more common with the use of sulphathiazole as compared with sulphapyridine if the former is used correctly.

Fatal Dyspnoea in a Child

Q.—A boy of 3 years was brought to hospital in great respiratory distress, which came on suddenly while he was quietly playing a few hours before. He was cyanosed, and the expiratory efforts appeared to be greater than the inspiratory. Clinical examination revealed no helpful feature; the child was afebrile. The chest was normal on x-ray examination. Antidiphtheritic serum was given. Tracheotomy reduced the respiratory rate from 54 to 26. Antispasmodics had no effect. The child died in coma and profound respiratory distress some 48 hours after admission. Necropsy revealed only a congested tracheal mucosa, with some mucus, probably terminal, in the larger bronchi. I am completely at a loss for a diagnosis.

A.—The sudden onset of dyspnoea in a previously healthy child suggests either an allergic reaction of an asthmatic type or inhalation of a foreign body. The asthmatic attack usually passes off fairly quickly, and a foreign body would be revealed at operation or necropsy. The post-mortem finding of mucosal congestion in the trachea and mucus in the bronchioles suggests an infective condition. Laryngeal diphtheria is unlikely—membrane would have been found and the onset would be much less acute. Acute laryngitis with oedema due to infection with *H. influenzae* has been described

in the American literature, and may end-fatally in a few days; blood culture yields a pure growth of the organism. Other pathogens which may be associated with this condition are the haemolytic streptococcus and the pneumococcus. Many pathologists are peculiarly averse to taking material for bacteriological examination at necropsy. If this had been done the cause of the laryngeal obstruction might have been revealed. The absence of fever does not rule out a diagnosis of acute infection if the child was in a collapsed state. The possibility of some chemical poisoning must also be kept in mind, although there does not seem to be anything in the history to suggest this.

Nicotinic Acid in Coronary Disease

Q.—What value can be placed on nicotinic acid in the treatment of coronary disease? Has it any beneficial action beyond that of vasodilatation?

A.—Nicotinic acid has recently been used with a view to causing dilatation of the coronary arteries. Further than that, it probably has no effect on the heart. How far this is of real clinical benefit is somewhat doubtful; reports so far have been rather contradictory. It must be remembered that the nature of the disease in the coronary arteries in some cases precludes much prospect of vasodilatation. Nicotinic acid can be given by injection, but, as the administration must be continuous, and even then the effect is only short-lived, probably the most effective way is to give it by mouth.

Treating Minors for V.D.

Q.—The problem of handling V.D. cases in minors raises difficulties from time to time. Suppose, for example, a girl aged 15 years reporting at a V.D. clinic is found to be leading an immoral life, should the medical officer treat her for V.D. in absolute confidence, or should he, in view of her age, inform the parents (a) of her immoral ways, or (b) if she should default during the contagious stage of the disease? Can the medical officer be held legally responsible for breaking confidence with his patient? Would you adopt a uniform policy in all such cases?

A.—In such a case as that described the medical officer (of a V.D. treatment centre) is torn between two loyalties—one to the patient and the other to the public, including the parents. Strictly according to the terms of his appointment he is not allowed to divulge any information concerning the patient; his best plan is to invoke the help of a lady almoner or a social service worker, who will take the girl in hand and usually be able to persuade her to give permission for her parents to be told, or to return for treatment if she has defaulted. Defaulting nowadays is of less importance from the public health point of view than formerly, since even one injection of penicillin usually rapidly renders the patient non-contagious. Frequently it is possible to discover the name and address of the person by whom the patient was infected, or of person(s) infected by the patient, in which case notification can be made to the appropriate medical officer of health, who will take action under Regulation 33B. Legally, if the medical officer informed the parents he would lay himself open to an action for libel or slander, but in our opinion no court would convict him if he could prove he acted in good faith, without malice, and in the interests of the public health and of the patient. It is quite impossible to recommend a uniform policy in such cases. So much depends on various factors: whether the girl is living at home or not, whether she is a real "bad hat" or just weak, whether she is a prostitute or merely an "enthusiastic amateur." Persuasion and tact will usually be effective, and a lady almoner will often succeed where a medical officer fails.

Gout and Pernicious Anaemia

Q.—May I have advice on a case of pernicious anaemia complicated by gout. The patient is a man of 55 who has been taking liver injections every four weeks or so. In the last few months he has developed gout. Could this attack of gout be due to the liver injections? If so, how should a combination of these two diseases be treated?

A.—The association between pernicious anaemia and gout appears to be too frequent to be explained by mere coincidence. It has been more often noted since the introduction of liver treatment, and particularly since the introduction of parenteral therapy. Injection of liver extract may provoke attacks in two ways. At the beginning of treatment the regeneration of the blood is associated with an increased production of uric acid, which may be a factor in the attack. During maintenance treatment, however, the action is non-specific. In the gouty subject a variety of substances will provoke attacks when injected subcutaneously, including salyrgan, ergotamine tartrate, and vitamin B₁₂. Intramuscular extract of liver must be included in the same category. This can be compared with the effect of trauma in inducing attacks of gout. If in the present patient an exacerbation of the gout always follows within 24 to 48 hours of an injection it might be wise to change to oral therapy. If this is not the case, then parenteral liver therapy should be continued unchanged and the gout should be treated independently with colchicine and the usual ancillary measures.

Chronic Glaucoma

Q.—What, briefly, is the modern view of the aetiology of chronic glaucoma?

A.—Usually chronic glaucoma follows the acute stage, with the proviso that glaucoma simplex may have no recognizable acute period. The causes of the chronic type are, therefore, those of the acute. There is much controversy on the subject; in fact, one of the most recently published textbooks frankly admits that the cause of glaucoma is unknown. In general it may be said that glaucoma is due to an upset in the balance between the production and elimination of the intraocular fluid. This may occur in many ways varying from a restriction of the filtration angle of the anterior chamber to an alteration in the physical composition of the aqueous. In secondary glaucoma the cause is often more apparent—e.g., iritis—and in some respects differs from primary glaucoma.

LETTERS, NOTES, ETC.

The Nation's Health in General Practice

Dr. F. M. SANDFORD (West Wickham) writes: With regard to Dr. Holden's report to the Croydon Council on the health of the nation, it is possible that my observations since my return to practice of two types of illness may be of some interest. I refer to (1) asthma in infancy and (2) spontaneous abortion. Both of these conditions were relatively rare in a large mixed general practice in this neighbourhood prior to 1940; the incidence averaged one per annum. Since my return, although my practice is about half its original size, I have encountered six asthmatic children and four cases of spontaneous abortion in fifteen weeks. I would suggest that in the asthmatic child there is a marked decreased resistance to upper respiratory infections in an already allergic child. In regards spontaneous abortion I must confess that the scientific explanation escapes me in this condition, but I have a vague feeling that there is a nutritional shortage or imbalance which prevents firm implantation of the ovum.

Telling the Patient

Mr. J. H. BADCOCK (Mandeville, Jamaica) writes: With reference to the recent correspondence on this subject an incident which occurred in my practice is worth recording. A man, always nervous about himself, had some gum trouble and was referred to a bacteriologist for examination as to the possible cause. I forgot what the findings were, except that they were not of serious importance. They were duly discussed with the patient, and at his request he was allowed to take away the report giving the names of the various organisms found, sounding doubtless formidable enough to a layman. A day or two later he committed suicide. One cannot be too careful about what one tells a patient and how one tells it.

Weil's Disease

Mr. A. D. GARDNER and **Dr. J. A. H. WYLIE** write from the St. William Dunn School of Pathology, Oxford: We should be greatly obliged if all clinical bacteriologists who have been carrying out the serological diagnosis of Weil's disease would let us know: in many cases they have diagnosed during the years 1940 to 1945, and (if quite easy) the number of sera they have tested for this purpose.

Tribute to a Printer

Mr. F. A. Turner, who worked for us for 26 years, has gone into well-earned retirement, and we are sorry indeed to lose him. I came to our type-setting room with long experience behind him, and on the death of Mr. Brunette, who had succeeded the late Mr. Lapworth, he stepped into the responsible post of head printer (or foreman compositor as it is known in the industry). It was his task to put into practice week by week the typographical reforms carried out at the end of 1936 under Mr. Stanley Morison's guidance. When the whole printing of the *British Medical Journal* was transferred to Messrs. Eyre and Spottiswoode he moved with it but paid regular visits to B.M.A. House. Enemy bombs in May 1941, destroyed the last of Eyre and Spottiswoode's three works and near-Fetter Lane; at a few hours' notice Mr. Turner and his team were at the Temple Press in Clerkenwell, and that week's number came out on time. In July, 1941, our printing was transferred to safer quarters at St. Albans, where Mr. Turner continued to work for the *Journal* in the employ of Messrs. Fisher, Knight and Co. His good craftsmanship and ready resource have never failed. Tribute was paid to his faithful service at last week's Council meeting.

Correction

A slip at the printers' caused the initials of Dr. L. P. Le Questre to be wrongly printed at the head of his article on "Bacteriology of Septic Fingers" in last week's *Journal* at page 163.

BRITISH MEDICAL JOURNAL

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PRIMARY ATYPICAL PNEUMONIA

BY

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Between February and April, 1945, an epidemic of primary atypical pneumonia occurred in British base and training units in the Naples area. During this period approximately 350 cases of primary atypical pneumonia were admitted to a neighbouring British general hospital and 161 to this hospital. Of these 161, 50 unselected consecutive cases were investigated in particular detail. All degrees of severity were represented. There were no deaths. Epidemiologically, it was of interest that the rising incidence of primary atypical pneumonia coincided with the decline of infective hepatitis. Clinical data, serial laboratory investigations, and radiological findings relating to these 50 cases are summarized in this report, which is a preliminary survey of the material collected. In the literature available to us we have been unable to locate any report of the finding of heterophil antibodies in serum from cases of primary atypical pneumonia. For that reason an early report is considered desirable to enable investigators, under research conditions, to repeat the work in subsequent epidemics.

Onset

The onset was described as abrupt by 48 (96%) of the patients, as insidious by 2 (4%). On direct questioning of those reporting an abrupt onset a history of mild prodromal symptoms for from 1 to 14 days (average 6 days) was obtained in 26%. Vague tiredness, "seediness," lack of the usual desire for food, and mild depression or irritability were admitted to have preceded the more acute symptoms. The early features of the acute stage of the disease were shivering, malaise, and lassitude, followed by anorexia, headache, feverishness, flushes, chills, and profuse sweats. Sometimes these symptoms were not severe enough to prevent the patient from carrying on with duty for several days before reporting sick. Most patients were detained in the unit sick bay for observation before being transferred to hospital.

Dating the onset of the disease from the reported presence of symptoms suggesting fever, the cases reached hospital at various stages, as shown in Table I.

TABLE I.—Stage of Disease on Admission to Hospital

Day of Disease on Admission	No. of Cases	% Total
1	2	4
2	11	22
3	12	24
4	11	22
5	8	16
6	2	4
7	3	6
8	—	—

The frequency of various symptoms in the present series is shown in Tables II-V.

Toxaemic Symptoms

TABLE II—Frequency of Various Symptoms of Toxaemic Origin

Symptom	No. of Cases	Frequency %
Fever	50	100
Malaise	50	100
Lassitude	50	100
Anorexia	50	100
Shivering	37	74
Chills	29	58
Sweating	23	46
Flushes	26	52
Facial pains	15	30
Backache	10	20
Weakness	7	14
Body soreness	5	10
Aches in joints	2	4

The duration of pyrexia in hospital averaged 5.9 days (range 0-13 days); the total duration from the onset of symptoms suggesting fever averaged 8.6 days (range 1-16 days). The pyrexia in 8% was mild in degree (99-100.8° F.), in 22% moderate (101-102.8° F.), and in 70% high (103° F. and over). The fever was continuous (oscillations less than 2° F.) in 14%, continuous remittent (oscillations 2° F. or greater) in 84%, of whom one-third showed fever of hectic remittent type, and intermittent in 2%. Temperatures over 105° F. were observed in 2 cases, and over 104° in 15. Defervescence was by lysis in 86% of the cases, by crisis or pseudocrisis in 14%. Marked clinical improvement occurred when the temperature became normal. A transient secondary rise was seen in 16% of cases. Patients with hectic remittent temperature were the most severely ill clinically. Six patients received sulphadiazine and one penicillin with no obvious effect on the temperature or general condition.

As a rule the pulse rate followed the temperature, though showing a tendency to relative bradycardia. In 28% the pulse did not exceed 100 at any stage; in 50% it ranged between 100 and 120 at the height of the fever; in 22% it rose above 120, only one case showing a rate above 140.

Headache, malaise, lassitude, and anorexia were the most constant symptoms. Patients wished to be left alone, and desired the sleep which headache often prevented. Anorexia occurred in all cases—usually slight, in some almost complete. In general, however, most took food without forcing even at the height of the fever. Sweating was profuse in many, occurring night and day and necessitating frequent changes of clothing. Shivering, later followed by flushes and chills, was

attacks lasting as long as three hours. No rigors were seen. Body pains were an outstanding complaint in 10% of the cases; patients complained that they felt as if they had been "kicked and thrown around."

Respiratory Symptoms

TABLE III.—Frequency of Various Respiratory Symptoms

Symptom	No. of Cases	Frequency %
Cough	47	94
Sputum: Mucoid	23	46
Mucopurulent	7	14
Blood-stained	12	24
Rusty	2	4
No sputum	6	12
Pain in chest	23	46
Shortness of breath	3	6
Dyspnoea	1	2
Epistaxis	3	6

The respiratory rate was little affected, and dyspnoea was seen in only one case. Cough, though present to some degree in 94% of cases, was not an outstanding feature. It occurred occasionally at onset, but more commonly appeared about the fifth day, and tended to be more pronounced after the temperature had fallen. In the early stages the cough was short and dry, occasionally paroxysmal, and frequently very distressing by virtue of its effect in exacerbating headache. Later a small amount of sputum was produced—seldom more than 1 dr. (3.5 c.cm.) per day, except in cases with associated bronchitis, which produced up to 1 oz. (28.4 c.cm.) daily. In cases in which the sputum was blood-stained the amount of blood varied from slight streaking to almost pure haemoptysis. Blood-streaked sputum was seen mostly in the more severe cases with hectic remittent fever, and appeared at any stage of the disease, but usually after the temperature had subsided. The sputum was cultured weekly in all cases. Pneumococci (untyped) and *Micrococcus catarrhalis* were the most frequent organisms; haemolytic and non-haemolytic streptococci and *M. tetragenus* were also found.

Chest pain occurred at some stage in 23 of the 50 cases. In 16 it was pleuritic in type, and in 7 it was described as a dull ache over the affected area of the chest. A pleural friction rub was detected in 26% of patients complaining of pain in the chest.

Neurological Symptoms

TABLE IV.—Frequency of Various Neurological Symptoms

Symptom	No. of Cases	Frequency %
Headache: Frontal	44	88
General	6	12
Restlessness	13	26
Dizziness	11	22
Depression	6	12
Confusion	5	10
Insomnia	2	4
Prostration	1	2
Meningism	1	2

Headache was the outstanding and characteristic feature of the disease, and was present with varying intensity in every case. In 80% it was violent, continuous, frontal in location, and "splitting" in character, and was aggravated by movement, coughing, or straining. Retro-ocular pain and generalized occipital and temporal headache also occurred. The intense headache and profound lethargy in some gave a picture suggesting encephalitis. Meningism was present in one case. Three cases in the epidemic, not included in this series, had lumbar puncture performed, with normal findings.

Alimentary and Urinary Symptoms

TABLE V.—Frequency of Gastro-intestinal Symptoms

Symptom	No. of Cases	Frequency %
Constipation	20	40
Nausea	12	24
Vomiting	10	20
Dryness of mouth	4	8
Sore throat	2	4
Diarrhoea	1	2

Gastro-intestinal symptoms were few and mild, and subsided after the first few days. Constipation was frequent in the early

stages, and vague abdominal pains were present in a few cases. Anorexia, already noted, was a constant prodromal symptom.

Frequency of micturition without demonstrable cause was encountered in one case. Four patients reported "dark urine" before admission.

Physical Signs

On admission abnormal physical signs in the chest were often few or lacking.

TABLE VI.—Frequency of Abnormal Physical Signs in the Chest

Sign	No. of Cases	Frequency %
Diminished movement	2	4
Impaired percussion note	11	22
Diminished air entry	12	24
Consolidation	1	2
Localized crepitations	48	96
Generalized rhonchi	18	36
Pleural friction	6	12

One-third of the cases had generalized bronchitic rhonchi on admission. The characteristic and most valuable sign was a localized patch of persistent, sticky, fine, or medium crepitations, which were first heard on the average in 5.7 days (range 1–13 days) from the onset of acute symptoms. In some cases crepitations were scanty, difficult to detect, and evanescent during examination; in others they were heard in profuse showers. In two cases no crepitations could be detected at any stage, but typical opacities were apparent on radiological examination. Diminished movement, reduced air entry, and impaired percussion note were seldom of great value in locating the lesion. Cases showing generalized bronchitic rhonchi tended to produce frothy blood-stained sputum during convalescence. Serial skiagrams showed that the disappearance of abnormal physical signs did not imply full radiological resolution. Pleural effusion was not observed in the cases in this series. Other physical signs noted are listed in Table VII.

TABLE VII.—Frequency and Type of Clinical Signs other than Respiratory

Signs	No. of Cases	Frequency %
Palpable glands:		
Posterior cervical	30	60
Axillary	14	28
Inguinal	9	18
Epitrochlear	5	10
Spleen:		
Palpable and tender	14	28
Palpable, not tender	4	8
Liver:		
Palpable and tender	6	12
Tenderness	14	28
"Rose spots"	17	34

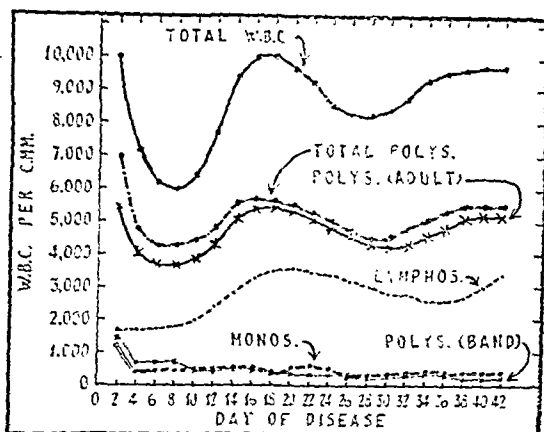
Glands were often found to be enlarged on admission, but they subsided early in convalescence. The posterior cervical group were those most commonly affected. The glands were small, firm, discrete, and not tender. The spleen was just palpable in 18 and slight liver enlargement was detected in 6 of the 50 cases. Scanty small pink macules fading on pressure similar to the rose spots of typhoid fever, were observed in 34% of the cases in the early stages. They appeared in crops on the chest, back, and flanks, and occasionally on the shoulders. Neurological and cardiac signs were minimal. A lowered blood pressure was observed in some of the more toxic cases. Mild hyperaemia of the pharynx was usual on admission.

Laboratory Investigations (Major J. M. Slaveley)

Blood was withdrawn weekly for laboratory investigation. Blood slides were examined for malaria in all cases on admission and frequently repeated in cases with a previous history of malaria or very high pyrexia. No positives were reported. Owing to technical difficulties, shortage of materials, and the pressure of routine work the number of tests on each patient had of necessity to be limited. Blood counts, sedimentation rates, Takata-Ara and cephalin-cholesterol flocculation tests and heterophil antibody and cold agglutination tests were done where possible once a week.

Leucocyte Counts.—A total of 311 counts at various stages of the disease were done in the 50 cases. Mean absolute values of the various cellular elements during the course of the disease

are set out in the accompanying Graph. This shows a slight initial polymorph response followed by a depression, which was maximal at the end of the first week. The subsequent rise in both polymorphs and lymphocytes reached a peak at the 16th to 18th days. The differential counts showed a slight relative



Mean absolute values of white cells at different stages of the disease

lymphocytosis after the initial period. In some of the two-daily groups the numbers were not great, but the trends revealed seemed significant. Scattergrams showed a wide range of values. Eosinophils showed no characteristic changes. Six patients had more than one count in excess of 6% of the total, the highest absolute values being 3,300 (21 and 4,600 (29%) per c.mm. Both these cases were subsequently shown to be harbouring intestinal parasites.

Red Cells and Haemoglobin.—All counts and estimations were done by van Slyke's copper sulphate method. The red cell counts are therefore approximate only. A haemoglobin value of 15.5 g. per 100 c.cm. was taken as 100%. There appeared to be a tendency towards a mild anaemia with a macrocytic trend. At some stage of the disease 60% of the cases showed red cell counts below 5,000,000 per c.mm.; only two were below 4,000,000 per c.mm. The mean cell volume tended towards the upper limits of normal, with a range from 88 to 95 c.u. The haemoglobin concentration fell below 14 g. per 100 c.cm. in 56% of the cases at some stage of the disease. The two cases with red cell counts below 4,000,000 per c.mm. received iron; otherwise no treatment was given for the anaemia, and spontaneous recovery occurred during convalescence.

Total plasma protein estimations showed no significant changes. Differential estimations were not possible with the staff available.

Sedimentation Rate (Wintrobe—corrected—normal, 0-9 mm./hr.).—At various stages of the disease 234 estimations were made on blood from the 50 cases. When possible estimations were made on admission and thereafter at weekly intervals. Findings are given in Table VIII.

TABLE VIII.—Average Sedimentation Rate in Successive 7-day Periods

Day of Disease	No. of Estimations	Rate in mm./hr.
1-7	21	19
8-14	41	18
15-21	41	13
22-28	45	8
29-35	49	7
36-42	36	7

The highest value obtained was 45 mm./hr. on the 12th day. This was exceptional. The sedimentation rate in the early stages averaged 19 mm./hr., and was of some value in differentiating from malaria in severe and from hepatitis in mild cases.

Latato-Ara Reaction.—This test was performed 63 times between the 5th and the 24th day of the disease. A moderate positive (+ - 0) was obtained in only one patient, who was also convalescent from prolonged hepatitis. The results were consistently negative in sera giving a positive cephalin-cholesterol flocculation reaction.

Cephalin-Cholesterol Flocculation Test.—This test was performed 211 times in the 50 cases, at various stages of the disease. The cephalin was prepared in the hospital laboratory and the stock cephalin-cholesterol mixture kept in refrigeration. Uniformly negative results were obtained using this mixture in tests of 40 normal individuals. On two occasions the tests with the locally made reagents were set up against a similar series using control reagents obtained from an American central laboratory. Identical results were obtained; these are set out in Table IX. The flocculation was graded in terms of 0, +, ++, +++, and ++++, at 24 and 48 hours. The "mean positiveness" referred to in the tables indicates the sum of positive signs at 24 and 48 hours respectively divided by the number of cases in each group.

TABLE IX.—Mean positiveness of Cephalin-Cholesterol Flocculation at Successive 7-day Periods

Day of Disease	No. of Tests	Mean Positiveness	
		24 Hours	48 Hours
1-7	13	0.7	1.3
8-14	31	0.8	1.4
15-21	46	1.2	2.4
22-28	46	1.7	2.7
29-35	42	1.8	3.0
36-42	33	1.5	3.0

In general flocculation was insignificant early in the disease and slight during pyrexia; it increased rapidly after convalescence had been established in the second week, thereafter rising slowly. This trend was particularly well shown in the group of cases with hectic remittent fever, who were the most numerous. Many cases still had strongly positive cephalin-cholesterol flocculation reactions on discharge.

Heterophil Antibody Reaction.—This test was performed 143 times on the 50 patients at different stages of the disease. Horse cells were used, varying in age at the time of the test from 1 to 7 days. The findings are therefore not exactly comparable in successive tests, though extreme care was exercised in the preparation for and execution of the test to make it as uniform as possible. A titre of 1:448 (horse cells) was taken as being undoubtedly a significant positive. By this standard 18 cases (36% of the total) gave a positive result at some stage of the disease. A further 13 cases (26% of the total) showed a titre of 1:224. The stage of the disease at which the first positive was obtained was not constant. The average was on the 24th day, the earliest positive being on the 6th day (1:1,792) and the latest first positive on the 49th day (1:896). The highest titre found was 1:7,168 on the 33rd day. In general the titre gradually declined in cases which were positive early, while late-appearing positives showed an increasing titre and a subsequent decline.

Comparing the clinical course of the 18 cases showing a heterophil antibody titre of 1:448 or more at some stage with the remaining 32 cases the following points were noted.

(1) **Fever.**—The average duration of pyrexia was not significantly different. The fever showed a slightly greater tendency towards the remittent rather than the continuous type in the cases with positive heterophil antibody reactions.

(2) **Malaria.**—A past history of malaria was obtained in 10 of the 18 cases with titres 1:448 or above and in only 3 of the remaining 32. None of the cases was taking mepacrine at the time of the illness, and repeated blood slides were negative for malaria parasites.

(3) **Physical Signs.**—A greater incidence of lymphadenopathy, enlargement of the spleen, and rose spots was found as under:

Heterophil Antibodies	Cases	Palpable Spleen	Palpable Glands	Rose Spots	Blood-stained Sputum
Titre 1:448 or more	18	10	15	8	4
Titre below 1:448	32	3	15	9	6

(4) No undue increase in the total leucocytes or in cells of the lymphocytic or mononuclear series was noted in the cases giving positive heterophil antibody reactions. The undulations observed in the mean absolute values of the various white blood cells conformed with the trends already described, though the number of cases is obviously too small for reliable averages.

(5) The flora of the sputum were similar.

(6) No significant differences were apparent in radiological findings.

(7) All cases had negative Laughlen reactions. The Kahn test was performed on 10 cases showing high heterophil antibody titres, with negative results.

Urine

A specimen of urine was examined when the patient was admitted and subsequently at weekly intervals on the day after the investigations on the blood. In all, 204 specimens were examined from the 50 cases. The findings are set out in Table X.

TABLE X.—*Urinary Findings* in Successive 7-day Periods*

Day of Disease	No. of Tests	Bile Pigment (Fouchet) (% +)	Methylene Blue (% +)	Urobilinogen (% Increased)	Albumin (Trace to +) (% Total)
1-7	45	47	76	24	22
8-14	24	27	55	24	9
15-21	39	17	34	0	0
22-28	21	10	14	0	0
29-35	39	3	5	0	0
36-42	36	0	6	0	0

Bile pigment seldom exceeded a trace by Fouchet's method. Six of the 20 cases with liver enlargement showed biliruria. The methylene-blue test was performed as a routine in view of recent emphasis placed by some American workers on its diagnostic value in infective hepatitis. It appears to be non-specific, to show no direct correspondence with the Fouchet test, and to be potentially misleading if regarded as of diagnostic value in any single condition. A reducing substance (Benedict) was transiently present in 3 cases. Increase in urobilinogen and albuminuria were obviously related to the febrile phase of the disease. The Laughlen test was performed in all cases, with uniformly negative results.

Gold Agglutinins.—Tests (119) for cold agglutinins were done at all stages from the 3rd to the 33rd day. The first 12 tests were carried out both with the patient's own corpuscles and with washed fresh Group O corpuscles. The remainder were done with fresh washed Group O cells alone. Three cases showed agglutination in dilutions of 1:20 and one case in 1:40. The remainder were negative at all stages.

Radiological Findings (Major G. L. Rolleston)

Postero-anterior and lateral films were taken in every one of the 50 cases. In the great majority of cases it was possible to demonstrate a localized area of increased density, which was interpreted as a parenchymatous infiltration, between four and six days after the onset of symptoms. Characteristic x-ray findings were: (a) The localization of the lesion to one or more broncho-pulmonary segments. The infiltration was found to be pyramidal in shape, with its bases situated peripherally and its apex pointing towards the hilum. (b) With the exception of two cases which were "hilar" or central in location the lesions were all peripheral. (c) The shadows cast by the infiltration could be described as hazy mottled densities. Structural accentuation and homogeneous densities were also observed in a few cases.

Several other radiological observations were of importance. Of these 50 cases, 30 showed involvement of segments in the lower lobes, 16 in the upper lobes, and 6 in the right middle and left lingular lobes—lesions in the lower lobes therefore predominating. The importance of the lateral film was shown by the following facts: (1) Infiltrations which in the postero-anterior projection appeared hilar in origin were usually situated in the apical segment of the lower lobe and were therefore peripheral lesions. There were only two exceptions to this finding. (2) In several instances the postero-anterior film showed no lesion, but the lateral projection demonstrated the infiltration either behind the heart or in that portion of the lung situated behind the summit of the diaphragmatic dome.

Definite elevation of the diaphragm involving the posterior portion was demonstrated in three cases of posterior basal infiltrations. This finding was interpreted as resulting from a combination of lobular atelectasis and the splinting action of that portion of the diaphragm. There was no radiological evidence of any hilar adenopathy; either in the early or in the resolving stages of the lesion. In this series no case showed evidence of pleural effusion. In cases subsequently encountered during the epidemic five instances of pleural effusion were observed. Two were generalized unilateral effusions, two encysted paravertebral effusions, and one was interlobar.

Regular serial examination was not possible owing to shortage of films. Examination carried out six weeks after the onset of symptoms revealed that resolution was complete in the majority of cases.

Classification of the Radiological Findings

1. Broncho-pulmonary segments involved (62 segments affected in 50 cases; percentages refer to segmental frequency):

	Right	Left
Upper lobe:		
Apical	3 (4.8%)	2 (3.2%)
Subapical	6 (9.7%)	5 (8%)
Axillary	—	—
Pectoral	—	—
Middle lobe:		
Anterior	3 (4.8%)	1 (1.6%)
Axillary	1 (1.6%)	1 (1.6%)
Lower lobe:		
Apical	4 (6.4%)	2 (3.2%)
Subapical	—	4 (6.4%)
Posterior basal	9 (14.5%)	9 (14.5%)
Axillary	1 (1.6%)	—
Anterior	1 (1.6%)	—
Hilar	—	2 (3.2%)
Zones:		
Upper	1 (1.6%)	—
Middle	2 (3.2%)	2 (3.2%)
Lower	1 (1.6%)	2 (3.2%)

2. Type of shadow cast by the lesion: Hazy mottled density, 43 (86%); homogeneous density, 2 (4%); structural accentuation, 5 (10%).

3. Diaphragmatic elevation: 3 (6%).

4. Degree of lesion: Minimal, 12 (24%); moderate, 33 (66%); extensive, 5 (10%).

5. Bilateral infiltrations: 4 (8%).

6. Cases with two or more segments involved: 12 (24%).

Differential Diagnosis

Most cases were referred to hospital with a diagnosis of pyrexia N.Y.D. or malaria. In the period before the development of characteristic pulmonary signs the diagnosis was often in doubt between malaria, infectious mononucleosis, fevers of the enteric group, meningo-encephalitis, "influenza," and infective hepatitis, by virtue of the prominence of one or other of the diverse clinical features already described. Cases showing pulmonary signs on admission had to be differentiated from other forms of pneumonia. The absence of leucocytosis, pulmonary consolidation, or dyspnoea, and the relative bradycardia were helpful in diagnosis. During the epidemic some cases not included in this series presented with identical prodromal symptoms and onset but with a leucocytosis of from 15,000 to 30,000. Such cases received chemotherapy with apparent benefit despite the fact that the subsequent radiological examination showed strictly segmental lesions. It was presumed that these cases were primarily atypical pneumonia with secondary infection in the affected lobule.

Treatment

All cases were isolated until the temperature had been normal for one week or until productive cough had ceased. The R.A.F. orderly and hospital librarian developed primary atypical pneumonia during the course of the epidemic. All attendants wore mask and gown. Patients were kept in bed until they had been at least ten days afebrile and until abnormal physical signs were no longer detectable. A few preferred to be propped up on pillows; the remainder lay flat. A light diet in the febrile phase was generously supplemented when the appetite returned in convalescence.

the flaps of aponeurosis which have been raised from the anterior surface of the patella before the bone is removed. Catgut or kangaroo tendon is not sufficient. In the present series the interval was at first closed by fascial strips, but these were found to be unnecessary, and silk alone was used. Later still, unbleached linen thread was found to be more satisfactory and to give less tissue reaction.

2. It must be appreciated that the injury is really a major injury to the knee-joint and, as in all such injuries, quadriceps wasting will be rapid. Quadriceps insufficiency develops during a period not of weeks but of days, and half an inch of wasting in a few days may take months of physiotherapy to regain after the operation. For this reason early operation is essential—usually on the fifth day after the accident, or as soon as the skin over the operation site is sufficiently healthy. For a similar reason the patient must be got up early after the operation, and, if a wool splint is used, this can be done with impunity on the fifth or sixth day, the patient walking with two sticks or between two chairs, using his own quadriceps actively, but not at first bending the knee. Back splints or plaster must be avoided at all costs. Post-operative physiotherapy is not as a rule necessary, but may be used when required. The operation must be performed by the bloodless method.

Case Reports

Case 1.—Male aged 35. Twelve years previously he fell and sustained a transverse fracture of the left patella with separation of the fragments. These were removed and the gap in the aponeurosis was closed with interrupted sutures of silk. Fourteen days after operation he was discharged from hospital, and four weeks later returned to work. On examination the function of the knee was normal; range of movement full, with no loss of power; no symptoms. The patient says he can distinguish no difference between the two limbs. Skiagram shows no osteoarthritic changes. No deformity.

Case 2.—A plumber aged 51 fell and sustained a comminuted fracture of the right patella. Fragments were removed and the interval repaired with silk. Now, after 13 years, he has full function, no limitation of movement, normal power, no limitation of full extension, and no deformity. Skiagram shows no osteoarthritic changes. He has been doing his full work as a plumber ever since, and says he can distinguish no difference between the two limbs.

Case 3.—A domestic servant aged 36. Transverse fracture—moderate separation. Fragments removed; interval repaired with silk. Back at work in one month. Now, 10 years after her operation, she says she can notice no difference between the two legs; if anything, the other one is not so good, as she gets rheumatism in it. Movements full; power normal; no deformity; no loss of full extension. She can run upstairs. Skiagram shows early osteoarthritis with lipping of patella in other knee. In the affected knee no osteoarthritic changes were seen.

Case 4.—Female aged 40. Sustained a transverse fracture of the left patella, which was excised 7 years ago, and a transverse fracture of the right patella, which was excised 5 years ago. In both cases quadriceps expansion was sutured with silk. The function is full; no limitation of extension; power normal. No O.A. changes in either knee. A little deformity in the right knee, but not in the left. Doing her full work as a packer.

Case 5.—Female aged 52. Transverse fracture with wide separation 9 years ago. Fragments removed and interval sutured with silk. Discharged home 4 weeks after operation. Now function and movements are full; no weakness, no symptoms, and no deformity. Skiagram shows no O.A. changes.

Case 6.—Male aged 58. Comminuted fracture of patella. Fragments removed, repair by silk 6 years ago. Now doing full work as a navvy. Can run upstairs. Can detect no disability whatever. Function, power, and movement full; no deformity. Skiagram: No O.A. changes.

Case 7.—Female aged 32. Transverse fracture 9 years ago. Is now in Land Army doing full work. Passed Grade 1 (knee not noticed). Function now full; no symptoms, no deformity; range of movement full, extension full. Skiagram: No O.A. changes.

Case 8.—Male aged 40. Transverse fracture with separation operation 5 years ago. Sutured with thread. On examination power, range of movement, and extension now full. A grocery porter, he does a full day's work, cycling all day, and notices nothing wrong with his knee.

Case 9.—Male aged 67. Transverse fracture through old wired patella; wire septic, and sinus through skin wired and patella excised. Interval sutured with catgut 8 years ago. Now has impaired function—flexion to right-angles only. Knee a little deformed; power impaired; extension full. The patient says that the knee is weak, but

is much improved since the operation (excision). Before, he could not stand or walk on it. Skiagram shows no O.A. changes.

Case 10.—Female aged 64. Fell 5 years ago and sustained a comminuted fracture of the patella. Repair with thread. Now she complains of some weakness and difficulty in getting upstairs. Function is good, extension full. She can walk well, and does her shopping. There is no pain. She can stand on the affected foot with the knee bent. There is gross rheumatism in the opposite hip. No deformity of knee. Skiagram: No O.A. changes.

Case 11.—Male aged 68. Transverse fracture of patella. Patella removed 5 years ago. Now complains of weakness and difficulty in getting upstairs. Walks with a stick. Movements are full; there is no detectable weakness of the quadriceps; no deformity; extension full. A frail man, older than his years. Not working.

Case 12.—Male aged 62. Comminuted fracture of left patella. Bone removed 7 years ago. He is now working full time as a labourer. He says that from the time he recommenced work he has noticed no difference in the two limbs. In fact, he was not quite sure that the injured knee was not the better. No deformity; extension full; range and power normal. Skiagram: No O.A., but slight O.A. lipping of patella of other knee. He demonstrated that he could run upstairs.

Case 13.—Female aged 35. Old transverse fracture with refracture after suture 9 months later. Patella excised 10 years ago. Repair with thread. Movements full; no weakness; no deformity; extension full. She says that the knee does not interfere with her life in any way.

Case 14.—Male aged 63. Transverse fracture with wide separation. Excised 10 years ago; sutured with silk. Now extension and range of movement full; no deformity. Skiagram: No O.A. changes. The patient complains of slight stiffness going up and down stairs. He says he can walk 10 to 15 miles without getting tired, and can do most things without difficulty, but for years has been restricted in his activities by an old injury to the right hip. Skiagram shows old O.A. of hip supervening on what appeared to be an adolescent coxa vara deformity.

Case 15.—A carpenter aged 57. Sustained a transverse fracture of the left patella 10 years ago and a transverse fracture of the right patella 8 years ago. In both cases the injury was due to an accident—the first at work, the second a road accident. In both cases the fragments were removed and the interval repaired with thread. Examined 10 and 8 years after his accidents, he says he has got on well. He can find no difference from before the accidents. Both legs are equally good. He does his full work as a carpenter. Movements full, extension full; no deformity; no loss of power; no thickening of the knees. Skiagram: No O.A. changes. He demonstrated that he could run upstairs with ease.

Case 16.—Female aged 58. Transverse fracture with separation 5 years ago. Was walking five days after operation. Now says that knee is as good as before the accident; can do all her own housework and can kneel without discomfort. Walks without limp. Extension full; power and movement normal; no deformity. No O.A. changes on x-ray. No symptoms.

Case 17.—Female aged 57. Transverse fracture 5 years ago with separation of fragments. Repair, using thread. Now on examination extension is not full; can get upstairs with difficulty. The knee looks a little ugly; it is still improving. Otherwise, function normal. In this case there was gross separation of the fragments. The other leg is weak.

Case 18.—Male aged 62. Sustained a transverse fracture at work 12 years ago. The fragments were excised and the interval closed with silk. From the first this patient, a postman, was not co-operative, and the question of compensation was always present. He is now walking well; there is no deformity; movements full. Complaints of some weakness. Skiagram: Negative for O.A.

Case 19.—Female aged 53. Sustained a comminuted fracture of the left patella 14 years ago. Fragments were removed and interval repaired with fascia. Now says that there is not the slightest difference in the two sides. She can run upstairs, and has done so for many years. She says she can walk miles. Extension, power, and movement full. Skiagram: No O.A. changes. No deformity; no symptoms.

Case 20.—Male aged 30. Transverse fracture with separation. Removal 11 years ago; sutured with silk. He has been in the Army—accepted A1; operation scar not noticed. Before the war he played professional football after the operation. Movements full; no deformity; extension full. Skiagram: No O.A. changes. He says the knee is perfect. He can run upstairs.

Case 21.—Male aged 60. Stellate fracture; removal and suture with thread 6 years ago. Patient says he would not know that the operation has been done. He works as a navvy. He was back at work 18 weeks after the accident. He can run upstairs, and no loss of power or function could be detected. A skiagram showed no O.A. changes in the joint.

Samples of gravy were taken in some cases when cooking-water had been used in its preparation. From data obtained in this way and from the results of the experiments of Allen and Mapson (1944), Olliver (1941), and Jenkins (unpublished), the vitamin C contents of the vegetables were calculated.

The most accurate method of estimating the influence of the volume of cooking-water on the vitamin C content of green vegetables is to weigh the cooked vegetable and measure the volume of the water after cooking. It was not possible to make these measurements in the present survey, and a less accurate method had to be adopted—namely, to judge whether the vegetable was a quarter, half, or completely covered by the cooking-water. This is not wholly satisfactory, since the important ratio is the final volume of water to the weight of cooked vegetable, and this will vary with the size of saucepans even when the degree of covering is kept constant. Assuming that the pan is of a size conveniently filled by the vegetable, then the volumes of water necessary to cover the vegetable completely, half, or quarter would, according to calculations, permit retentions of the order of 20, 40, and 60% of the vitamin C content of the raw vegetable. The loss during keeping hot or reheating of green vegetable was judged from the experiments to be 50% per hour. No account was taken of whether the greens were placed in cold water and gradually brought to boiling point, or were plunged directly into boiling water, as this factor does not appear to be important in affecting the vitamin C loss in cooking on the domestic scale (Jenkins, unpublished), but it is important when large amounts of vegetables are being cooked (Macrae, 1944). In the case of root vegetables, oxidation and extraction during boiling were assumed, on the basis of the experiments mentioned above, to cause a fall to 50% of the raw value, with further destruction at the rate of 50% per hour if kept hot, unless the vegetables had been mashed, when the rate of destruction was about three times greater (Jenkins, 1943; Lampitt *et al.*, 1943).

The average vitamin C content of the raw potatoes available at the time of the survey was found by analysing a number of pooled samples obtained from several shops in the districts. The values found (mg./100 g.) were 20 in September and 9 in April. No value for raw green vegetables was obtained, as it was not possible to collect and estimate a sufficiently large number of raw samples to make the result significant for so variable a vegetable as cabbage. A value of 70 mg. per 100 g. was taken as the average value for raw cabbage (Olliver, 1943). The average calculated values are given in Table II.

Results

The results are divided into three parts—first, a small-scale survey carried out in the winter of 1942–3; secondly, 200 samples collected in the industrial cities in Sept., 1943; and, finally, 100 samples from the same cities in April, 1944. Some of the analyses of samples collected during April were carried out by Dr. L. P. Kendal, who has kindly allowed me to quote his results.

The results of the analyses are set out in Tables I and II. The figures obtained for gravies were often anomalous in that

TABLE I.—Results Obtained in Preliminary Survey; Winter, 1942–3

	Nov./Dec., 1942			Jan./Feb., 1943		
	No. of Samples	Vitamin C (mg./100 g.)		No. of Samples	Vitamin C (mg./100 g.)	
		Average	Range		Average	Range
Potatoes	12	10.5	8–16	9	6	3–8
Cabbage	5	22	13–47	1	11	—
Brussels sprouts	4	50	39–68	7	29	17–41

their vitamin C content exceeded that of the vegetable water from which they were prepared, indicating the presence of reducing substances other than vitamin C, formed during cooking, which interfere with the estimation (Mapson, 1943). Since the method of assaying vitamin C separately from these substances is time-consuming it was not possible to apply it, and the results obtained on gravies have not been quoted. A few samples of other vegetables (e.g., swedes and onions) were analysed, but the numbers were too small to justify publication.

TABLE II.—Found and Calculated Vitamin C Values from Industrial Cities

	September, 1943						April, 1944					
	No. of Samples	Vitamin C (mg./100 g.)					No. of Samples	Vitamin C (mg./100 g.)				
		Av.	Range	Calculated				Av.	Range	Calculated		
Potatoes	77	10.5	2–26	10.5	2–15		50	5	1–10	4.5	1–5	
Cabbage	30	13	3–38	17.0	2–42		14	35	7–63	25	14–42	
Carrot	14	3	2–5	—	—		12	2	0.5–5	—	—	
Runner beans	9	5	2–11	—	—		—	—	—	—	—	
Cauliflower	6	12	3–28	—	—		6	37	11–67	—	—	

Discussion

The first survey of 1942–3 was on so small a scale that by itself no significance could be attached to the results; but the figures suggested that the losses of vitamin C during cooking, in these homes, were not excessive. Forty samples were taken from 21 meals, and, assuming that each meal contained 150 g. of potato and 100 g. of the second vegetable, which are reasonable helpings, all but eight of them provided 30 mg. of vitamin C—that is, the daily requirement suggested by the League of Nations Commission—and, of these eight, only four provided less than 24 mg. Cooking loss was responsible for the low vitamin C in only one of these meals; in another meal the second vegetable was carrots (providing only 2 mg.), and the other two contained no vegetable other than potato. The average content per meal was 43 mg. for November/December and 33 for January/February.

Many of the housewives who provided samples in the two larger surveys had completely covered their green vegetables with water and therefore increased the proportion of soluble nutrients extracted during cooking. A few housewives followed the Ministry of Food's instructions for cooking greens, with the result that their product contained about three times as much vitamin C as the general average. The finding that the vitamin C content of cooked cabbage in spring (35 mg./100 g.) was so much greater than in autumn (13 mg./100 g.) is unexpected, and is probably fortuitous, as only 14 samples were collected in April.

Using the figures obtained in the larger survey, a typical meal, containing potato and greens, was estimated to provide about 28 mg. of vitamin C in September and not less than 20 in April. If the second vegetable were carrots, or if, as sometimes occurred, no second vegetable were served, then the meal would provide only about 15 mg. in September and 7 or 8 mg. in April. These amounts of vitamin C were probably the total day's intake in most families, as typical wartime breakfasts and teas contribute little or no vitamin C. It would seem that propaganda aiming at increasing vitamin C intake should place as much stress on the importance of including green vegetables in meals as on methods of reducing cooking losses.

Many households did not have a cooked meal at home, as all members of the family received a canteen or British Restaurant meal, the vitamin C content of which tends to be low.

Comparison of Found and Calculated Values

Comparison of average vitamin C values of the vegetables as determined by analysis, with those obtained by calculation shows remarkably good agreement for potatoes and fair for cabbage (Table II). The correlation between calculated and determined values for individual samples is, however, low but significant ($r=0.52$ for 38 samples of cabbage; 0.39 for 50 samples of potato in September and 0.59 for 46 samples in March; P is less than 0.01 in all cases). The data collected in this survey therefore indicate that it is not possible to calculate the precise vitamin C content of an individual meal, but that the averages of figures so obtained are in close agreement.

Although it appears not to be possible to calculate accurately the vitamin C content of a meal it is possible to estimate most meals to say whether it is very low or very high. When calculations indicated that a meal contained, say, less than 10 or more than 30 mg. of vitamin C, the analysis usually confirmed this general grouping, but there were many discre-

same technique was employed bilaterally, the signs and symptoms were noticeable only on the left side of the body.

It is of less importance for the purpose of this report to decide whether the partly transient neurological signs and symptoms were due to oedema or haemorrhage. In either case, the symptoms and signs indicated the level of the operative lesion, and it seems that when the section is carried out posteriorly, as in the reported case, no better therapeutical results can be expected than from the conventionally performed operation.

I wish to thank Dr. E. Cunningham Dax and Mr. E. J. Radley-Smith for their helpful criticism.

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PRIMARY BENIGN TERTIAN MALARIA AMONG BRITISH TROOPS IN NORMANDY

BY

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Eight cases of primary B.T. malaria occurred in British soldiers serving in Normandy during August and early September, 1944. These soldiers had never previously served outside the United Kingdom, nor had they ever been in a malarious country. During the period subsequent to disembarkation they all, with one exception, admitted having been bitten many times by mosquitoes, and this man stated that the others sleeping under the same canopy complained bitterly of mosquito bites. In each of the following case records a short account of the onset of the symptoms is given, with a note of the variation of these to indicate the difficulty in reaching the correct diagnosis.

Case I

A young man aged 20, Category A1, attached to a paratroop battalion, was admitted to 77 General Hospital on Aug. 11, 1944, as a transfer from a small hospital, where a blood film had been examined on his admission there and B.T. rings and schizonts with some gametocytes had been found. He gave a very suggestive history of shivering and headache for four days previously. He had never before been out of England and had arrived in France on D Day.

On examination the spleen tip was palpable, but otherwise no other abnormality was found. A repeat blood film showed the presence of B.T. parasites. He was treated with quinine and pamaquin, and made an uninterrupted recovery.

Case II

A man aged 20, Category A1, arrived in France with an R.E. company on June 11, 1944. He was admitted direct from his unit on Aug. 20, diagnosed "infective hepatitis," with a history of pyrexia and headache of three days' duration. He had first reported sick on Aug. 17 and been treated in quarters with simple antipyretic measures until the 20th, when he was admitted to this hospital. His symptoms of headache and fever had begun during a short spell of heat. Several cases of the "effects of heat" had occurred.

On admission his temperature was 106° F. There was a faint tinge of yellow in his conjunctivae; the urine contained no bile, but there was a trace of albumin. Examination of a blood film taken the same evening showed no malaria parasites. A white cell and differential count revealed a leucopenia. Blood culture proved sterile. Examination of heart and lungs showed no abnormality, and the liver and spleen were not palpable. The pyrexia continued intermittently, but no bile appeared in the urine and there were no other positive findings until a repeat blood film late at night on Aug. 23, at the height of his fever, showed B.T. parasites. Quinine was given and the patient made a rapid recovery, with one rigor on the day following the first administration of quinine.

The spleen tip was first palpable on Aug. 23, but by the 25th it was easily felt to two fingerbreadths. The faint yellow tinge in his sclera disappeared; it was probably of haemolytic origin. This soldier had never served out of England before, and the diagnosis was obscured at first by the negative findings. It is noteworthy that at the height of the fever his pulse rate was slow.

Case III

This patient was a man aged 35, Category A1, who had arrived with his A.A. unit in France on D Day, having always previously

lived in England. He was admitted on Aug. 25, 1944, as a transfer from another general hospital with the diagnosis "(i) ? malaria (never been in a malarious region); (ii) ? typhoid," and the following history: (1) malaise 3 days; (2) headache ++; (3) pain under left ribs; (4) generalized aching; (5) fever and sweats. He had been quite well until Aug. 22, and then was exposed to very wet conditions, when the above symptoms developed and progressed. He had had no vomiting, abdominal cramps, or diarrhoea, but had a harsh persistent cough with slight whitish expectoration. A blood film taken before admission had shown no malaria parasites.

On admission his temperature was 104° F.; his face was flushed and he was sweating. He was coughing violently, with little streaks of blood in the expectoration, and this was associated with occasional vomiting. The throat was reddened and the tonsil glands were slightly enlarged but not tender. On examination there were numerous rhonchi in the chest but no signs of consolidation. The spleen was ++ (four fingerbreadths) and acutely tender, otherwise there was nothing abnormal in the abdomen.

A repeat blood film taken on admission showed the presence of B.T. parasites. He was immediately treated with quinine, and by next morning his temperature was normal, and except for a slight rise to 99° F. on the 27th he had no further fever. The spleen gradually subsided, and each day became less and less tender; his cough rapidly improved, and by Sept. 10 it was no longer palpable and there was no tenderness in this area.

Case IV

A trooper of a Recce regiment who had arrived in France about Aug. 10, 1944, Category A1 and aged 19, was transferred to this hospital on Sept. 3 from another general hospital with a history of headache, general aches, and abdominal pain since Aug. 31. A blood film examined on Sept. 1 showed the presence of B.T. parasites—a few rings and amoeboid forms. Quinine 10 gr. (0.65 g.) and pamaquin 0.01 g. were started on that day, when his temperature registered 101° F.

Thereafter he passed through various medical units and arrived at this hospital. Blood films taken here were negative, but this was to be expected, as he had had quinine for two days previously. On admission his temperature was 98.4° F. and he was complaining of headache and pain in the back; there were no other symptoms. On examination no evidence of any other condition was found to account for his temperature, and his spleen was not palpable. He was given a full course of quinine and pamaquin, and except for some sweating has had no further symptoms or fever. He states that he had never before been out of England.

Case V

This patient was a gunner who had arrived in France on July 6, 1944, and had never been out of England before. He was admitted direct from his unit on Sept. 1, diagnosed "P.U.O.," with a history of three days' fever, and headache, abdominal pain, constipation, and general aches. He had been shivering each day though the weather was quite warm. On examination nothing organic was found in any system, but a thick blood film showed numerous B.T. rings and amoeboid forms. The spleen was not palpable. He was treated with quinine and pamaquin, and has made a good recovery.

Since his arrival in France he has been stationed in the same place, where he states there are many mosquitoes and he was frequently bitten by them. He was in a billet in which no other troops had been previously, and no others of his section had ever had malaria or been in a malarious country; he does not know whether this billet had been occupied by Germans or not.

Case VI

A driver in the R.A.S.C., aged 19, Category A1, had arrived in Normandy D+3 Day—i.e., June 9, 1944. He was admitted to this hospital on Sept. 6 direct from his unit, diagnosed "P.U.O.," complaining of slight headache, pain in the small of the back, and general malaise. His temperature was 103.4° F.; there was no obvious cause for the fever. He stated that he had had headaches, with tiredness and loss of appetite, for a week before admission, associated with a clammy sweat at times during this period. He had no previous history of any similar illness and had never before been out of England.

On examination he was pale, with a malar flush. He complained of headache, which was increased on flexing the neck, but there was no rigidity of the neck muscles. Kernig's sign was negative. The fauces were slightly infected, otherwise nothing abnormal was found in any of the systems and the spleen was not palpable. A white cell count on Sept. 7 showed: W.B.C., 7,400 per c.mm. (polymorphs 48%, lymphocytes 49%, monocytes 3%, eosinophils nil); but in slide for differential white cell counts revealed numerous B.T. rings and an occasional gametocyte. On Sept. 8 the spleen was 14 fingerbreadths below the costal margin. Further blood films confirmed the diagnosis with numerous B.T. rings and amoeboid forms and gametocytes.

Treatment with quinine was begun on Sep. 8 and the patient's temperature subsided. During his period in France he had slept under lorry canopies in various places, but for the past three or four weeks had been in one place near the coast, from which one other case of this series was admitted though from a different unit. There were many mosquitoes, but he himself had no recollection of any mosquito bites, though others under the same canopy complained of many. Several of the men of his unit have been in malarious countries but he has no knowledge of their having had malaria. On Sep. 10 the spleen was only just palpable, but was not tender. The patient had a slight rise of temperature to 99° F. on that day, but there had been none since.

Case VII

A sapper aged 37, who had been in France since D+1 Day was treated in this hospital from Sept. 1 to 12, 1944 on account of a very mild pyrexia lasting one day only and responding to rest in bed and an aspirin-phenacetin-caffeine mixture. Two days after his discharge from hospital he had a definite fever, the sclera was faintly yellow, and he was readmitted, with a temperature of 103° F., diagnosed as "infective jaundice". There was no bile in his urine, but a blood film showed numerous BT parasites (ring amoeboid forms, rosettes, and gametocytes) and a degree of anisocytosis suggestive of a moderately long standing condition, but obviously of a subclinical type. The spleen up was palpable and the liver edge could also be felt and was tender. He had never been out of the United Kingdom previously and only one other member of his unit had been in a malarious country, however, the slit trench which he occupied with his friend—Case VIII—was within 50 yards of billets in a village previously occupied by the Germans. He stated that they had many mosquitoes in the slit trench and were frequently bitten.

Case VIII

Another sapper of the same unit, who had always shared the same slit-trench as his friend Case VII, was admitted on Sep. 16. He too, had never previously been out of the United Kingdom. He stated that he had been quite fit until Aug. 28, when he was admitted to an R.A.F. hospital suffering from fever. This quickly subsided with a simple diaphoretic mixture, and he was discharged to light duty on Sep. 5, but did not feel fit and complained of tiredness in the legs until Sep. 15, when he again reported sick with fever, vomiting, abdominal pain with tenderness in the right hypochondrium, and a faint icterus of the conjunctivae. He, too, was admitted with the diagnosis of infective jaundice.

On examination there was a faint tinge of yellowness of the sclera, the spleen was just palpable and tender, and the liver edge was also palpable and tender. There were no signs in any of the other systems. The urine did not contain bile. A blood film showed BT malaria parasites. He has responded well to quinine and pamaquin.

Discussion

Although these are records of the rare occurrence of malaria in Normandy the local French doctors have no knowledge of any such occurrence in this region. A large number of the troops in the invasion force have had previous service in malarious countries, and it is officially reported that *A. maculipennis* is to be found in this locality. The infection of these mosquitoes may have been via that route or by the Germans who were stationed there before our arrival, for we know that prisoners taken have had earlier service in Africa. Temperature charts of the above cases mostly gave a very typical picture of a malarial fever.

At the time of the admission of these patients many other cases of fever were being admitted with similar symptoms, these eventually developed symptoms leading to their correct diagnosis: e.g., (i) acute intestinal infections with fever—before the actual onset of the diarrhoea, (ii) infective hepatitis—with nausea but no other symptoms at first except fever, (iii) one case of lymphocytic meningitis, with headache and fever as the only symptoms, (iv) "effects of heat" with headache and fever only.

Although most of these patients were serving in units with troops who had seen service in malarious countries the infection did not arise until at least three weeks after they had left England, which is against its having occurred before embarkation. Many apparently primary attacks have been noted in other cases, but these had served in malarious countries previously and were therefore excluded from this record.

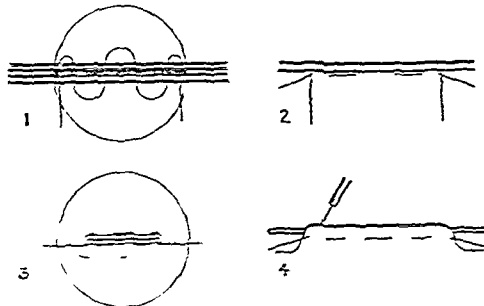
My thanks are due to Major J. V. Dacie, R.A.M.C., and Major J. C. K. Reid, R.A.M.C., for the pathology involved, and to Brig. E. Bulmer and Col. E. P. N. Creagh for permission to publish this article.

Medical Memoranda

A Method of Closed Anastomosis

The method to be described affords a simple means of performing anastomosis between an two hollow viscera under closed conditions. It requires no special appliances and is of general application. It is equally applicable to end-to-end and to lateral anastomosis and it can be used in a variety of access. It prevents gross swelling of the peritoneum at the state of the operation and the final result should be a secure aseptic junction.

The method consists in the introduction of a temporary guarding suture which maintains closure of the viscera until completion of the anastomosis, when it is removed. The simplest case is that of resection of a portion of the bowel followed by end-to-end union. Narrow crushing-clamps are placed across the bowel which is divided between them by an endothermy needle or cautery. Close below the clamp on the portion to be retained a thick catgut suture is inserted preferably with an eyles needle, penetrating the bowel completely four or five times (Figs. 1 and 2). On removing the clamp



closure is maintained by holding the suture taut when the bowel may conveniently be slid along the suture to narrow the opening somewhat (Fig. 3). The bowel on the other side of the portion to be removed is treated in the same way and the two bowels are then brought together and united by one or more layers of Lembert sutures. Finally, the guarding sutures are cut short on one side and removed. A little manipulation ensures a free lumen and a secure anastomosis is result.

In the case of a lateral anastomosis, such as a gastro-enterostomy, a blunt pointed rod is passed through each viscus deep to the site of the proposed opening, as suggested by Panrett, and a guarding suture is inserted between each rod (Fig. 4). The rod is now cut out by either a cautery knife or an endothermy needle and closure is maintained as before by traction on the guarding suture. If as is convenient the two viscera have already been joined together by a posterior layer of Lembert sutures, all that is now required is the completion of an anterior layer and the withdrawal of the guarding sutures. A little manipulation ensures a free opening and there appears to be no fear of haemorrhage from the cut margin provided a cautery or endothermy has been used and the Lembert sutures take a firm grasp of the muscle coats. The only special appliance required is the rod and for this a knitting needle of steel for a cautery, or of plastic for endothermy, is satisfactory.

The simplicity and cleanness of gastro-enterostomy carried out by this method are remarkable. In relation to the large bowel it has an important application in the resection from the abdomen of carcinoma of the recto-sigmoid junction or in favourable cases of the ampulla followed by immediate end-to-end anastomosis greatly simplifying this otherwise difficult operation which may by this means be carried out with facility and security.

H. S. SOUTAR, F.R.C.S.

Thyrotoxicosis in a Mongol

As I can find no recorded instance of thyrotoxicosis in a Mongol I think the following case worth publication.

CASE RECORD

A typical mongolian umbilic, aged 22, was admitted to Levenshoe Hospital on Feb. 6, 1941. The patient's sister stated that she had noticed a swelling in the patient's neck early in 1939, and in December, 1940, observed that she tended to choke when swallowing solid food. The patient "always seemed on the warm side and

disliked sunshine." In July, 1939, her weight, which was normally 6 st. 11 lb. (43 kg.), fell to 5 st. (32 kg.).

I first saw the patient on June 6, 1941. She then complained of severe abdominal pain, which may be a feature of thyrotoxicosis, as described in Price's *Medicine*, 6th ed., p. 488. The eyes were prominent and staring. There was marked enlargement of the thyroid gland, especially the right lobe. The pulse rate was 100 a minute (she had a persistent tachycardia of 90-110 at this time). The B.P. was 118/60. The apex beat was felt in the fourth left interspace $3\frac{1}{2}$ in. (8.9 cm.) from the midline. The rhythm was regular and the heart sounds normal. There was marked pulsation of the carotid arteries and a thrill and to-and-fro bruit, best marked where the lateral lobes of the thyroid glands crossed the carotid vessels and maximal on the right side. There was a fine tremor in the fingers. The skin was moist and warm. Her weight was then 6 st. 12 lb.

In July, 1941, she was transferred to the University College Hospital E.M.S. Wing at Leavesden, when Dr. Trotter estimated the B.M.R. Once it was raised by 47% and once by 54%. After 18 days on Lugol's iodine 10 m. (0.6 c.cm.) t.d.s. the B.M.R. fell to plus 30%. The sleeping pulse rate then averaged 70. In Sept., 1941, the blood cholesterol was 276 mg. per 100 c.cm. A sugar-tolerance curve gave a fasting level of 75 mg., rising to 280 mg. one hour after taking 50 g. of glucose and reaching 240 mg. at the second hour. Glycosuria was present during the test.

An electrocardiogram taken in Jan., 1945, showed a sinus tachycardia, rate 128 a minute, with pulsus alternans and wide ventricular extrasystoles suggestive of myocardial damage.

Re-examination of the patient on Oct. 7, 1945, revealed an increase in weight to 7 st. 12 lb. (50 kg.). The eyes were no longer prominent and staring, and the thyroid gland was much smaller, being just palpable. The pulse rate was 70 and the B.P. 124/80. The apex beat was in the fourth left interspace $3\frac{1}{2}$ in. from the midline. There were frequent extrasystoles. The heart sounds were normal, with a pulmonary systolic murmur. The pulsation in the carotids had diminished, the thrill was no longer felt, and a faint to-and-fro bruit was audible on the right side only. The tremor in the fingers was less marked.

I am indebted to Dr. R. M. Stewart, medical superintendent, Leavesden Hospital, for his assistance and for permission to publish the case. I am also indebted to Dr. W. Trotter, University College Hospital, for the B.M.R. estimations.

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Obstructed Transmesenteric Hernia

Transmesenteric hernia is an uncommon cause of intestinal obstruction. A review by Cutler and Scott (1944) reported only 48 cases occurring in the literature. For this reason, and because the case throws some light on the aetiology, the following example of the condition is reported.

CASE HISTORY

A nursing sister of the Royal Naval Nursing Service, aged 27, was on night duty in a hospital ship with the British Pacific Fleet, when she was suddenly seized with an acute abdominal colic. This was soon followed by vomiting. I was asked to see her, and, apart from the fact that she certainly had a midgut-loop colic with vomiting, nothing abnormal was found on abdominal examination. I decided to observe her for an hour or two, but the condition became worse, the pain increased, vomiting became more marked, and she was clearly in great distress. Obstruction of unknown origin was diagnosed; the true nature of affairs was not appreciated pre-operatively.

Four hours after the onset of the pain the abdomen was opened by a right paramedian incision. There was some straw-coloured free fluid in the peritoneal cavity. The caecum was lax but the jejunal coils were distended. She was found to have a hole in the mesentery 3 ft. (90 cm.) from the ileo-caecal valve, with about 1 ft. (30 cm.) of ileum herniated through. The herniated gut was not strangulated, and was readily reduced. The margins of the opening in the mesentery were smooth and rounded, and the hole measured approximately 2 in. by 2 in. (5 by 5 cm.); this was closed with a continuous thread suture. The appendix was retrocaecal and therefore nowhere near the defect, and it showed no signs of past or present inflammation. It was removed.

Convalescence was marred by somewhat persistent vomiting and the excessively high atmospheric temperature, the ship being anchored within 120 miles of the Equator at the time; but after 14 pints (8 l.) of saline and glucose the patient's condition rapidly improved, and she was up on the sixth post-operative day. The wound healed soundly, and she has since remained symptom-free.

The case is of interest, first, in that it is apparently the 49th reported case of transmesenteric hernia causing obstruction; secondly, because it has been claimed that trauma and inflammation are aetiological factors. There was no history of trauma in this case, and no evidence of infection. The smooth rounded appearance of the hole indicated clearly a congenital origin.

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Reviews

FERTILITY IN MARRIAGE

Fertility in Women. By Samuel L. Siegler, M.D., F.A.C.S. With a foreword by Robert Latou Dickinson, M.D. (Pp. 442; illustrated. 35s.) London: Wm. Heinemann Medical Books, Ltd.

Fertility in Men. By Robert Sherman Hotchkiss, B.S., M.D. With a foreword by Nicholson J. Eastman, M.D. (Pp. 216; illustrated. 25s.) London: Wm. Heinemann Medical Books, Ltd.

In these days, when attention is again focused on the subject of fertility in general, and on the high incidence of sterile and relatively unfruitful marriages, the appearance of these books is timely. They are companion volumes, and, although each is an entity in itself, few will wish to read one without the other. Between them they present a very complete picture of what is at present known concerning male and female fertility and those factors which influence it, adversely or otherwise. They constitute one of the best surveys of the subject to be found in the English language, and, as such, they will be welcomed by all who are interested in the study and treatment of infertile marriage. In both books the outlook is wide and scientific, normal physiology is dealt with at some length, and fertility receives as much attention as infertility. The authors have managed to achieve considerable uniformity in a style and a method of presentation which are attractive. Their statements are cautious and by no means dogmatic. Each chapter is accompanied by an extensive bibliography, and there are few matters pertaining even remotely to the subject to which reference is not made. In matters of production these books are well up to the high standard which we have come to expect in those emanating from the United States of America, and the illustrations, some in colour, are not only plentiful but exceptionally good. The reproductions of radiographs call for special praise.

Dr. Siegler's work is the larger and more detailed of the two. More than 100 pages are devoted to the physiology of the female sex organs, and mainly to ovulation, its time of occurrence, determination, etc. The clinical approach to the female partner of an infertile marriage is well described, as are all the special tests and investigations, including even laboratory techniques such as the method for estimating pregnanediol in the urine. Every form of treatment, from vaginal douching to x-ray therapy to the pituitary gland and salpingostomy, is set out in full detail. The section on endocrine therapy of various kinds is particularly helpful. The value and limitations of this type of treatment and the important part played by the receptor tissues in determining their response to hormones are well stated.

The book by Dr. Hotchkiss is smaller and rather less satisfying. This is perhaps more a reflection on the limitations of present-day knowledge of male fertility than on the book and its author, who has himself been responsible for a good deal of original work on the subject. Again we find the same attention to detail in the description of the clinical side of the problem and of the various investigations, including laboratory techniques, testicular biopsy, etc. Semen analysis and the significance of its results receive full consideration. It is made clear that the treatment of male infertility is not always so hopeless as is often imagined, but it is made equally clear that there are many gaps in our knowledge—particularly in regard to the causation, and therefore prevention, of such a high proportion of cases of impaired male fertility. It is a pity that the author has seen fit to omit impotence from consideration. Even though potency and fertility are separate issues, they are often closely related. Impotence sometimes plays a part in infertile marriages, and always presents a difficult problem to the clinician. It probably deserves a chapter to itself. Cryptorchidism and other anatomical faults also merit more attention.

Gone are the days when sterility and fertility in either man or woman were looked upon as absolute states, and it is now realized that very few individuals are fully fertile or sterile. All grades of fertility occur in both sexes, and low fertility in one partner of a marriage may be compensated by high fertility in the other. In any case of infertile marriage it is therefore unreasonable to consider the fertility of the man except in

relation to that of his mate, and vice versa; this is made abundantly clear by Dr. Siegler and Dr. Hotchkiss, which makes it all the more surprising that they should have decided to present their subject-matter in two volumes rather than one. The division has resulted in some overlapping and repetition, though every effort has been made to reduce this to a minimum. Moreover, it must have been difficult to apportion some of the material, and this has led to a few anomalies, thus all the characteristics of spermatozoa are dealt with under male fertility—with the exception of the behaviour of spermatozoa in the environment of the female genital tract, which is relegated to the other book. Under which of the two titles should artificial insemination be considered? We leave it to readers to guess how the authors answer this question.

A combination of these two books would not result in too cumbersome a volume—particularly if the chapter on ovulation was abbreviated to some extent and the chapter on abortion, which is the least satisfactory and is somewhat irrelevant, were omitted. In their place, however, we make a plea for the inclusion of a section on male impotence.

This criticism is deliberately constructive, because with some modification and elaboration these books might well become a standard work on the subject. Even as they are they will achieve a well-deserved popularity, and their intrinsic merit is such that they will easily survive these qualifications to our praise. It is to be hoped they will thrive on them.

PRE-SCHOOL CENTRES IN AUSTRALIA

Pre-School Centres in Australia. Building, Equipment and Programme. The Lady Gowrie Child Centres. By J. H. L. Cumpston, M.D., and Christine M. Heing, Ph.B., M.A. (Pp. 232. No price given.) Department of Health, Commonwealth of Australia.

This remarkable volume gives all possible information about the six Lady Gowrie Child Centres which have been set up in the State capitals of Australia. Profusely illustrated, it shows the children themselves in their various occupations from games and lessons to afternoon sleep. Apparatus and equipment are depicted, and architects' ground plans show how the different centres have been planned and built. Detailed schedules—reminiscent, in their completeness, of Army forms 1098—list everything which such buildings contain. At the same time descriptions are given of experimental work by the staff in the estimation of the intelligence and character of their under-five charges.

This is not a book to be read through, but as a mine of information for all those who are concerned with the public and even the private care of "the under-fives" it must prove invaluable. Everyone is impressed with the importance of the first half-decade of life in the formation of future character, and the care of this section of the population was one of the major problems of evacuation; it behoves us, therefore, in our future planning to be very sure what we want to do with these children if they cannot be in the best place—that is, in their own homes—and so this volume is particularly opportune, especially for officials of local authorities and everyone concerned with the placement of young children. All such should have it on their shelves for constant reference.

A FRENCH WORK ON PENICILLIN

Revue M.P. Bernard Bureau,
et al. 17p. 224, illustrated.
Flammarion.

It is perhaps not surprising that at least two books for the guidance of users of penicillin should have appeared in the U.S.A. before any on this subject has been forthcoming in the country of its origin. That France should furnish the next is more unexpected, for supplies of penicillin in that country were exceedingly scanty less than a year ago, and the experience gained since then cannot have overtaken that of British and American workers, who entered this field so much earlier. It is therefore, much to the credit of four members of the staff of the Pasteur Institute and Hospital—R. Martin, F. Nitti, B. Bureau, and J. Berrod—that they have produced a book, *La Pénicilline et ses Applications Cliniques*, which should be a serviceable guide to the clinical use of penicillin, and ensure that the reader thoroughly understands the nature of the treatment he is giving. Although the text is based very largely on the work of foreign authors, it is embellished by numerous instructive case

histories from the authors' own experience. The clinical section, which occupies much the greater part of the book, deals first with infections due to staphylococci, streptococci, and pneumococci, and then with meningitis, infections of the lungs, gonorrhoea and syphilis, war wounds, oto-rhino-laryngology, and ophthalmology. Introductory chapters give an adequate account of theory and laboratory methods. There are many good illustrations and a bibliography of 662 references.

VECTORS OF SCRUB TYPHUS

Acute and Chronic Transmission of Typhus in India, Australia and the Far East. By Susan Finnegan, Ph.D., B.Sc. British Museum (Natural History), Economic Series No. 16 (Pp. 76. 1s. 6d.). 1945.

Scrub typhus was a major military problem during the war in South-East Asia and the South-West Pacific. Because few had articulated the theory and first-hand acquaintance with the disease was so rare, a great demand for information about it and its vectors arose. Hence Dr. Susan Finnegan is intended to make readily accessible to those in the Tropics modern knowledge concerning the vectors which are believed to carry the disease, it also summarizes information about ticks which carry other forms of zoonotic infection. The book gives a great deal of useful and otherwise inaccessible data.

Because of the military importance of scrub typhus, it was obviously wise to push ahead with the production of this book (even if it only appeared some months after the end of the Japanese war) although it was known that research then in progress was soon likely to make it obsolete in many details, and although security regulations deprived the author of the opportunity to include much material concerning control. With all this information now becoming available, it is to be hoped that before long a further edition will be produced. An unfortunate misprint on page 11 characterizes scrub typhus as giving a negative OXK Weil-Felix reaction.

Notes on Books

We have received from the United States Information Service (American Embassy, Grosvenor Square, London, W.) a reprint of the *Lancet* Clinic Number of the *Surgical Clinics of North America* published by W. B. Saunders in Philadelphia and London. This gives a full record of two symposia—one on gynaecological surgery, the other on thyroid surgery. The opening paper of each collection is by Dr. Frank H. Lahey.

A third edition of *Clinical Biochemistry*, by Prof. ABRAHAM CANTAROW, M.D., and Lieut.-Cmdr. MAX TRUMP, Ph.D., has been published by W. B. Saunders Company (Philadelphia and London; 32s. 6d.). The book originally bore the title *Biochemistry in Internal Medicine* but that was changed for the second edition, noticed in our issue of Jan. 6, 1940. Progress in biochemistry during the past five years has called for extensive supplementation and revision of the text and a new chapter is included on hormone assay and endocrine function by Dr. A. E. Rakoff. The book remains a readable and informative guide to biochemistry as applied to medicine. It does credit to the Department of Physiological Chemistry and the Laboratories of Biochemistry at Jefferson Medical College and its associated hospital in Philadelphia.

Dr. B. N. GHOSH's *Treatise on Hygiene and Public Health*, of which earlier editions have been noticed in this column, deals with the matter mainly from the point of view of practice in the Tropics. It first appeared in 1912, and the eleventh edition (Calcutta: Scientific Publishing Company; Rs. 12/8 or 21s.) is dated August, 1945. The good features of earlier issues are preserved, and the author has made a considerable number of changes in view of the experience accumulated mainly as a result of war conditions. There is a new chapter, on social medicine, written by Dr. J. B. Grant, Director of the All-India Institute of Hygiene and Public Health, and Dr. Ghosh has provided a new chapter on camp sanitation. This edition is sure of a welcome in India, and in this country it will find readers among those who are directly or indirectly concerned with the study of tropical hygiene.

The new edition of E. O. JORDAN and W. BURROWS's *Textbook of Bacteriology* (W. B. Saunders; 35s.) is the fourteenth to appear since 1903—a reliable testimony to merit. Some of its features are the thoughtfully written introductory chapters, bacterial physiology and immunity being particularly well dealt with, the remarkably fine photographs of bacterial colonies, and the adequate space devoted to viruses and pathogenic fungi. Helminthology has also been included in the new edition: this is a questionable change, since by the standard set by the rest of the book this subject calls for a volume to itself.

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THE MINISTER LISTENS

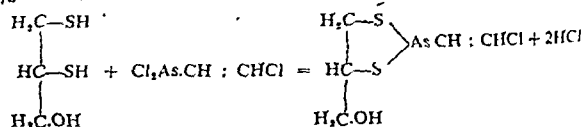
A correspondent recently observed that there seemed to be little doing on the medico-political front. Is this apparent inactivity because of apathy, or because of a spirit of defeatism in the face of a Government that can whip up a majority of 200 to enforce any legislative measure it wants? Doctors, it is true, share the general weariness of the spirit that descends on everyone in the immediate post-war phase, made less easy to resist in the present gloom of austere living on short commons in front of fires that burn very low. As a people we have missed the elation of victory—the short-lived compensation for years of endurance. As a profession which has had to negotiate with two wartime Ministers of Health, we are faced with a peacetime Minister who consults but does not negotiate or, in the ordinary sense of the word, discuss. To listen to what another man has to say is not discussion. Discussion, to quote a dictionary definition, is: "examination (of a matter) by arguments for and against." Democracy, someone has said, is discussion, and deprived of this stimulus the uncontrolled democrat feels deflated. The sparks that fly in free discussion of a controversial question often illuminate dark corners and bring to light matters that one side or the other would wish to conceal or have overlooked.

Mr. Bevan has not followed the example of his predecessor by publishing his proposals as a White Paper. He has, however, put them before various interested bodies, including the Negotiating Committee. The Committee has been precluded from circulating these to the medical profession. It has examined them and re-examined them in the light of previous decisions and of the principles drawn up by it. It has not been able to obtain the views of various professional groups, or of the profession at large, because the proposals are confidential. If they constitute the Bill the Minister of Health is to place before Parliament, then clearly he cannot make them public before Parliament has seen them. He may claim to know the views of the profession. He may even reflect that Ministers of Health have a habit of remaining in office barely long enough to make their mark on legislation. It may be that he is urged on by a Cabinet on which the *Observer* last Sunday made this criticism: "In its doctrinaire passion for nationalizing as much as possible as fast as possible, it was minding everybody's business but its own." But the fact remains that Mr. Bevan has refused to negotiate. He has received the Negotiating Committee and has listened to its comments on and criticism of his proposals. And he has withheld his response until it can be backed up by a majority in the House of Commons.

Mr. Bevan is acting within his rights as a Minister of the Crown. But he would not be acting outside them if he freely exchanged views across the table with a group of men chosen by the medical profession to represent it in negotiation. He has himself said that no health service can be run properly except with the whole-hearted co-operation of the doctors of this country. Co-operation means working together, and working together means, among other things, talking together. From this fruitful source of enlightenment we are at present debarred. This is not a promising start. Although the present phase of secrecy is highly disconcerting to those doctors who want to plan for their future—whether to enter practice or to leave it—nothing can be done to help them until the Bill is published. With the Bill in front of it the medical profession will have to decide what is to be its attitude to it as a whole, and will then have to examine its details. If the profession can agree on its attitude to the Bill, whether of disapproval or approval, and can preserve unity in action, then it need have no fears for the future. Legislators can legislate, but only doctors can provide the service.

THE SUBSTANCE CALLED "BAL"

Throughout the war much valuable work in discovering an antidote to arsenical vesicants was carried out in the Biochemistry Department at Oxford and the Chemical Defence Research Station of the Ministry of Supply at Porton. The veil of secrecy has now been lifted, and Peters, Stocken, and Thompson¹ have given an account of their work on the substance variously known for security reasons as "BAL" (British anti-lewisite) and OX217. The new substance is 2,3-dimercapto-propanol (CH₃SH.CHSH.CH₂OH). It is a penetrant oil, and in pure state is about 6% soluble in water. The reaction with lewisite is:



The idea which initiated the work occurred in 1923 to Walker,² who, following the discovery of glutathione by Hopkins, showed that arsenicals such as diphenyl-chlor-arsine abolished the fixed —SH in muscle tissue and skin, thus interfering with glutathione catalysis. Similar work was done in the United States independently by Voegtlin and his colleagues,³ who came to the conclusion that the toxic action of arsenic in living cells was due to its reaction with certain thiol compounds present in protoplasm. Further work confirmed the idea that arsenicals attack —SH groups, and in 1931 Cohen, King, and Strangeways⁴ showed that thioarsenites of type R.As(SR') were dissociable in alkaline solution. Peters⁵ showed that dichlorodiethyl sulphone, a vesicant, acted upon the enzyme system oxidizing lactate in the brain by poisoning the pyruvate component, as does the enzyme inhibitor iodoacetic acid, and, since this is also a weak vesicant, he thought the vesicant effect might be related to this action

¹ *Nature*, 1945, 156, 616.² *Biochem. J.*, 1928, 22, 292.³ *Publ. Hlth. Rep. Wash.*, 1923, 38, 1911.⁴ *J. chem. Soc.*, 1931, 3043.⁵ *Nature*, 1935, 138, 327.

Research in Oxford⁶ has also shown that pathological changes in the brain in thiamin deficiency were due to partial failure of the "pyruvate oxidase" enzyme system, owing to deficiency of aneurin pyrophosphate. Dickens⁷ and others⁸ had shown that iodoacetate readily combined with —SH compounds. Thus the idea arose that the activity of arsenicals was due to an attack upon some essential SH component in the pyruvate enzyme system, and this formed the starting-point in the search for an antidote to lewisite.

During the war much work was done, but unfortunately it all had to be reported in secret documents to Government Departments, both here and in the United States and Canada. Peters, Stocken, and Thompson¹ soon confirmed the theory described above by showing that, *in vitro*, trivalent arsenicals produced a 50% inhibition of the activity of the pyruvate enzyme system, while, *in vivo*, poisoning with arsenite led to an elevation of the blood pyruvate level, similar to that occurring in vitamin B₁ deficiency. In spite of this no monothiol or dithiol compound would protect against lewisite or arsenite in either enzyme or animal tests; but Stocken and Thompson finally solved the problem when they found that, after treating aqueous solutions of keratine (the reduced product of keratin) with lewisite, the arsenic content of the resulting lewisite-keratine was correlated with the thiol content of parent protein and independent of the concentration of lewisite above a limiting value. This led them to the hypothesis that the high toxicity of trivalent arsenicals was due to their ability to combine with essential —SH groups to form stable arsenical rings, and caused them to investigate the therapeutic possibilities of the dithiols, in the hope that they would form more stable ring compounds than the tissue thiols.

After testing toluene dithiol and ethane dithiol BAL was discovered, and it proved highly effective in stopping the toxic action of lewisite upon the pyruvate oxidase system, and, further, it was found that besides being able to prevent the toxic action of lewisite it could reverse it. Animal experiments showed that guinea-pigs and rats seriously ill after two hours' contamination with lewisite could be saved, and on human volunteers at Porton it was found that vesication could be prevented as late as one hour after contamination, at a time when erythema and oedema were already present—in fact, these were less twenty-four hours after treatment than they were at the start. Further, both at Oxford and Porton and in the United States, experiments have shown that BAL will save a rabbit's eye up to twenty minutes after contamination. It was also noted that this treatment was followed by a marked increase in the excretion of arsenic in the urine. Repeated applications of BAL can induce sensitivity, and small amounts placed on the skin of men caused an erythema lasting up to two hours as well as lacrimation. Animals with renal damage showed no difference in their response to large doses, but those with hepatic damage showed toxic signs. In rats it was found to have a toxicity of 110 mg/kg (LD₅₀). Many similar substances were investigated, but all proved more toxic, with the exception of "BAL intrav," which was dis-

covered by another British group, and on which so far no reports are available.

Chiesman¹⁰ reported that, in factories manufacturing lewisite, pain after contamination of the eye is relieved by BAL ointment, and if it is applied within two minutes of the contamination a complete cure may be expected, though it causes marked blepharospasm. He stated that on the skin it will prevent vesication and relieve the effect if applied within a few minutes, and will mitigate the severity up to one hour after contamination. In the United States it was found possible to develop a solution suitable for intramuscular injection 10 benzylpenicillin in arachis oil was used as the vehicle. It thus became possible to treat complications of arsenical therapy, such as dermatitis and encephalitis. Doses as high as 4 mg/kg at four-hourly intervals may be given, and the results have proved much better than with any other treatment. The compound of mapharside with BAL is more dissociable than that with lewisite, and the presence of excess of BAL is needed for its stabilization, but increased arsenic excretion in the urine was also noted with mapharside. In various experimental animals with arsenic poisoning Lovatt Evans¹ found some prophylactic and therapeutic action from BAL.

While BAL seems to be a complete antidote to arsenical war gases, it has no effect on mustard gas, and therefore has not rendered chemical warfare a thing of the past. However, it is also a great discovery in the treatment of arsenic poisoning and, since other metals form very stable and indissociable compounds with dithiols, it may prove an antidote in other metallic poisoning. The discovery also forms an important advance in theory. Pathological damage is brought about by the partial blocking or denaturation of an enzyme system, and, further, this pathological change is proved to be reversible.

BUMBLEDOM IN ESSEX

From Porton, no patent from the county of Essex (other than a certificate of the certificate of a relieving officer or a doctor in need of relief by reason of accident or sudden illness needing immediate admission to hospital) may be sent for admission to the Haymeads Hospital without my previous consent having been obtained in writing. You will, of course have to decide in individual cases whether treatment is of such extreme urgency as to necessitate admission without my consent."

This is part of a circular letter from the county medical officer for Essex to general practitioners living near the Essex-Herts border who may want to send their patients to Haymeads Hospital, Bishops Stortford, which is in Hertfordshire. This hospital was upgraded during the war, and under the E.M.S. arrangements was used by patients in the "natural hospital area." The war over, local authorities are back at their old game of Tom Tiddler's ground, and the county medical officer, reluctantly no doubt, is called upon to help them to play this according to the old-established rules. Accompanying his letter to the practitioners concerned is an application form from the Public Health Department of the Essex County Council. On this the practitioner has to say that he has examined Mr., Mrs., or Miss . . . , and has to state the nature of

⁶ *Lancet*, 1936, 1, 1161

⁷ *Biochem J*, 1933, 27, 1141

⁸ Quastel J. H., and Wheatley, A. H. M., *ibid.*, 1932, 26, 2169

⁹ *Rapport, C. R. Soc. Biol., Paris*, 1933, 112, 790

¹⁰ *Brit. J. Med. Sci.*, 1944, 2, 109

the complaint. He then has humbly to ask the county medical officer for Essex to arrange for the admission of his patient to a hospital in Hertfordshire. So that the county medical officer of health may decide whether this is really necessary the practitioner is instructed to give brief notes of the case on the reverse side of the form of application. Naturally the C.M.O. does not ask to see the patient. Nor does it appear that he asks for notes so that these should accompany the patient when he goes to hospital. They are, it is presumed, to help him to arrive at his decision about the need for the admission to hospital of a patient he has not seen. This decision "in regard to each case will be notified to you in writing, and if I am in agreement I shall at the same time notify the hospital so that they can make the necessary arrangements for admission." This is what is called administration, and this is the kind of thing that makes the practising doctor shudder when he contemplates the administration of medical services through the unimaginative mechanism of local government. There is no mention in the county medical officer's letter of the medical superintendent of Haymeads Hospital. He at least, although his duties may be primarily administrative, should have a closer knowledge than the C.M.O. of the facilities that the hospital can offer and of its suitability for a patient whose admission is recommended by a local general practitioner. He probably also knows the local practitioner personally, whereas the county medical officer, tucked away in County Hall at Chelmsford, may be in complete ignorance of the persons concerned. It is not doubted that this inept way of handling what should be a simple matter is forced upon the county medical officer, and we hope that he will take the matter up with his authority, so that this modern example of Bumbledom may quickly be brought to an end.

BORNHOLM DISEASE

This epidemic disease, variously known as epidemic pleurodynia, epidemic myalgia, or "the devil's grip," is characterized by violent pain suddenly coming on in the lower part of the thorax and tending to spread to the abdomen. The disease was first described in Norway in 1872 by Daae, and two years later Finsen reported that there had been outbreaks in Iceland in 1856 and 1863. It attracted little attention until Sylvest¹ in 1930 recorded 93 cases between 5 months and 59 years of age, which occurred on the island of Bornholm in the Baltic. Since then many outbreaks have been reported, both in this country²⁻⁴ and in the U.S.A.^{5,6} The disease usually appears in warm weather. The onset is abrupt, with pain in the epigastrium and hypochondriac region which spreads into one side of the chest and is accentuated by breathing. In a recent outbreak Ronald⁷ noted that, in addition to the abdominal muscles, there was particular involvement of the muscles around the shoulder girdle and neck. The affected muscles are tender and swollen, and the disease is accompanied by fever, usually up to 101° F. but sometimes higher; frontal headache is complained of in more than half the cases, and occasionally there are vomiting, diarrhoea, and epistaxis. Paraesthesiae in the arms and hands occur, especially in females. There are rarely any signs in the chest, and the spleen is not enlarged. One or more relapses take place in a quarter of the cases. The tenderness and swelling of the muscles and pain on exertion

may last several weeks or months after the acute attack has subsided. Complications, such as dry pleurisy, orchitis, pericarditis, pneumonia, and otitis media, are on record, but mostly the disease follows a benign course and results in complete recovery. Nichamin⁸ noted a steep reduction in haemoglobin level, and in his eight cases the red cells numbered less than 4 millions. White cell counts seem to vary widely, with no particular differential abnormality. The sedimentation rate is usually raised. The causal organism has not yet been identified, but an agent pathogenic to monkeys has been obtained from the blood, spinal fluid, and nasal washings of human cases of the disease.⁹

From June to November, 1944, 75 cases occurred in a war housing estate adjacent to a large shipbuilding yard on the Mobile River, at Mobile, Alabama.⁵ There were 1,200 apartments reserved for the employees of the shipbuilding firm, and the workers were mostly white people from the rural areas of Alabama and Mississippi. That the spread of the disease is by intimate contact was confirmed by the characteristic distribution of cases in adjoining apartments and within the same household—a fact already stressed by Howard.⁴ The infectivity was variable and not particularly high, but overcrowding in the community was undoubtedly a contributory cause. In 1944 there was an excessive amount of rainfall, with periods of continuously high humidity; warm, moist weather is probably a precipitating factor. Most of the patients were under 30 and 64% were females, but these facts were related to the distinctive nature of the industrial population on the island. The patient smitten with the disease, although reassured about his recovery, is unable to work for an indefinite time. Such disability, when multiplied in an industrial community like that described above, has an effect on industrial efficiency. It is necessary to assess the incapacity associated with an illness and also to appreciate the economic loss which it entails, and by these standards Bornholm disease is not to be neglected.

TESTOSTERONE PROPHYLAXIS OF MAMMARY CANCER

A major outcome of cancer research in recent years has been the recognition that many tumour types are closely dependent upon specific hormonal changes for their inception and, in some cases at least, for their subsequent growth. These facts, and the substantial contribution already made by oestrogen therapy to the management of carcinoma of the prostate, have very naturally raised much interest in the question whether hormone antagonism either direct or indirect, may be used as a practical measure of alleviation or control. This is especially so in carcinoma of the breast, mostly because of the well-defined part which oestrogens are known to play in the causation of mammary cancer in mice, but partly, too, on account of the presumptive connexion between some of the chronic mastopathies, which may involve an abnormal sensitivity to oestrogen, and cancer of the breast in man.

Although testosterone can certainly be regarded as showing a limited form of biological antagonism to the action of the female sex hormone in experimental carcinogenesis, too much should not be made of the point, nor can the matter be regarded as in any way simple. The experimental evidence is that such antagonism—measured by the capacity to prevent cancer of the breast in mice in which it can be determined by oestrogen action alone—is not readily made apparent, although it has in fact been

¹ *Epidemic Myalgia*, English translation, Oxford University Press, London, 1934.

² Pickles, W. N., *British Medical Journal*, 1933, 2, 817.

³ Smith, R. E., *Clin. J.*, 1937, 68, 330.

⁴ Howard, C. R. G., *British Medical Journal*, 1938, 2, 1203.

⁵ Harder, F. K., *Amer. J. med. Sci.*, 1936, 191, 678.

⁶ Howard, T., et al., *J. Amer. med. Ass.*, 1943, 121, 925.

⁷ *J. Roy. Soc. Med. Serv.*, 1942, 23, 144.

⁸ *J. Amer. med. Ass.*, 1945, 129, 600.

⁹ Ann. Rep. U.S. Publ. Hlth. Serv. for 1944, Washington, D.C.

demonstrated by the use of dosages of testosterone which are sufficiently high and maintained for a long enough period. Although the production of breast cancer may be retarded by this means, there is little evidence that testosterone produces any significant effect on the growth of such tumours once they are established.

A recent contribution to the subject by Prudente¹ describes the use of testosterone as a post operative measure for the prevention of recurrence in human breast cancer. Sixty-three cases which had originally been subjected to radical amputation were subsequently treated with testosterone propionate in dosages ranging from 25 to 175 mg a week for prolonged periods. Of these, 24 cases had been observed for more than three years at the time of the report, 12 for more than four years, and 4 more than five years. Virilization during treatment occurred in 10, being severe in 5 and moderate in 3. A control group was provided by 64 comparable cases in which the breast had been removed by the same technique of radical surgery in an earlier period of seven years, but in which testosterone was not employed. All cases were confirmed microscopically, and classified first by a system based on both clinical and pathological criteria, and secondly in histological grades of malignancy. No case showed more distant spread than to the axillary nodes.

Apart from a good deal of speculation which has little direct bearing and can in no way affect the outcome of the experiment, the essential results are presented in a series of tables. Even if it be conceded that the data are consistent with the truth of Prudente's claim—that treatment with testosterone has produced a survival rate without recurrence twice as great as in the control series—closer study raises considerable doubt whether such is not in fact only one of a number of equally likely explanations. This is not to say that the investigation does not represent a substantial contribution of effort and no doubt careful observation, and the author himself is well aware that the series are not large and that other objections might be raised. But under the conditions of this present study, it is probably wise not to accept the data as constituting evidence sufficient to support a thesis which is far too important to be lightly accepted or lightly dismissed. Only the growth of experience on a larger scale and over a longer time, and under more adequately controlled conditions, can provide a conclusive answer.

RORSCHACH TEST AFTER HEAD INJURY

The Rorschach ink blot test occupies a unique position among psychological tests in that it can be, and is, used to test more than one function of the kind. From it the skilled interpreter can obtain indications of his subject's intelligence, power of imagination, and capacity for synthesis, and also of such emotional qualities as tendencies to hypochondriasis or depression, or schizophrenic traits. This great flexibility has to be paid for by an element of subjectivity and ambiguity, and the results of the test cannot be expressed very satisfactorily in a metrical form. It is therefore all the more interesting to see the test used, as it has been by Zangwill,² to explore the disturbances of function that occur after severe head injury. Two young men, both of good intelligence and normal personality, suffered from closed confusional injuries mainly incident on the frontal region, and were unconscious for three and for five days. They subsequently went into confusional states, without notable focal signs, which slowly cleared

They were given the Rorschach test during the night of the confusion, during the following hours of partial consciousness, and finally when improvement was complete and stable. These stages were accompanied by significant changes in Rorschach response. At the height of the confusion the cards were responded to as wholes and in one aspect—e.g., that of colour. There was great limitation of response, indicating a generalized limitation of cognitive activity. The bizarreness of the responses might be in part attributable to paraphasia, but in part also to a more general disturbance of thought and affect. In the Korsakow phase paraphasic and peculiar responses had abated, and there was now seen a tendency to project into the design reflections of dominant emotional preoccupations—in the one case conflict and aggression, in the other injury and mutilation. Zangwill believes that at this point the test can provide indications of the eventual direction of post-traumatic personality change.

PLANNING HOURS OF WORK IN AUSTRALIA

The hours of work problem during wartime troubled Australia as it did this country, and in October, 1942 the Governor-General, acting under the National Service Act of 1939-40, issued a series of regulations dealing with the subject. They have now been republished in a pamphlet entitled *Planning Hours of Work*,¹ which describes their practical application in some detail. The first part explains the effects of too long hours in reducing production, and indicates the best weekly hours for a sustained maximum output. The 48 hour week is taken as a standard, which may be increased to 56 hours for men and 52 hours for women, if engaged on light physical work. For men employed on heavy physical work they were limited to 44-46 hours but in emergencies the hours mentioned might be exceeded for short periods. Young persons under 18 years of age were specially protected, and it was recommended that they should not be asked to work regularly for more than 44 hours a week. If these regulations were strictly acted upon, they formed a more rigid and enlightened scheme than the irregular arrangements frequently followed in this country.

The latter half of the pamphlet gives detailed advice on the various ways in which the working hours may be most conveniently split up. Great stress is laid on the importance of allowing at least one day free from work every week, and a number of tables are given suggesting the best working periods to be adopted for a two-shift or three-shift system. The disadvantages of night work for women are emphasized, and it is stated that managers who had adopted it generally replaced it by two day shifts as soon as they could. Ten-minute rest pauses, for tea are recommended during all work spells. In a number of factories annual leave for a week, on a roster system was found to have a good effect in keeping up production. The Industrial Welfare Division of the Department of Labour and National Service of Australia, which has already issued a number of manuals, bulletins and leaflets dealing with industry, is to be congratulated on its latest addition.

¹ Bulletin No. 4 of Industrial Division of Department of Labour and National Service, Australia. Nichols Building, 37, Swinarton Street, Melbourne.

The House of Delegates of the American Medical Association has awarded the Distinguished Service Medal to Dr. George R. Minot for his great contribution to our knowledge of the causes of pernicious anaemia and the methods of controlling it.

A GENERAL SURGEON AT SEA

A REVIEW OF 700 CASES TREATED IN THE DOWNS

BY

JAMES S. HALL, M.B.Lond., F.R.C.S.Ed.
Surgeon, E.M.S., Deal

This is a story of an attempt to render urgent medical assistance to ships of all nations in the roads off Deal during the six years of war. I hope that a brief survey of the diversity of cases and the unusual setting may prove of some general interest and perhaps help my successor in the next world war, should he have to undertake the difficult task of dovetailing his general practice with emergency calls to sea.

The Downs have been a famous anchorage throughout our history, and comprise 50 sq. miles (130 sq. km.) of sea between the shingle beaches of Deal and Walmer and the Goodwin Sands. Julius Caesar is said to have anchored here for the first invasion of Britain, and in Nelson's day they frequently contained the entire British Fleet. During this war, when a carefully sown minefield blocked the outer reaches of the North Sea, the entire shipping traffic through the Channel was forced to pass through or anchor inside the Sands, which lie some five miles (8 km.) from the shore. A deep-water channel between these and the five-fathom (9 m.) bank two miles (3.2 km.) from the beach affords sufficient space and safety for several hundred vessels in almost any weather.

In Sept., 1939, a Naval Contraband Control closed both ends of the anchorage with guardships and subjected all vessels to rigorous search and detention, sometimes for many weeks. No communication between vessels themselves or the shore was permitted and all wireless transmitters were sealed. Contact was maintained by examination tugs and urgent need indicated by the hoisting of simple flag signals in the international code. In dense fog these were replaced by equivalent letters in Morse on the ship's siren. Under the general administration of the Dover Command the control work fell to the naval base at Ramsgate. It soon became evident that provisions, fuel, and urgent medical aid would have to be supplied from shore, and a fortnight after the outbreak of war I was asked to undertake the work of visiting surgeon. The local fishermen provided a rota of small motor-boats, and when weather conditions were such that no other vessels could be launched we were empowered to call out the Walmer lifeboat. At first the hardships of work at sea were overshadowed by the discomforts of strict naval discipline. An armed guard attended all visits to ships, and before visiting and after leaving each ship the small boats had to report to the guardship on duty. This wasted hours of useful time, as no boat had a speed of more than six knots and frequently had to travel several miles against a four-knot tide. Eventually I managed to obtain a free hand and, flying a Geneva flag as a protection from warning rounds from the guardships, we had free access to the ships and shore, with a general permission to take any necessary action to save life provided that our movements were immediately reported to H.M. Coastguard and later, in writing, to the naval officer in charge.

The work done covers two distinct periods. Up to June, 1940, we dealt with 298 cases in 130 ships, and then, with the fall of France and the installation of heavy cross-channel guns, anchorage became impossible, and even the small examination tug was driven back to her base by salvos of 16-inch shells and constant air attacks. Such convoys as were essential came through at high speed with balloon protection and a smoke screen, or perhaps under cover of the heavy morning mist. With the fall of Calais in Oct., 1944, a Control was re-established, and my work began again. During the next twelve months a further series of 404 patients were attended in 153 ships.

The incidence of nationality is interesting, as it gives a cross-section of the merchant navies serving our ports at the beginning and the end of the war. British ships, of course, form a high proportion at both times, although in a joint total American vessels hold the lead. In the first year the American flag was an unusual sight from the shore, and I visited only two of their ships, seeing three patients in all. The latter half of the work produced 88, mostly Liberty ships, with 209 patients. During the early years the Downs became a kaleidoscope of European flags, with the tricolour Dutch and the blue-and-white Greek

TABLE I.—Nationality of Ships and Patients

Nationality	1939-40		1944-5		Total Ships	Total Cases
	Ships	Cases	Ships	Cases		
American	2	3	88	209	90	212
British	32	141	52	94	84	235
Dutch	38	46	8	94	46	140
Greek	11	35	—	—	11	35
Norwegian	7	7	4	4	11	11
Italian	9	18	—	—	9	18
Belgian	7	19	1	2	8	21
French	4	14	—	—	4	14
Finnish	3	4	—	—	3	4
Swedish	2	2	—	—	2	2
Portuguese	1	1	—	1*	1	2
Yugoslav	1	1	—	—	1	1
Panama Republic ..	1	2	—	—	1	2
Estonian	1	—†	—	—	1	—
Eire	1	5	—	—	1	5
Totals	130	298	153	404	283	702

* Portuguese patient in American ship. † British Indian in Estonian ship.

forming the majority, and these two nations provided a large number of my urgent calls. At this time all neutral vessels had their national colours painted on their sides—a great help in our search for ships often crowded together or many miles apart. On occasion, however, when we had to find a case of attempted murder in an Estonian ship or treat two citizens from the Republic of Panama, we discovered that nobody in the boat had any idea of what the flags looked like. Language is a considerable problem, but usually the master speaks good English and somebody among the crew can be found to act as an interpreter. The main trouble arises on shore when operation cases are admitted to hospital and one finds a row of half a dozen patients all speaking different languages and no English. I always wondered how the nursing staff overcame this difficulty. In general, a smattering of French, German, and Italian is of considerable help; but there are many pitfalls, as I found when I took a nurse over a dark and stormy sea to give an enema to a Portuguese with acute constipation. It was not till next day that we found that *não bom* does not refer to a part of the anatomy, and *a constipação* means a severe cold in the head. But I still treasure a letter of grateful thanks from the owners for our successful treatment of the case. One interesting psychological fact shown by the tables is that while the northern European nations are too healthy or too proud to ask for treatment or advice for extra members of their crews, the remainder endeavour to obtain good value for their money by asking a visiting doctor to see every sick man on the ship. When a ship has just been mined or torpedoed and is in danger of breaking up it is curious how many of her company require urgent medical treatment ashore, and on Greek ships I have known a patient to produce and finger a long evil-looking knife when his symptoms were thought insufficient. On such occasions the discreet doctor will avoid the darker alley-ways when leaving the ship. Most of these cases occurred in the earlier part of the war when mines and enemy action were rife. Pure neurosis was rare, but I was once called to a ship to prevent two men being lynched by their fellows for spreading depression and alarm. There was none of this sort of thing in the second period.

At first the routine method of obtaining medical assistance was the hoisting of a "W" flag on the foremast or triatic stay. This flag, made up of concentric blue, white, and red squares, indicates urgent need of a doctor without specifying the cause. It proved a great help in finding the right ship, but one requires considerable foresight in packing a bag against any possible contingency. Distance and rough seas not infrequently make it impracticable to return ashore for missing kit. We were always able to launch from a shingle beach, but with a heavy swell it is sometimes necessary to lie off shore for an hour or more before a safe landing can be made. In fog the "W" signal is sounded in Morse on the ship's hooter (— —) for several minutes. Then one spends several hours trying to find where the hoot had come from. The worst type of call is a verbal message or radio signal giving the name of the vessel without any indication of position. In the later stages of the war all ships took to grey or black paint and the names appeared only on small removable wooden boards on the bridge, illegible a quarter of a mile away. Sometimes an Atlantic convoy would come in bearing none. In such a case

only a ship to ship call will yield results, but it may entail covering a zigzag course of twenty miles (32 km) or more. We always found the ship in the end if it was in the anchorage at all but once it took over ten hours from 3 p.m. till 1.30 a.m.—when we found the vessel completely blacked out off Broadstairs. On average our journeys lasted about three hours.

The list in Table II includes all cases seen on board in addition to the urgent condition initiating the message. Just under 300 patients were treated in the first period and just over 400 in the second. The large preponderance of injuries in 1939-40 is

TABLE II—List of Cases (Sept. 1939 to Oct. 1945)

Condition	1939-40	1944-5	Total
Appendicitis	7	8	15
B.I.D. (found dead)	5	—	5
Bronchitis	3	10	13
Burns	6	6	12
Cholera	5	8	13
Dental cases	2	19	21
Enteritis	10	13	23
Epilepsy	1	—	1
Epistaxis	1	1	2
F.B. in eye	4	6	10
Fractures	11	1	12
Gastric ulcer	2	1	3
Gastritis	2	11	13
Heart disease	5	6	11
Hernia	1	5	6
Hydrocele	—	4	4
Immersion	2	6	8
Infectious diseases	4	11	15
Influenza	24	2	26
Injuries	125	38	163
Inoculations	—	92	92
Neurosis	16	6	22
Obstruction	—	3	3
Pneumonia	1	4	5
Pulmonary tuberculosis	2	6	8
Renal colic	6	5	11
Rheumatism	12	16	28
Septic conditions	9	17	26
Sinusitis	3	12	15
Skin diseases	6	20	26
Tonsillitis	4	20	24
Venereal diseases	16	31	47
Totals	298	404	702

chiefly due to enemy action during the evacuation from Dunkirk, which provided us with nearly continuous work, day and night, for the last fortnight in May, 1940. The large number of inoculations in the second period came from two Dutch steamers whose entire crew required typhus, cholera, and T.A.B. vaccine on board at short notice. Venereal disease is high in the scale and bearing in mind that mostly atypical cases occurred in the list is in actual fact even higher. Most American ships carry penicillin and all have sulphathiazole, with a purser well instructed in their use. I once found one sportsman having gonorrhoea for the eighth time, but he was only produced as a curiosity. These pursers are given several months' intensive medical instruction and after examination are awarded the diploma of a Pharmacist's Mate. Their diagnostic ability is high, several I met were advanced medical students, and it was a rare thing to find that any incorrect treatment was given. About two thirds of the V.D. cases were diplococcal or resistant streptococcal urethritis, and one third syphilis or chancre patients. A favourite method of giving penicillin was in 10,000 unit doses every three hours for thirty hours. Under this scheme, of course, neither the purser nor his patient got any sleep, and this probably accounted for the unpopularity of the patient above when he remarked that he was nearly ready for his ninth. The general efficiency in diagnosis and treatment is just as evident in all cases at sea, and is in distinct contrast with similar cases on land. Only once did I find burns treated with oil, and then by the patient himself. All the appendix cases were well starved, with purgatives withheld, except one returning from West Africa. A complete list of his diet included melons, pomegranates and lemons, and was followed by the laconic note, "Patient was then sick." Rheumatoid arthritis is an extremely rare complaint at sea, as is also gastro duodenal ulcer. Most of the cases listed as rheumatism were transient fibrositis. Skin disease, rare in the first period, was fairly common in the second, the majority of men complaining of tinea or scabies. The use of benzyl benzoate preparations is not yet widely known, although most medicine chests contain a bottle. It may be, of course, that European crews tolerate a good deal of skin irritation without

complaint, while it is generally resented by the Americans. The great increase in sinusitis and tonsillitis seen in 1944-5 is due to the high incidence of American patients who had four times the amount of ear nose and throat trouble seen in a comparable number of Europeans.

I note without comment that the average American ship maintains its living quarters about 10° higher than those of other nations, a temperature of 70° F. being not unusual. It was not uncommon when boarding Liberty ships in a snowstorm to meet members of the crew walking about the passages amid ships almost naked, while the average patient in his bunk had only a pair of drawers and a single sheet. Enteritis and cholangitis—all these terms are to be taken in their widest sense—are common throughout, and occurred mostly in small vessels and British ships, which had few refrigerators. In the last few months of the war we found a few mild outbreaks of Sonne dysentery, and it is quite possible that several cases of paratyphoid were overlooked. Dental cases are frequent in American ships and it pays when answering a call to a case of suspected mumps, to carry a few dental forceps in the pocket. In the early days I brought cases ashore to a dental friend, but later an acute shortage of these useful gentlemen made it necessary to do extractions myself, and I found that most teeth can be removed with a straight incisor forceps while a whiff of chloroform makes the job more comfortable for everybody concerned. It also proved satisfactory for minor operation cases where local analgesia was impracticable. Most of these are better done ashore if weather conditions permit the transfer of the patient to a small boat. If not the operator is advised to sit astride the patient and move with him, this produces relative stability. In all I did 29 operations on board, all minor cases. Before starting it is as well to see that mine sweepers are not working in the vicinity, especially if you are removing cysts or foreign bodies from the eye or lids. A magnetic mine exploding a hundred yards away will throw a patient out of his bunk. One unlucky Finn I attended with a renal calculus had eleven such mines round his ship, but still refused to come ashore. This condition is always diagnosed accurately on board ship and in no case could I disprove it by x-ray examination ashore. Once, indeed the captain of a Dutch tramp had explained the probable operation so well in High Dutch to his chief engineer that I was able to land him and perform a nephrolithotomy without delay or argument.

Table III shows the suspected emergencies on board 262 ships and is derived from the actual messages received or the opinion stated by the ship's officer in charge of the patient—on American ships the purser on the rest the master, the mate

TABLE III—List of Suspected Emergencies (262 Calls)

Ship's diagnosis	1939-40	1944-5	Total
Injuries	19	19	38
Appendicitis	19	12	31
Venereal disease	12	15	27
Septic conditions	7	13	20
Fractures	11	8	19
Infectious diseases	4	11	15
Dental cases	1	8	9
Neuroses	8	—	8
Heart disease	6	4	10
Renal colic	4	3	7
F.B. in eye	2	5	7
Bronchitis	5	2	7
Dislocations	1	5	6
Tonsillitis	2	4	6
Pneumonia	2	—	2
B.I.D. (landed dead)	2	—	2
Gastro-enteritis	1	3	4
Sinusitis	2	1	3
Haemorrhage	1	2	3
Intestinal obstruction	1	2	3
Burns	1	2	3
Gastric ulcer	2	1	3
Rheumatism	1	2	3
Immersion	—	2	2
Inoculations	1	—	1
Strangulated hernia	1	—	1
Totals	176	136	262

or the steward. A careful perusal of these will almost answer the question, "What should the doctor put in the little black bag?" I was lucky enough to have three large gladstone bags with linings fitted for instruments, and these just lasted out the war. Sea-water, and the battering against ships' sides as the

bag is pulled up with a heaving-line, demand good leather and careful packing. A set of surgical instruments and suture material are essential, and are best contained in a stout spirit-proof case. Water on a ship is never sterile, and it saves time to arrive with everything already aseptic. Soft-tissue injuries formed the highest quota of urgent calls—nearly 15% of the total. With fractures, dislocations, and burns added, one is likely to find some form of trauma in more than 25% of cases.

Suspected appendicitis is the largest bogey facing the unqualified ship doctor. Out of 31 such patients I found 15 genuine cases, operated on—8, resolved 2 with penicillin—one a boy, of 17 who had perforated in mid-Atlantic six days before, and came ashore almost moribund with peritonitis and paralytic ileus; the other a Chinese who refused operation after his appendix perforated during his journey in, with temporary relief of pain. ("No makee cut; me velly better.") We had to use our last 100,000 units on him. The others settled down with medical treatment and left hospital promising to undergo interval appendicectomy elsewhere. The 16 other cases had either acute abdominal pain from gall-stone, or intestinal colic, acute enteritis, or some form of right-sided discomfort. These include an inguinal bubo, saphenous phlebitis, two hernias, several cases of acute orchitis, and a hydrocele. Two pleuritis and a fibrositis made up the medical contribution. Another great bogey is suspected infectious disease. I have listed only genuine cases, which include all the common exanthemata. We were extremely lucky to avoid smallpox, cholera, and typhus. All were left on board in isolation, and it is prudent to take anti-scarlet-fever and anti-diphtheria sera in the bag so that no reproach can lie on this score when one advises that the patient should remain in his bunk. In at least as many cases again, suspicion of infection may have been a serious factor. One Dutch captain thought he had acute phthisis when he developed pain and haemoptysis, but examination showed intercostal shingles, which cleared up rapidly with aneurin injections and radiant heat. In his case the infection appeared to have come from two pots of raspberry jam sent to him by an old lady in Holland who regretted that she had had to curtail her usual half-dozen owing to shingles. At any rate, he and his crew had been away from any kind of contact with shore for over six weeks.

Venereal disease is a problem, and forms 10% of emergencies. Most ships carry sulphathiazole and treat gonorrhoea with a course of 50 to 60 g. (1 g. 4-hourly). This clears up most of the cases, but does not improve the frequent non-specific posterior urethritis, which hangs on for weeks. I put these people on large doses of hexamine and advised them to seek out a genito-urinary surgeon in the next port. Soft chancre and various stages of treated and untreated syphilis were only too common. It proved useful to carry a bismuth suspension and a first-and-last dose of N.A.B., as in most cases it was essential to provide adequate interim treatment till the ship reached port, probably in less than a week. Only American vessels carry penicillin, which simplifies treatment; and in these my opinion was chiefly sought about the risk of infection. At least three cases occurred among ships' cooks, and many among the armed guard, who live in rather close personal contact.

Ischio-rectal abscesses were common among the septic conditions, and a nice judgment is required as to whether to risk incision on board. In all cases I found them ripe underneath, and earned a good deal of temporary gratitude. Most of the remainder were pointing somewhere or other by the time we were called, and I had the impression that the general resistance to infection was much higher among seamen than in my patients on shore.

I think that all the heart cases treated on board occurred in elderly ships' captains, and all appeared to be due to gross overstrain and lack of sleep. The last was that of a pilot who collapsed on the bridge after giving a compass bearing which would have piled the ship up on the Goodwins. Fortunately the skipper, standing by, saw the breakers ahead and reversed the order. This unfortunate man had had no sleep for four days and no holiday for a year.

Foreign bodies in the eye seem much more common than the statistics show, and a little 5% cocaine and an eye spud more than earn their keep. I found a tube of mercuriolate and metyrcain a useful remedy for most ophthalmic cases. It is probably

too dangerous to leave atropine with no supervision for several days.

Five bodies were brought ashore. Although the ships concerned were more than three miles (4.8 km.) from the beach, inquests took place on two cases of accidental death and a suicide—that of a Belgian who hanged himself. When one has knowledge of these fatalities—as when a British ship hoisted the three-flag signal "E.N.L." (Death)—it saves a lot of time to invite the coroner's officer to take a sea trip. If he doesn't like boating there is certain to be a deputy who does.

Serious cases needing treatment ashore were all brought in by small boat and a deep wire stretcher with blankets; a pillow is always put in unless we know that it will not be required. After trying out almost every method I believe the safest way to get a stretcher case from a ship into a small boat is to lower it down the side with four separate ropes and a man holding each, with a boatswain in general charge so that when the receiving party in the boat have a firm hold the ropes are dropped completely slack. A good alternative is the same system with four cleats and a derrick slung well out, or a boatswain's chair for a sitting case. We landed 146 cases, and I do not think any were the worse for the journey, though sometimes our little boats were half full of snow.

In all, 114 cases were admitted to the Victoria Hospital, Deal, and I cannot too highly evaluate the devoted nursing these received and the remarkable way in which the sisters in charge overcame the language difficulties. Apart from four moribund patients who died from heart failure within 48 hours of landing, we had only one fatality in the first series. This was one of five cooks in the R.M.S. *Dunbar Castle*, one of the first ships to be sunk by a magnetic mine in the Thames Estuary. These unfortunate men were frying fish on a form of primus stove in the depths of the liner when her bottom was blown out. All five had third-degree burns of the face, hands, and arms from the boiling fat and burning Diesel oil when the mine exploded. All made a good recovery except one man whose face and both eyes were completely destroyed. He developed a rapidly fatal septic meningitis on the third day.

There were no fatal cases in the second period, and all the patients left hospital in a satisfactory condition after treatment. In several cases of appendicectomy and a strangulated hernia we were able to send the patients back to the ships on their return to the anchorage ten days later, much to the satisfaction of everybody concerned. As all this immigration was entirely unorthodox I was personally responsible for all patients brought ashore till they had been vetted by the Security Police from Folkestone or Dover. To avoid difficulties I admitted all cases to my own beds and, so far as was possible, dealt with them myself. I have to thank my partner, Dr. C. B. Hutchison, who gave all the anaesthetics, and Dr. C. P. F. Boulden for their unstinting help with the medical cases and pathology; and all my colleagues for their assistance and support. Dr. D. W. Kirk, M.O.H. for Deal, arranged accommodation for shipwrecked personnel and put his civil defence organization at our disposal for casualties. The St. John Ambulance Brigade drivers turned out at all hours in response to my light signals from ships, and the ambulance was always waiting when we grounded on the beach.

Throughout the entire war the work was made possible only by the unflinching help and courtesy received from the naval authorities at Dover and Ramsgate and the untiring co-operation of H.M. Coastguard at Deal. I have an eternal respect for the Deal boatmen who took me out in all weather conditions, often risking their boats and their lives to get me safely aboard; and especially for Messrs. J. Mercer and F. Upton, coxswains of the Walmer lifeboat, who took me out seventeen times when no other vessel could be launched. The Royal National Lifeboat Institution has given me every help, and I have a special word of thanks for a personal permission to use their electric capstan. But not for their rum ration, carried on all lifeboats, which in all the six years of war I have not yet been able to broach.

Summary

An account of an emergency casualty service to shipping off the south-east coast is given, with some description of the organization found necessary and three tables showing the incidence of diseases and nationality. In all, 702 cases were dealt with—556 on board

Reports of Societies

CHRONIC CHOLECYSTITIS

At a combined meeting of the Sections of Medicine and Surgery of the Royal Society of Medicine on Jan. 29, with Dr. T. Izod BENNETT presiding, a discussion was held on the diagnosis and treatment of chronic cholecystitis.

Dr. MAURICE SHAW said that not much was known about the milder degrees of cholecystitis. He had been accustomed to regard the condition as divisible into two types—an interstitial infection and a catarrhal infection, in which latter the mucous membrane of the gall-bladder was affected but functioning was reasonably good. One question was why extreme flatulence should be associated with the condition. It was usually supposed that gastric flatulence was entirely due to swallowed air, and experience did not suggest that patients with gall-stones were more likely than others to be air-swallowers. His own feeling was that the explanation of the flatulence was not the swallowed air but the increased reflex tension of the stomach, which was relieved by bringing up excessive air.

The mainstay in the diagnosis of cholecystitis was radiology, but it was impossible for the radiologist to say whether the gall-bladder was normal or not, and if his supposition was correct that many of these patients were suffering from a catarrhal condition of the mucous membrane it seemed unlikely that radiology would be able to detect it. Gall-bladders which were radiologically normal, filling and emptying within normal limits, might nevertheless be abnormal. A frequent instance was the patient with symptoms suggestive of gall-bladder disease, with physical signs, but in whom the radiologist could find nothing really abnormal, beyond possibly a slight defect in emptying or filling. Where there were gross radiological abnormalities all would agree that operative surgery was needed. Another indication for surgery was complete failure of medical treatment. A patient with convincing clinical evidence of gall-bladder disease who failed to respond to medical treatment must have surgical treatment, even though, as often happened, the surgeon was reluctant to operate because he had not got all the evidence he wanted.

The type of chronic cholecystitis most amenable to medical treatment was the catarrhal type. Dr. Shaw had never seen any sound reason for placing a patient with gall-bladder disease on a fat-free diet. The idea was based on a misconception as to the role of cholesterol. In diabetes, where there was likely to be a high cholesterol content of the bile, there was no marked tendency to the formation of gall-stones. The argument for withholding fat for fear of increasing the cholesterol content of the bile seemed to break down, and the only other argument for excluding fat from the diet was that many patients thought they could not take it. Usually, however, it was only certain kinds of fat to which they were averse, particularly fried fat, which had a hard envelope. Fats such as butter, eggs, and cream were well tolerated. If the object was drainage of the gall-bladder by non-surgical methods fats were most valuable, and he saw no objection to feeding patients on a high fat diet in the effort to make the gall-bladder contract and empty the bile. Fats should be restricted only when they caused discomfort. Other methods of drainage were often used. Magnesium sulphate had a great reputation, although the actual evidence that it caused contraction of the gall-bladder was not entirely satisfactory. The use of the duodenal tube in this country was not widespread, because it was generally felt that the same result could be obtained by giving drugs by the mouth. Of the drugs most widely used for disinfection—the salicylates, the hexamines, and the sulphonamides—he had had a certain amount of success with hexamine but he was not very enthusiastic. It had to be used in large doses and with caution. Sulphonamides had been successfully used and had been shown to have significant concentrations in the bile.

Radiographic Indications

Dr. G. CALTHROP said that cholecystitis was a disease of the walls of the gall-bladder, and, the gall-bladder and the bile being made up of chemical elements similar to those of the surrounding tissues, x rays did not differentiate them. It had been said that the gall-bladder could be seen in plain films.

However that might be, whenever he had identified the gall-bladder in the preliminary radiograph, the cholecystographs later on showed it to be in an entirely different place. When the gall-stone contained calcium or when the walls of the gall-bladder were calcified a shadow was produced on the film, just as it was by a barium meal. The same thing happened in cholecystography, which was an adaptation of Rowntree and Abel's discovery that phthalein was extracted from the blood by the liver and excreted in the bile. Recently an entirely new contrast medium, pheniodol B.P., had been produced, disturbing the patient less than the phthalein compounds.

When the gall-bladder failed to fill with and to concentrate the opaque medium four things might have happened: the medium might never have been extracted from the blood; or, like the bile, it might never have been able to leave the liver or to reach the common bile duct; or the iodine content of the bile might have been prevented from reaching the gall-bladder by a calculus, adhesions, or other cause; or, finally, the mucous membrane of the gall-bladder might have lost its power to concentrate the bile, whether gall-stones were present or not (true cholecystitis).

He went on to point out some fallacies. Putting aside congenital abnormalities, a gall-bladder might not be visualized because, so to speak, it was no longer there. Not infrequently cholecystography was requested after cholecystectomy. Improper preparation and poor radiographic technique, such as wrong dosage of opaque medium, movement during exposure, incorrect positioning, and other factors, could and did often mislead.

To sum up, the gall-bladder might be radiologically normal in appearance and function and yet there might be a pathological condition, but if a proper technique had been used and the gall-bladder failed to fill with and to concentrate the opaque medium a pathological condition was practically always present, not necessarily in the gall-bladder or its duct, but usually so. Since radiologically it was not possible to see whether a disease was outside the gall-bladder, due to one or more non-opaque gall-stones or to cholecystitis, there was obviously no direct radiological sign of cholecystitis. When there was only a poor filling and no gall-stones could be seen, care was needed and clinical evidence must be very definite, otherwise it was better to check by a second examination after an interval.

Chronic Cholecystitis without Stone

Mr. A. J. GARDHAM said that cases with a presumptive diagnosis of chronic cholecystitis without stone might be divided into two groups: (1) those in which disease of the biliary system was indicated by the presence of jaundice; and (2) those in which such disease had been diagnosed on less certain grounds. The picture in the latter group as he encountered it was fairly typical. The patient was generally a woman, often of the type or habit traditionally associated with gall-stones, and complained of pain in the right upper abdomen, though never of the severity of a true biliary colic. If the gall-bladder failed to show altogether on cholecystography he generally took it that he was dealing with a cystic duct which was blocked by a stone not opaque to x rays. If he was assured of the technical efficiency of the x-ray examination he was prepared to accept the evidence that there was no shadow on cholecystography as meaning that a stone was present. In doing so he was taking a risk of being deceived, but he thought the risk was small, for no one would quarrel with the removal of an organ obviously diseased, whether stones were present or not.

The group of cases in which function was shown on x-ray examination to be unimpaired or only diminished made a different story. The only justification for operation in cases of that kind was that a timely operation for the removal of a gall-bladder not yet grossly diseased might prevent the formation of gall-stones and the invalidism which resulted from the presence of stones in patients who were no longer in a fit condition to stand the operation of cholecystectomy. His impression was that the patients who suffered from the symptoms generally attributed to cholecystitis without stones were of a younger age group than those who came up with cholelithiasis. If active steps were taken in these cases there would be fewer old people bound to endure the symptoms which resulted from stone without being fit to undergo the major operation. If the theory of infection as a primary cause of gall-stones was

it unnecessary to assume that the original sepsis had anything more than a small share in the deafness—in other words, the man should be given the benefit of the doubt.

Noise or gunfire deafness produced a most easily recognizable clinical picture. There might be little or no involvement of the lower frequencies but a very severe loss in the higher. When cases of concussion deafness, of the middle-ear type, were seen, usually long after the injury, it might be impossible to tell to what extent the structure had been involved in the original damage. In the majority of cases the astonishing thing was the correlation between the resulting deafness and the severity of the original cranial injury, contrasting markedly with other cases in which a slight blow on the head, without bone damage or even a scalp wound, might result in severe middle-ear deafness. He added that the Ministry of Pensions was not engaged in original research, and it could not wait until its decisions were based on incontestable facts. Decisions had to be made promptly and with as little risk as possible of injury to the men concerned. Where there was a doubt the benefit of it was given to them.

Rehabilitation

Air Cdre. E. D. D. DICKSON said that deafened Service personnel fell into three categories: (1) those who had some hearing loss before joining and whose defect passed unnoticed; (2) those with some hearing defect which progressively became worse in service; and (3) those whose disability was attributable to service. It was considered to be the responsibility of the Ministry of Pensions to organize schemes of rehabilitation, particularly for those whose disability was due to, or increased by, their service. The Ministry of Pensions would prefer treatment within the Service; postponement until after the patients were discharged made the co-ordination of different forms of treatment impracticable. All deafened and hard-of-hearing patients needed instruction in lip-reading. Patients invalided from the Service on account of deafness should be posted to a rehabilitation centre, where assessment could be made. The speaker outlined the functions and personnel of such a centre, where instruction could be given in classes and facilities for occupational therapy installed on a comprehensive scale.

The PRESIDENT recalled that in the first world war men were recruited without sufficient preliminary examination, and apparently the mistake had been made again. During that first war he had care of a very large number of cases of middle-ear suppuration in hospital and was struck by the good results obtained by routine measures. He hoped that pressure would be brought to bear on the Ministries concerned so that within the next few weeks or months something would be organized for the rehabilitation of these unfortunate people.

Mr. R. G. MACBETH gave his impressions of a recent visit to the Naval Hospital, Philadelphia, which was devoted largely to rehabilitation. A deafened Service man was sent back to his depot, and after a period of leave was directed to the hospital, where he was carefully examined by skilled otologists, and if there was any physical disease, whether attributable to war or not, he was assessed from the point of view of his hearing. If necessary he was given lip-reading instruction. He was placed in a ward with other people suffering from various disabilities, not hearing disabilities alone, and therefore he had less occasion for feeling very sorry for himself, and morale was kept at a high level. Each morning the men received instruction and undertook certain duties, but the rest of the day was free for them to do as they wished, within the framework of a naval organization, and he had seen these deafened men enjoying concerts. They were obviously on the way to becoming useful citizens.

Testing Out the Malingeringer

Mr. T. B. LAYTON said that complete deafness in one ear, with the other ear normal, was not such a grave disability as a smaller degree of bilateral deafness, because the individual could compensate by positioning and movements of the head. Many deafened people were able to carry on a conversation with another individual across the table, but were quite unable to follow the conversation of a number of people and therefore were at a disadvantage in social life and in wage-earning capacity. In making tests there were three physiological reactions which should be assessed: the time-lag of the individual, the definiteness of his response, and his power of switching from one subject to another. Auditory attention was both

conscious and subconscious. When conscious attention was in opposition to the examiner the person under test was a malingeringer, but there were a far larger number of cases in which there was subconscious inattention—the conscious attention was directed to the examiner, but the subconscious was withdrawn. It was always a question of how far this was due to ear defect. He believed that when a person had for a long time been deaf the subconscious attention tended to atrophy. No one should be written down as a malingeringer until tests had been performed so thoroughly that the evidence would not break down under cross-examination, supposing the case came into court, as it never did. In such cases as he had described he felt that there was something pathologically wrong with the attention, that it had been damaged either by disease or by external causes, and such persons should be given credit for their disability in the same way as for structural deafness.

Mr. F. C. ORMEROD said that the Ministry of Pensions was much more sympathetic now than after the last war, when it was difficult to persuade the Ministry that many of these cases were aggravated by war service. Mr. R. SCOTT STEVENSON said that a man with chronic middle-ear suppuration but good hearing did not get a pension, yet no otologist would pass such a man for life assurance. Mr. C. HAMBLIN-THOMAS spoke of the difficulty of getting trained technicians to carry out treatment. Out-patient treatment was not as satisfactory as treatment in hospital. Mr. MICHAEL VLASTO said that he was probably the only otologist present who did not use the audiometer. All his work was based on the history of the patient and tuning-fork and voice tests. He did not find that from the patient's point of view he had had any real assistance from audiometric readings. Mr. I. G. ROBIN mentioned the case of a medical man who was so deaf on leaving the Service that he had to give up any thought of returning to his practice; yet he got only 50% disability and was awarded a lump sum of £50. Dr. SIMSON HALL asked whether there had been any research on the causation of nerve deafness—by bone conduction—for example, the use of sponge rubber heels to avoid transmitting concussion. Mr. C. P. WILSON stressed the need for teaching not only the patient but his family, who could do a great deal to ameliorate the difficulties arising from fatigue and disturbing noises.

The PRESIDENT, following up Mr. Vlasto's remark, said that during the last two years he had relied entirely on tuning forks because he had not been able to get his audiometer serviced. Until the servicing of these instruments was placed on a better basis their utility would be much reduced.

Nova et Vetera

CARDIAC FOLK-LORE

At a recent meeting of the Section of the History of Medicine of the Royal Society of Medicine Dr. J. D. Rolleston said that it was generally agreed that a scientific study of heart disease did not begin until the seventeenth century. It was not surprising, therefore, that a vast amount of cardiac folk-lore developed and persisted for several centuries. Though the doctrine that lesions of the heart were generally fatal had been wrongly attributed to Hippocrates, it was undoubtedly of great antiquity. There was hardly a trace in classical literature of the severe cardiac diseases which subsequently played such an important part in scientific medicine, and the chief cardiac affections before the beginning of the nineteenth century were merely palpitation and pain in the cardiac region. Parrot had remarked that this ignorance of heart disease in antiquity might seem strange in view of the fact that other affections of less importance were thoroughly studied in ancient times, and suggested that the only explanation of this omission was that the heart was regarded as a sacred organ which it was wrong to touch or study. Even in the time of Erasistratus and Asclepiades knowledge of the heart was so vague that the same Greek word was applied to both heart and stomach, which was doubtless due to the juxtaposition of the two organs separated only by the diaphragm.

Dr. Rolleston said that the folk-lore treatment of heart disease might be considered under general measures, animal cures including coprotherapy, plant remedies, hydrotherapy, metals, and intercession by patron saints. It was noteworthy that in striking contrast with the great majority of diseases the patron saints invoked for the relief or cure were very few in number. Not only had numerous popular remedies been used in the treatment of cardiac disease, but in many instances the heart itself in man and animals as well as heart-shaped animals had been credited with prophylactic and curative properties.

Correspondence

Lay versus Medical Administration

SIR—Among the vast mass of letters, speeches, discussions etc. which I have either read or heard in connexion with the proposed national health scheme, I do not recollect any particular reference being made to the very important question of administration by which I mean is the chief officer of the administrative unit—regional, divisional or whatever it may be—to be a layman or medical man?

We may be quite certain that the chief administrative officer at the Ministry of Health will be as hitherto the Parliamentary Secretary, but what about the regional or other administrative body which is to deal with the work of the unit areas which we understand are to be set up throughout England and Wales? These units will presumably be groups of counties and county boroughs and their membership constituted by representatives of local authorities, voluntary hospitals and probably nominees of the Minister of Health. Such administrative units will require a staff organization to carry out the duties, responsibilities, and instructions of the joint council of the unit area. It is certain that the staff organization of each area will be considerable in numbers, will consist of both medical men and laymen and that, as the expert advisers of the joint council upon numerous problems of policy and practice, they will inevitably play an extremely important part in promoting the harmonious co-operation of the various interests represented in the joint council itself and the area or region with which it is concerned.

Judging this difficult and delicate problem from my own personal experience, I hope and pray that the Minister of Health will be persuaded and advised to appoint medical men as the chief administrative officers of these regional organizations inasmuch as the problems to be dealt with are, and will always be, predominantly medical, and will require above all other considerations the whole-hearted co-operation of the medical profession of the regional area. The danger I visualize is the appointment of such persons as the clerks of local authorities as chief administrative officers and if this is done, then, judging again from my own experience, Heaven help us—I am, etc.

London W 8

FREDERICK MENZIES

Physical Therapy in Mental Disorder

SIR—Although I am not a psychiatrist I should like to say how cordially I agree with Dr T H B Gladstone (Feb 2 p 179) in his condemnation of the bullying of relatives to gain their permission for ECT and leucotomy. I have seen this and also what appeared to me to be the indiscriminate use of electric convulsions and the light-hearted plotting of leucotomy. What successes these methods achieve are bitterly paid for by all the patients with the pain of cutting or pummeling with fear and dread hours, the imponderables of intense unhappiness I have heard "cardiazol" used as a threat for bad behaviour, the curative and the punitive merging.

Particularly do I find Dr Jan Frank's humour a little nauseating, for in an article by him in *Proceedings of the Royal Society of Medicine* in May last year (1945 38 317) he made it abundantly clear that the patients about whom he was writing had an intense hatred of these methods, though he seemed to view their antipathy with considerable detachment. Perhaps he has not been long enough away from Hitlerite Germany to appreciate our island prejudices against trying to do good by force against encroaching on the liberty even of the insane any more than is necessary, and against the experimental usage of Continental medicine. I do not doubt the sincerity and humanity of these shock tacticians or of those whom he is pleased to call "brain slashers" nor do I doubt the earnestness of many of the Spanish Inquisitors who thought the immortal soul was well worth a little flame and pain. My tradesman's view is that the soul and sanity may be too dearly bought. At present, so far as I can see, an A.M.O. in a mental hospital, having obtained the permission of the nearest relative by the exhibition of fact or frown or fancy, can then proceed

to sentence any patient to have his brain cut or to undergo a series of fits with no appeal. It is high time the Board of Control remembered their duty—the protection of patients in mental hospitals which are no longer as hazy from vision—I am, etc.

Beckley Rye

C G LEACOCK

Problem Families

SIR—Dr S W Savare in his paper on "Infant and Infant Mortality in Problem Families" (Jan 19 p 86) attempts to draw certain conclusions which are hinted at in the presentation of the figures. He comments for example on the fact that in the families with mothers of average intelligence over 50% of children were retarded two or more years in the problem families, but under 7% of children in the control families. This would appear to imply that retardation is brought about mainly by neglect of one sort or another and not by the inheritance of poor mentality as is commonly supposed. To render the issue more scientific, Dr Savare would agree the assessment of the children in terms of intellectual as well as scholastic retardation would be necessary. The two generally speaking, tend to run together but in the children of problem families the intellectual capacity (which is gauged by individual testing) might be higher than the educational achievement would lead one to suppose—owing to poor nutrition, lack of rest, loss of school time and other factors of neglect which might lower the latter. Also the intelligence of the fathers would need to be measured if the factor of heredity were to be fully considered. Within its limits however the investigation was well worth doing and it is a valuable commentary on a very practical and debated issue—I am, etc.

Birmingham

CHARLES BURN

Mesenteric Lymphadenitis

SIR—In Dr B O C Pridmore's letter (Jan 26 p 144) in support of his view that with regard to treatment he advocates laparotomy believing that a certain diagnosis of the condition can be made only when the appendix has already been removed. I wholeheartedly support this advice, and while Mr Aird's excellent article (Nov 17, 1945 p 680) has greatly clarified our views on enlarged mesenteric glands I would still be very hesitant to withhold surgery in cases of what would appear to be doubtful acute appendicitis particularly in children.

I have had occasion more than once to regret not having opened the abdomen for appendicitis but never for having removed an apparently normal appendix. Reflecting over one's cases of right-sided abdominal pain with fever and tenderness in the right iliac fossa during the past few years I find that while my diagnosis of appendicitis has in most instances been correct, I have removed a good many mildly inflamed or surgically normal appendices. The ultimate cause of the abdominal upset in these cases has often turned out to be a mild infection, jaundice, mild dysentery, or nothing more than enlarged mesenteric glands. All the patients have recovered without much anxiety, and in my opinion definitely appeared to benefit by the removal of the appendix, particularly so if mesenteric glands were present. To find the mesentery packed with pink white glands not unlike oversized boiled sago grains has become rather the rule than the exception in my practice of late years. I do not remember seeing them so frequently before the war and I have no explanation to offer for their more frequent occurrence now.

If we agree that one of the commonest causes of abdominal pain in childhood or the young adult is appendicitis I feel that it should be kept foremost in our minds and the appendix removed if there is the least doubt—I am, etc.

Aylesbury

RALPH H GARDNER

Abacterial Pyuria

SIR—I have read with great interest Dr David Peters' article on bacterial pyuria (Feb 2, p 160). It is gratifying to learn that my original communication first brought the condition to his notice. That paper, which, so far as I am aware, was the first publication on the subject in this country, I have frequently been informed has similarly been the means of making curative

therapy available for many sufferers from the disease. In one instance a surgeon read the article only just in time to prevent him from doing a nephrectomy for supposed tuberculosis. Dr. Peters has not apparently had the opportunity of reading a later but more complete publication of mine on "Sterile Pyuria, with Special Reference to True Infective Abacterial Pyuria" (*J. Urol.*, 1943, 49, 203). The points he raises on the aetiology of the disease are mostly dealt with there. Syphilis is not a factor and the Wassermann test is negative in these cases. Nor is there any relationship between the disease and Hunner's ulcer. Actually in most cases of the former disease there is no or only very slight pyuria. However, some cases of true infective abacterial pyuria do simulate the syndrome of "Simple Ulcers of the Bladder" described by Fenwick in 1896 (*Brit. med. J.*, 1, 1133). One of my earlier cases fell into this category, but this is a quite different condition from Hunner's ulcer.

I was also interested in Mr. Hugh Donovan's paper (July 7, 1945, p. 12) on abacterial pyuria; especially the presence of urethral discharge which he had observed in some of his cases. Personally I have not encountered this. Dr. Lydon, in a later issue of the *Journal* (Aug. 4, 1945, p. 167), wrote of the good result he had obtained in cases of urethritis, in which no organisms could be demonstrated in the discharge, by treatment with intravenous N.A.B. It has been my experience that, although such cases do gradually clear up with this treatment, the response is in no way so dramatic or so immediately related to the treatment as that in cases of true infective abacterial pyuria. I very much doubt if there is any relationship between the two conditions.

During my five years of service with the Forces I encountered several cases of true infective abacterial pyuria. Strangely enough one of the first I treated in North Africa in 1942 was just such a case, which had been evacuated to us as one of urinary tuberculosis. By curious coincidence I met the patient at a demobilization centre recently and was interested to learn that he had had no further urinary trouble.—I am, etc.,

Manchester.

THOMAS MOORE.

Cardiac Massage

SIR,—I would support Mr. Hamilton Bailey (Jan. 5, p. 29) and Prof. John Morley (Feb. 2, p. 177) in stressing the need for promptness in cardiac massage. Many of us are reluctant to make the incision for it, and stand by, hoping it will be unnecessary, while the life-saving minutes slip by for ever. The indication which I use for action is: "Is the heart beating or not?" It is a simple question, and it is for the surgeon to answer it and not for the anaesthetist, because the decision to massage the heart rests with him and also the job of doing it.

How is the answer to be obtained for certain? The anaesthetist cannot tell from the pulse. He often feels his own pulse in the anxiety of managing the collapsed patient. The remedy is for the surgeon to put his ear on to the patient's chest wall over the heart; the evidence is instantly available. On several occasions I have been able to reassure the worried anaesthetist that the heart was all right, and at other times I have heard nothing, and that silence has fired me into immediate cardiac massage with consistent success. Cardiac silence for 30 seconds means immediate heart massage. With regard to the duration of the massage, I keep on until both hands are tired, at least 5 to 10 minutes. On two occasions I have had the pleasure of the heart restarting and continuing when I was at the point of giving up through digital fatigue.

The guide, therefore, for any case of a failed heart is to put the ear to the chest wall instantly, and if "silence," massage steadily until the heart begins.—I am, etc.,

London, W. 1.

HAROLD DODD.

Anaesthesia

SIR,—Fashions change in every walk of life. They change in medicine too, and one wonders if they always do so for the best. I refer to anaesthesia. Twenty years ago, when I was a student, hundreds of thousands of successful anaesthetics were given with (a) open ether, or (b) the very simple Boyle's apparatus. Then came, in the early 1930's, (c) the godsend of barbiturate premedication, and anaesthesia, still maintaining its simplicity, stood high.

It still does, but it has got itself wrapped up with a mystic halo of Heath-Robinson mumbo-jumbo, which the average humble general practitioner anaesthetist finds somewhat overpowering. Students and housemen are nurtured on giant contraptions worth hundreds of pounds—and cannot give open chloroform. I am told that avertin is going out of fashion because the pundits say that the dose depends not on the weight of a patient but on the metabolism. A small series of 400 cases, ranging from 7 months to 79 years of age, has convinced me of the great value of avertin, which no academic utterance will change. While appreciating and acknowledging the fact that the specialist anaesthetist is necessary in many of the rare and specialized operations, let us not be "kidded" into the impression that this simple branch of medicine is a mysterious cult known only to the favoured few. Let it be hoped that it will not become more over-specialized than it is now, and that the advent of the "premedicationist," the "pentothalist," and the "open etherist" will be long delayed. I do not think that modern anaesthesia, with all its trappings, tubes, taps, and turncocks, is any great improvement on the older methods, and the fact that anaesthetic deaths have not decreased appreciably from the tiny percentage of fifteen years ago may substantiate this. I now, Sir, bow my devoted head and wait for the storm to burst.—I am, etc.,

Aylesbury, Bucks.

W. A. BELLAMY.

Responsibility for the Anaesthetic

SIR,—Mr. Lyall certainly "puts the cat among the pigeons" in his letter (Jan. 26, p. 144), and like a dutiful pigeon I rise to join in the required commotion. His suggestion that the choice of anaesthetic is a matter for the surgeon rather than the anaesthetist is belied in his own first paragraph, where he suggests that "respiratory trouble" is an indication for spinal analgesia. I think most anaesthetists will agree with me that this is a contraindication to spinal, since the primary requirement in "chesty" cases is to be able to sit them up in Fowler's position immediately after operation. Cyclopropane is the anaesthetic of choice in these cases, or, if that is not available, gas, oxygen, and ether with CO₂ absorption.

It is just such misconceptions as this which make us claim that the anaesthetist should always have the last word. The surgeon should state his requirements within the operation field—duration, degree of relaxation, etc.—and the method by which these requirements are met is entirely an anaesthetic matter and should be decided by the specialist in that subject. In actual practice, in experience with many different surgeons, I have never had anything but complete co-operation over this matter. The tone of Mr. Lyall's letter suggests that he has been less fortunate in his association with "professional anaesthetists." But if this is so, I believe his experience to be the exception rather than the rule.—I am, etc.,

B.A.O.R.

PETER S. CHESHIRE,
Fl. Lieut., R.A.F.V.R.

Spinal Analgesia

SIR,—I am still more surprised and perplexed as to why Mr. Lyall (Jan. 26, p. 144) does not use spinal in his appendicitis cases, for the reasons I have given; yet he "invariably" uses this method in resection of the colon, when the patients are older and usually more toxic, less resilient, less able to stand shock, and where a higher level of analgesia is required. As regards "quick" appendix operations, they are very rarely necessary and would be usually very inadvisable indeed. Even so, the spinal is quicker to give, makes the operation quicker to perform, for the reasons I gave, and recovery is as speedy as, if not speedier than, recovery from ether and very much more pleasant. To me it is very satisfying indeed to take the blind off the patient's eyes immediately the last stitch is in and say: "How are you?" and to get the answer: "Very well, sir; is it all over? Thanks very much." This is anaesthesia *par excellence*, and I contend that Mr. Lyall might have attained this with the utmost safety in the great majority of his most interesting series.

Surely spinal analgesia is a most rational method for, at least, all lower abdominal and pelvic surgery. Why saturate

a patient's brain with an inhalation of poisonous vapours and gases or by an intravenous injection of drugs causing complete unconsciousness, which, in itself, puts the patient in the region between life and death and on the way to the latter? The spinal, which desensitizes the lower half of the spinal cord and which can now be safely controlled, is all that is necessary, and is only an extension of local and regional anaesthesia.

I would suggest to Dr. Ronald Woolmer (p. 145) that ether is certainly a factor in chest complications and post-operation cough, since so many patients are excessive cigarette smokers and the bronchial secretion is much increased.

I am convinced that the dangers and failures as well as unpleasant sequelae are due usually to faulty technique, and the objections are very theoretical. For example, Dr. Robert Percival (p. 145) thinks that at sea one could not keep the head low; well, I was not thinking of a destroyer in mountainous seas, and I imagine the conditions for spinal analgesia could usually be quite easily attained. There would be nothing "unsafe" about it: only the discomfort of a possible headache. —I am, etc.

Hford

N. BEATTIE.

Penicillin in Ophthalmology

SIR.—In a leading article (Jan. 5, p. 17) you sum up recent publications on penicillin and contrast the effects of the agent with those of the sulphonamides in infections of the eye. While ophthalmologists would agree with much of your article there are three points which need qualification.

1. You state, "Though some experimental evidence has been advanced that they [sulphonamides] are effective in infections of the outer eye when used locally, it cannot be said that there is any real clinical support for these observations." I am convinced, from clinical experience, that the sulphonamides used locally are quite as efficient as penicillin in curing infections of the outer coats of the eye. There are individual cases that respond to sulphonamide but not at all to penicillin, while a certain number respond very pleasingly to penicillin. In blepharitis I find a great many more cases benefit from thiazamide ointment (mentioned in your columns, 1943, 1, 605) than from penicillin ointment, but a certain number resent thiazamide but respond to penicillin ointment. The case for sulphonamides by local application is still worthy of consideration.

2. In ophthalmia neonatorum Sorsby (quoted in your article) supplies interesting results from the use of penicillin drops. The obvious disadvantage is that it is a whole-time job for one nurse to carry out the treatment. Just as good and quick results are obtained by giving sulphonamides by mouth without the necessity for taking the infant into hospital or upsetting the mother/infant routine reaction. This is the chief ophthalmic condition where sulphonamide by mouth is indicated.

3. In trachoma, from experience of only a few cases, some are quite definitely relieved by sulphacetamide drops, while others do not respond or are actually made more irritable. I cannot say I have seen a clinical cure from this treatment. One case is worth special mention. No help whatever was obtained from sulphonamides by mouth or locally. A troublesome thick mucopurulent discharge has resisted all local treatment except penicillin. The latter has controlled the discharge and made life bearable for the last fifteen months. It has not cured the trachoma, but the natural cure, cicatrization, is slowly proceeding.

Obviously we must know more about the mode of action of both sulphonamides and penicillin, and perhaps more about the infecting organisms, before the correct choice of drug and best method of use can be determined. Neither penicillin nor sulphonamides make an ophthalmic "cure-all" yet.—I am, etc.,

Worcester.

I. LLOYD JORNSTONE.

Surgical Catgut

SIR.—It is with the greatest reluctance that I write to you a further letter on the subject of surgical catgut, but I feel that the letter of Sir Weldon Dalrymple-Champneys (Jan. 26, p. 147) requires an answer. He seems to be concerned with depart-

mental administration of some Act of Parliament; I was concerned with the freedom to use the material I wished to use, and not that which I am directed to use. I readily accept his corrections, but they appear trivial and do not affect my argument. I will refer to these points later.

Messrs. Thackray inform me that they are not allowed to import Davis and Geck's catgut. The Import Licensing Department refused the licence on the ground that the Directorate of Medical Supplies stated that ample supplies were available in this country, and also on the ground that it was still necessary to conserve foreign currency. Now either the Directorate of Medical Supplies believes that one catgut is as good as another or that the supplies available are as good as any that could be imported, or that we must make do with inferior material owing to the overriding political necessity for conserving foreign currency. It is in connexion with the last possibility that the vast sum expended on American cinema films makes this argument applied to the relatively small sum involved in importing catgut ridiculous.

With regard to the question of sterility, I had in mind (though for the sake of brevity I did not define my meaning) the loose surgical sense rather than the bacteriological. I meant that not only was the substance sterile when implanted in the tissues but it remained sterile. All surgeons, especially those with experience in bone surgery, will recollect many sterile substances which when implanted in human tissues become ultimately the seat of infection. The American catgut usually had a small amount of antiseptic (e.g., biniodide of mercury) in it to prevent this. The London Hospital catgut is similarly treated. And here I would like to acknowledge the courteous help I have received from the London Hospital Ligation Department since this correspondence has started. On their advice I am using 40-day instead of 20-day catgut in the abdomen, and so far it is satisfactory. I used to use 20-day Davis and Geck, and this seems to indicate a variation in units or the fallaciousness of their estimation. I realize the unit is more or less artificial and that each batch cannot be tested biologically for absorption rate. Incidentally, I may state that the raw material for the London Hospital catgut is imported from New Zealand. I have had no sepsis attributable to this catgut.

The relative merits of catgut can be determined only in human tissues and not in the laboratory, and if foreign catgut is excluded on commercial or political grounds then it is perfectly fair to say that these grounds are interfering with the scientific atmosphere. If English catgut is as good as foreign then it can stand up to competition. If it is not, then the sooner we import some the better. Coming events cast ominous shadows: control and direction threaten us in every direction, and I am concerned that we should not without the strongest and most overwhelming reasons submit to infringement of our liberty.—I am, etc.,

Hove.

H. J. MCCURRICH.

Paralytic Ileus

SIR.—Mr. Alan Shorter (Feb. 2, p. 177) gives an admirable account of some common causes of post-operative paralytic ileus and suggestions for minimizing these, with which I could not agree more. He continues with a scheme of treatment with which I could not agree less. It appears that even now we are not, in this country, fully conscious of the absolute necessity for maintaining intestinal decompression by means of suction-drainage in the prophylaxis and treatment of this most dangerous condition.

In America, where most of the pioneer work on intestinal decompression has been performed, particularly by Owen H. Wangenstein on duodenal suction-drainage and Abbott and his followers on intestinal suction-drainage with the Miller-Abbott tube, the need for suction-drainage is no longer questioned. The published evidence is too overwhelming. It is, I imagine, because our minds have been so long fixed upon the problems of war surgery that we have failed to keep abreast of modern developments which are now well beyond the experimental stage. Yet even that is surprising when we have so many of us seen the effects of continuous suction-drainage after operation for penetrating wounds of the intestines. The following com-

ments on the prophylaxis and treatment of paralytic ileus appear justified:

1. As Mr. Shorter describes, poor anaesthesia, rough surgery, dehydration, toxæmia, pain, exhaustion all play a part in the causation of paralytic ileus, and any scheme of treatment must attempt to eliminate these factors so far as possible. I agree entirely with the use of morphine, because it will relieve pain, anxiety, and sleeplessness. I do not believe it has any helpful direct effect upon peristalsis; indeed, in big doses its direct effect is probably harmful. For that reason I hold that repeated small doses—gr. 1/8 (8 mg.) eight- or twelve-hourly after an initial gr. 1/4 (16 mg.)—should be employed.

2. Mr. Shorter is undoubtedly correct in saying that the precipitating cause of ileus is the failure to prevent slight and early post-operative distension from developing into frank paralytic ileus. This is best prevented by post-operative intestinal decompression by duodenal suction-drainage in every case in which ileus is considered a likely hazard, particularly if the patient starts off post-operatively with an initial pathological dilatation (e.g., after operative relief of obstruction). The whole aim and object of this decompression is the prevention of the vicious circle which is the inevitable result of passive dilatation if it is allowed to reach a certain stage, dilatation causing paresis and paresis allowing further dilatation.

3. As regards the use of intestinal stimulants, I can do no better than quote Holt, who says: "Purgatives and drugs which normally stimulate peristaltic action are contraindicated. The habitual use of such drugs as pituitrin, eserine, and acetylcholine in the post-operative treatment of these cases is to be strongly condemned. Occasionally their use produces the dramatic relief of intestinal distension, but their successes are far outnumbered by the majority of cases which are made worse by such treatment. It should be borne in mind that the cause of the trouble is a paresis of the intestinal muscle, which will resume its function when it has recovered its tone. This recovery is best facilitated by resting the gut as much as possible."

4. If ileus develops in the absence of, or in spite of, duodenal suction-drainage intestinal decompression with a Miller-Abbott tube is obligatory. The phrase "gastric suction with a Miller-Abbott tube," used by Mr. Shorter, is a contradiction in terms. The stomach is emptied with a large stomach tube and the Miller-Abbott tube is then passed into the small intestine. Abbott describes the subsequent progress thus: "Whether the cases develop following intraperitoneal procedures or reflexly following injuries or operations on other parts of the body, a tube in the small intestine will progress from region to region, restoring peristaltic activity, until the balloon is expelled by rectum."

5. Naturally, fluid and chloride must be replaced by vein (and, it appears, protein too), but the enormous volume of fluid withdrawn by suction does not mean any greater necessity for intravenous fluids, for stagnant fluid left in the dilated intestine is just as much lost from the general circulation as that withdrawn by suction.

6. The principle of providing physiological rest for the dilated intestine appears to me a much sounder one than an attempt to coerce the gut into contracting while it is dilated and therefore at a great mechanical disadvantage, and the results I have had, using decompression and no intestinal stimulants, have confirmed me in this belief.

—I am, etc.,

Kensington

RODNEY SMITH.

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SIR,—Most doctors would concede that a personal experience was worth several of those of their patients. When I had paralytic ileus for a short period following a resection of gut some years ago I was treated with ox-gall enemata and injections of prostigmin. It was the most painful and exhausting business I ever hope to experience. And when, after flogging my bowel in this manner, the sister was able proudly to show the surgeon a small faecal object in the bedpan, even he was compelled to observe somewhat gloomily that "one swallow did not make a summer." By contrast those patients who at this time were beginning to be treated by morphine, suction, and intravenous fluids, enemata being withheld until bowel sounds were audible—these had a far smoother passage.

Perhaps you will also permit me to pour scorn on the efficacy of a flatus tube in this condition. He is a "poor fish" who cannot empty his own lower rectum. The tube does nothing for his distension and is very uncomfortable to sit on.—I am, etc.,

R. A. F. West Kirby.

MICHAEL HARMER.

Stethoscope versus X Rays

SIR,—May I summarize the results of my experiences in a few sentences.

1. The x-ray skiagram is indispensable for both the quantitative and qualitative analysis of lung tuberculosis, leave alone for the diagnosis of neoplasms and for the assessment of dust diseases. Although thoroughly and skilfully performed sounding will continue to be used for guidance, especially in the practitioner's consulting room, the student should be taught that completely negative findings must not be considered as ruling out pathological changes of considerable extent.

2. The interpretation of the auscultatory signs has profited substantially from co-operation with radiology. We have learned that more often than not bronchial breathing is missing in the presence of a cavity, which should be suspected as well from other auscultatory phenomena; that fibrosis and shrinkage may produce bronchial breathing. Diagnosis with the stethoscope has gained in accuracy.

3. There are not few occasions when the findings of auscultation are valuable or even decisive—e.g., for the identification of a cavity buried in the uniform opacity of fibrous, exudative, or caseous tissue. The evaluation of the respiratory functional potential is impracticable without the stethoscope; bronchial secretion and bronchial spasm with their detrimental effect on the air passage will be heard, but, as a rule, not seen. The importance of the auscultatory findings in cases of bronchiectasis need not be stressed.

4. The stethoscope is likely to provide a better opportunity for the doctor to concentrate on the general aspect of the patient than the x-ray examination, and to facilitate psychological contact.—I am, etc.,

Westmorland Sanatorium, Grange-over-Sands.

E. FRAENKEL.

SIR,—In reply to the letter of Dr. J. Frankland West (Feb. 2, p. 182) the data given in his letter merely show that the interpretation of an x-ray film by a particular radiologist was an incorrect one. The radiograph did, in fact, show the pulmonary lesion in question, and is not, therefore, to be condemned as having missed an early tuberculous lesion, but it is the interpretation of that skiagram that has been found to be in error. Surely general practitioners as a whole are not to be condemned because one practitioner has missed diagnosing a case of acute appendicitis. Does Dr. West claim that he himself is infallible?

It is not always possible for the radiologist to state the aetiology of a pneumonic consolidation from the skiagram. In some cases further details are necessary, such as the result of the clinical examination, together with laboratory tests, etc., before a diagnosis can be made. It would appear to me (without having seen the film) that the report should have read: "There is loss in translucency in the affected zone or zones of the lung." This may be due to tuberculosis, atypical pneumonia, lobar pneumonia, or lung abscess. The subsequent progress under serial x-ray observation will help in the diagnosis together with clinical and laboratory evidence.

Chest physicians and tuberculosis officers are well acquainted with segmental and lobar areas of consolidation which are found subsequently to be tuberculous in origin. In fact, mass radiography is responsible for the detection of an appreciable number of similar cases in persons who are completely symptomless. This type of tuberculous lesion is, as a rule, found in young adults, especially young women between the ages of 14 and 25. Dr. West's case had both symptoms and physical signs, whereas the value of mass radiography is in the x-ray of apparently healthy people for the detection of early disease. That mass radiography has fully justified itself as a means of detection of previously unsuspected disease is now beyond question. Inspection of published results confirms this statement.—I am, etc.,

Nottingham.

A. E. BLYNOR.

SIR,—Dr. F. Kellermann's letter (Feb. 2, p. 182) puts the matter in a nutshell. The last paragraph embodying the results of the test sponsored by the American Trudeau Society is particularly interesting. *Finis coronat opus.*

Even those of us who have studied under masterly exponents of clinical examination of the chest, such as the late Sir Robert Philip, founder of the tuberculosis dispensary system, have been

compelled reluctantly years ago to realize the limitations of the stethoscope. I may be confidently stated that anyone who claims to diagnose early (I say advisedly "early") pulmonary tuberculosis or for that matter carcinoma, with the stethoscope alone is a fool a charlatan, or a superman. X-ray examination of course has its shortcomings, and experienced specialist radiologists with all modesty are themselves among the first to admit this. However, with the progress of research the x-ray plant is likely to become an instrument of greater precision in the near future.

Although this correspondence is primarily concerned with the stethoscope and x-rays it may not be out of place to refer briefly to examination of the sputum. This line of investigation has been sadly neglected, particularly in those patients who cannot or will not attend the hospital outpatient department or clinic and are labelled "debility," "anaemia," "chronic bronchitis," etc. Even in certain cases which have been subjected to intensive clinical and radiological observation the finding of acid-fast bacilli in the sputum is often the decisive factor in diagnosis. Beware, however, the single sputum-positive report unless adequately supported by clinical and x-ray evidence. In such a case repeated sputum examinations are necessary.

It is essential, therefore, to take an unbiased, broad, flexible view of the whole subject, and in addition to a carefully taken history, to use every available method (clinical, x-ray, and laboratory) for diagnosis and assessment are to be thorough and complete. The majority of us would prefer, I imagine, to hear less of "the stethoscope versus x-rays," and more of "the stethoscope plus x-rays, plus sputum examination," with closer co-operation between the clinician, radiologist, and pathologist—I am, etc.

Tuberculosis Dispensary, Chester

DAVID W. TOLGH

D.D.T. Poisoning

SIR,—I have read the comments on our article "Fatal DDT Poisoning" (Dec 15, 1945, p. 845) by Dr I. E. Balaban (Jan 26, p. 147) and wish to give further reasons why we concluded the cause of death in the child was due to DDT rather than to the kerosene. In addition to Experiments I and II described in our article, we carried out other experiments which were not included for the sake of brevity and because they were of dosage apparently outside the minimal oral dosage of 5% DDT in kerosene required to cause toxic effects. They have now perhaps some interest in respect to the question raised by Dr Balaban as to the toxicity of kerosene to baboons. The experiments (including Experiments I and II of the article) were as follows:

Expt No.	Weight of Baboon	Dose (Orally)	Dose in ccm. per kg Body Weight	Result
	lb	kg		
Ia	7 (3.2)	10 ccm 5% DDT in kerosene	3.1	Baboon unaffected
	6 (3.0)	9 ccm kerosene	3.0	
Ib	7 (3.2)	15 ccm 5% DDT in kerosene	4.7	ill "
II	7 (3.2)	15 ccm kerosene	4.7	unaffected
	7 (3.2)	30 ccm 5% DDT in kerosene	9.4	died (1 hour)
III	6 (2.7)	25 ccm kerosene	9.4	unaffected
	6 (2.7)	27 ccm 5% DDT in kerosene	10.0	died (45 mins)
IV	6 (3.0)	10 ccm kerosene	10.0	unaffected
	6 (3.0)	60 ccm kerosene	22.2	"

Experiment Ia was a preliminary one in which the dosage per kilo was the same as that of the child (10 kg body weight ingesting 30 ccm 5% DDT in kerosene). Experiment III was supposed to aim at a dosage between that of Experiments I and II, but owing to a miscalculation only confirmed the results of Experiment II. Experiment IV is an observation from another series of experiments on DDT not related to the above investigation. Necropsy on this animal 30 days later showed no abnormality macroscopically or microscopically.

The results and deductions made were: (1) Toxic effects were only seen in the series receiving kerosene plus DDT, though none of the control series was affected. (2) It is therefore

reasonable to assume that the toxic effect in the baboon was due to the DDT. (3) It will be noted that the baboon mentioned by Dr Balaban (Experiment II, 9.4 ccm per kg) had more than three times the amount of kerosene ingested than the child (3 ccm per kg) and that the baboon in Experiment IV (22.2 ccm per kg) had no less than seven times the dose with no ill effects.

Dr Balaban mentions that DDT in organic solvents can be potentially dangerous, but his quotation of the annotation in the *Journal* (March 10, 1945, p. 338) is so written as to discredit this statement. The annotation quoted suggests that DDT dissolved in organic solvents would have to be administered in exceedingly large volumes to be toxic. That this estimate of the low toxicity of DDT to human beings is a little too optimistic is surely shown by the later experience of Wigglesworth (1945) and Case (1945) who both found DDT dissolved in organic solvents toxic to human beings even by absorption.

It is true, however, that the evidence regarding toxicity of kerosene is conflicting. Waring (1933) described 2 deaths out of 23 cases, Nunn and Martin (1933) 6 deaths out of 6 cases, and Farbaugh (1936) 5 deaths out of 120 cases of kerosene poisoning by ingestion. More recently Lesser *et al* (1941) describe 1 fatal case out of 32 cases in children aged 1 to 3 years, and dosage varying from one swallow to half a glass of kerosene. The fatal case was that of a child aged 18 months who ingested 150 ccm of kerosene and died within 5 hours. They also quote the case of an adult who ingested 7.0 ccm of kerosene with apparently no ill effect. Deichmann *et al* (1944) describe the case of a child aged 1 year who died 9 hours after drinking one mouthful of kerosene. They calculate that the fatality rate of published cases is 6.7%. Dr Balaban's criticism is fair criticism in that kerosene can cause death in small children.

At the time of writing the article we had no access to the literature on kerosene published above, but our baboon experiments implied that the grade of kerosene used (and there are many grades—*vide* Deichmann *et al*) was non-toxic even in large doses. From the experiments of Smith and Seelman (1944) and Woodard *et al* (1944) who found that for small mammals lethal oral doses of DDT in vegetable oil were 1.0 to 6.0 mg/kg body weight, we calculated that a 10 lb child would have to ingest 20 to 120 ccm 5% DDT in kerosene to show lethal effects. The fact that the child died ingesting 30 ccm 5% DDT in kerosene was thus in accordance with these deductions—I am, etc.

N. S. Upton-Tyng

K. R. HILL

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The E.S.R. Technique

SIR—Dr J. W. Shackle (Feb 2, p. 181) says "It is not serum, of course, but let that pass." Hutchinson and Hunter (*Clinical Methods*) call the clear fluid that settles at the top when blood is allowed to stand "serum" fourteen times in three pages (600-2). What is good enough for them is good enough for me. Dr Shackle states that my remark that "the higher the column of blood the greater will be the amount of clear serum to be read off" is an "error of great magnitude." But when I take two Westergren tubes and fill one up to 200 mm and the other up to 100 mm with the same blood and find at the end of an hour, as I have done repeatedly, that the length of the column of clear fluid above the erythrocytes in the former is precisely double that in the latter, I must take leave to believe my own eyes rather than Dr Shackle's statement that "it is just positively not true." His Gilbertian accusation that I might just as well say that I (or preferably he) would drown five thousand times faster in the Pacific than in the deep end of a swimming bath is like "the flowers that bloom in the spring," and has "nothing to do with the case."

Presumably one's drowning rate would be equal in either eight or eight thousand feet of water.

"No reputable firm sells sedimentation tubes with jagged ends"; but my tubes were made, or marketed, by a reputable firm, and they have ends jagged, or irregular, enough to let in air unless I wet my finger.—I am, etc.,

Stowmarket.

H. S. GASKELL.

Tuberculosis in Childhood

SIR,—The magnitude of this problem may be assessed by the Lancashire figures. In a population varying during the war years from 1,900,000 to 1,837,000 the deaths from tuberculosis in children have been as follows:

	Five-year Averages			1943	1944
	1928-32	1933-7	1938-42		
Pulmonary tuberculosis :					
Aged 0-5 years	7	3	7	8	8
Aged 5-15 years	22	15	9	6	4
Non-pulmonary tuberculosis :					
Aged 0-5 years	75	57	59	56	66
Aged 5-15 years	43	34	25	27	22

The deaths from meningitis in children 0-5 have been a little less than half the total for all other age groups combined (i.e., up to 65). Dr. Gaisford in his article on primary tuberculosis in childhood (Jan. 19, p. 84) speaks of "scores of infants dying from tuberculous meningitis." In the administrative county area in a population given above the deaths in the age group 0-5 in 1943 were 36.

How can tuberculous meningitis be greatly reduced or prevented? In the Lancashire research on *The Fate of Young Children in Tuberculous Households* (C. Tinling & Co., Ltd., Liverpool, London, and Prescott, 1929, p. 37) one of the conclusions ran:

"The death rate from non-pulmonary tuberculosis of children exposed to risk in tuberculous households from an adult with positive sputum was greatly in excess of the rate from the same cause in the geographical county of Lancaster serving as the 'control,' the rate being: nine times greater in the age group 0-1; fourteen times greater in the age group 1-2; nineteen times greater in the age group 2-5. This great excess of non-pulmonary tuberculosis is mainly due to deaths from tuberculous meningitis, which accounted for two-thirds of the mortality in the non-pulmonary group, ages 0-5."

When, therefore, we more thoroughly find, isolate, educate, treat, and rehabilitate the adult positive case this distressing mortality in young children will be prevented, and then, and only then, will the tuberculosis physician and the paediatrician be satisfied.—I am, etc.,

Preston

G. LISSANT COX.

SIR,—Reluctant to enter into the somewhat veiled controversy about childhood tuberculosis and its management, on which opposed views threaten to become overt in the correspondence columns of your *Journal*, I must disagree with the assertion in Dr. Stephen Hall's letter (Feb. 2, p. 180) that the importance attached to this disease by paediatricians seemed to him "almost dilettante." The implication that a section of our profession could magnify the significance of a disease, preventable, yet fatal to more than 2,000 children annually in England and Wales, is false. In 1936-8 the average yearly number of deaths from primary tuberculous meningitis alone was 2,322, and in 1941 was 2,933, 80% occurring in children. It is true that adult-type tuberculosis kills ten times as many victims and causes 100 times as much suffering and ill-health, but such comparisons lead us nowhere. Biologically it may be no less desirable to save the life of one child than that the lives of ninety and nine phthisical middle-aged should be prolonged. I am certain that there is no real divergence of opinion on the paramount need to safeguard the nation's children.

One reads on every hand the categorical imperative: "Protect your child against diphtheria," but child deaths from tuberculous meningitis are at present of a similar order of magnitude in this country. At some future date we may see B.C.G. vaccination (and the consumption of pasteurized milk) advocated with equal colour and emphasis on our hoardings,

cinema-screens, and in our newspapers. I am unaware that our tuberculosis service is promoting research on these lines in contrast to the practice in Scandinavian and other countries of conferring by this means a partial immunity on newborn infant "contacts" and Mantoux-negative reactors at risk in the older age groups. For this reason alone we have little cause for complacency.

Dr. Stephen Hall also makes the mistake (but in reverse) that Dr. R. M. Orpwood objects to in his letter (p. 180) by placing in his turn an excessive reliance on local mortality statistics, while tending to disregard the clinical impressions of others. That "it doesn't seem a great problem" does not hold everywhere. In the *Medical Officer* (June 24, 1944) I wrote of our experience of tuberculous meningitis in an urban community of 300,000 people during the first four years of war. Then we had 97 deaths, of which 74 were in children under 15 years, 53 in those under 5 years. (During the same period we lost 56 children under 15 years from diphtheria.) Due to the fluctuating number of the child population at risk we could only guess at the true occurrence rate, which may have been 100% higher than in peacetime.

As we have only one children's hospital it is possible that any paediatrician might truthfully aver that he had seen one or more "scores" of meningitis deaths over a short period of years. This probability was even likelier in London, where Dr. W. Allen Daley (*Journal*, Oct. 10, 1942, p. 417) revealed that the rate of new cases of tuberculous meningitis per 1,000 living was 250% greater in children in 1941 compared with 1938.

In infants tuberculosis is one of the most fatal of diseases; at pre-school age it becomes less so, and is comparatively harmless during school life. Age is thus a factor in determining mortality, but more critical perhaps is the presence of contact with a continuing source of infection. Many more "preventoria" are necessary, so that we may be able to rescue for a time from the hazards of their environments the smaller children from the poor and infected families.

In a city of 60,000 children 50 to 60% will have passed safely through their primary infections when they reach school-leaving age. By simple arithmetic one can calculate that, if all this infection and disease could be detected (by tuberculin surveys and mass radiology) and were evenly distributed in time, that city would require a children's sanatorium of 1,000 beds, capable of dealing with 2,000 to 3,000 cases each year. The contention commonly aired by paediatricians, that, ideally, all primarily affected children should be treated in sanatoria, scarcely seems defensible, nor would it be possible to effect.

At Papworth no child out of several hundreds born there in 30 years has died from generalized tuberculosis. Tubercle in childhood loses many, if not all, of its potentialities for disease and tragedy where housing is adequate, work and wages secure, diet satisfactory, combined with close medical supervision of those living in the infectious milieu. That lesson, taught so that he who runs may read, has yet to be learned by most of us. When it is, our wrangles on this subject will lapse into mere dialectical exercises. In the meantime we must constantly use our own influence to bring about this socio-economic amelioration.—I am, etc.,

Kingston-upon-Hull

R. HARDY.

SIR,—May I take up a point in the concluding remarks of Dr. Wilfrid Gaisford in his excellent review on primary tuberculosis in childhood (Jan. 19, p. 84). Quoting Nelson he writes: "The ideal procedure would be for him [the average general practitioner] to do tuberculin tests on all children . . . and order x-rays on all positive reactors and their contacts." How wonderful it would be if this could be fulfilled! From my own experience of general practice I have often been gripped by a sense of terrible frustration, sometimes amounting to anger, when faced time and time again by a household containing a tuberculous adult and the bairns running freely around—nobody caring. The tuberculosis authorities do not appear to have the staff to visit all such cases, and in any event where can the children go? The terrible housing shortage caused by the war accentuates the problem. The general practitioner has hardly the time to do routine Mantoux tests on all children and x rays are not in his power to order.

It is this last point which is of decisive importance. To-day the x-ray examination of the chest is as much a part of a

clinical examination as percussion or auscultation. When René Laennec invented the stethoscope more than 100 years ago he gave to the profession a modern scientific instrument which proved invaluable. For more than 30 years it has been impossible to think of a doctor without also thinking of a stethoscope.

Röntgen's discovery of x rays has opened a new door, but as yet the general practitioner is not in possession of this mighty weapon in the pursuit of tuberculosis. The possession of his own x ray plant is beyond his means but to day a new system in the organization of medical practice presents us with an opportunity to give the general practitioner what he has long waited for—his own x ray plant where he may radiograph the chests of his own patients. I refer to the health centres which the Minister of Health will introduce when the health Bill becomes law. The general practitioners and others interested in his work must insist that in these new institutions there must be modern x ray plant and a skilled radiographer so that G.P.s may readily radiograph their own patients, whether children or adult. If this is done, and full facilities for the scientific practice of medicine are given to the G.P., the much talked about "shortcomings of the average general practitioner," which frequently recur in scientific books and periodicals, not to mention the lecture to students by the clinical teachers themselves, could be remedied before many more years have gone by—I am, etc.

Newcastle-upon-Tyne

P. W. ROE

Sulphonamide Control of Streptococcal Epidemics

SIR,—May I call attention to a statement in the annotation under the above heading (Feb 2, p 168) to the effect that "mass chemoprophylaxis did not induce sulphonamide hypersensitivity among the men, nor did it produce sulphonamide-resistant strains of streptococci" (italics mine). I have not yet had the opportunity to see the paper by Commander Coburn referred to, but in a report on the whole of this chemoprophylactic work (Navmed 284) published by the Bureau of Medicine and Surgery, Navy Department, Washington, D.C., in 1944 or early 1945, there is a footnote (p 33) which says "During the summer months (since this report went to press) clinical and bacteriologic findings have indicated that strains of Types 19 and 17 recovered at this naval activity are resistant to prophylactic doses of sulfadiazine."

Much more important is the paper published in the *Journal of the American Medical Association* for Dec 1, 1945 (129, 921) by Epidemiological Unit No 22, which gives an account of a major epidemic of streptococcal disease which occurred in one of the camps where sulphadiazine-resistant strains became predominant (Types 19 and 17). There seems to be no doubt that the adoption of mass chemoprophylaxis was, in fact, followed by the appearance of these resistant strains, in this instance at any rate—and that it had serious consequences.

It is a disquieting reflection that these sulphonamide-resistant streptococci may have been widely distributed in the world by the trainees of this and other U.S. camps—I am, etc.,

LEONARD COLEBROOK

Quinine for Induction of Labour

SIR,—In your issue of Jan 19 the Ministry of Health gives notice that quinine may now be used for the induction of labour. It is unfortunate that a thoroughly bad practice which is productive of many stillbirths each year should thus be revived—I am, etc.,

London W 1

F. NEON REYNOLDS

The Disabled Persons Register

SIR—Dr J. S. Laurie is to be commended for giving careful thought to the Disabled Persons Act and the duties which arise therefrom (*Journal*, Feb 2, p 183) but unfortunately his interpretations are misleading, his conclusions erroneous, and his observations unjust. Employers who advise their employees to register are not "unscrupulous." Employees who accept such advice are not "victimized." There is no new "racket." In refusing to give a certificate or to assist in registration because a disabled man is already in regular employment, Dr Laurie displays misunderstanding of the Act. He argues that if a

patient has hitherto been regularly employed and is presumably a valuable employee, he cannot be substantially handicapped. But the disabled person who is once given the opportunity is nearly always a valuable employee. The very purpose of the Act is to see that every disabled person becomes a valuable employee and that every disabled person is in regular employment. It will not be suggested as soon as we have succeeded in this purpose that none are disabled and none worthy of registration. Meanwhile, is a man to be penalized because he has done for himself what others are trying to do for others? Is an employer to be penalized because for some years he has done a duty which is now to be forced upon him? One disabled man may already have gained employment, whereas another is hoping shortly to gain employment, in each case the problem is the same—is there a handicap in the open labour market, in competition with his fellows, in these days when there may be unemployment as well as present days when there is almost full employment, not for an employer for the most skilled work which he can take and keep on his merit? If there is a substantial handicap he should be registered. If there is no substantial handicap he should not be registered.

In many cases the decision is easy, and a disabled man may so grave that there is obvious need for protection or even some times for the special conditions of sheltered occupation, or on the other hand, the disability may be so trivial that there is clearly no need for registration. In such cases the Disablement Rehabilitation Officer will accept the recommendation of the patient's doctor and act accordingly. In other cases the decision is not easy—it is a border line case. But still there need be no anxiety on the part of the doctor, the decision is not imposed on the G.P. All that is required is a simple statement of the functional capacity of the patient on one of the official prepared forms or on any certificate which the doctor may prefer. The decision as to whether or not registration is warranted will then be made by the Disablement Advisory Committee of the region, a committee of employers, employees and doctors which will maintain reasonable uniformity throughout the region and in due course, with added experience, throughout the country.

It may well be that in early days some patients will get at least temporary admission to the register who a justification for registration is slender. If this does happen no serious harm will have been done. But the opposite danger is very real. The quota of disabled persons who must be engaged by every employer has been established provisionally at 2%, but the figure will be determined from time to time in accordance with the number of persons on the register. If any large number of disabled persons fails to register through pride or indifference, through failure to recognize the advantages to be gained or through neglect of their responsibility to others who are disabled, the quota will be lower than it should be and the whole purpose of the Act will fail. It is therefore the duty of all employers, and likewise of all doctors, to see that every disabled person with a genuine handicap in seeking or keeping employment is recommended for admission to the register. If any doctor is in doubt he should ring up the nearest Exchange and ask for the Disablement Rehabilitation Officer who will be honoured and delighted to accept an invitation to co-operate—I am, etc.,

REGINALD WATSON JONES

Chairman of the Medical Committee, National
Advisory Council of the Ministry of Labour
and National Service

London, W 1

SIR—Dr J. S. Laurie is exposing not a "racket" but what is probably a commendable effort on the part of enlightened employers to ensure that their disabled employees take advantage of their rights under the Disabled Persons (Employment) Act, 1944. If there is a weakness in the Act it is not that too many but too few disabled people will register, but I believe this weakness will, in time, be overcome by the guidance of well-informed doctors and employers and the Press. Dr Laurie will find his difficulties resolved by a visit to the Disablement Rehabilitation Officer at a labour exchange who will, I have found, gladly explain the workings of this excellent Act and the method of assessing "border line" cases—I am, etc.,

Cambridge

GORDON H. MCCracken

Obituary

SIR JOHN BROADBENT, Bt., D.M., F.R.C.P.

Sir John Broadbent, consulting physician to St. Mary's Hospital, to King Edward VII Sanatorium, Midhurst, and to the London Fever Hospital, died on Jan. 27 at his country home near Wendover in Buckinghamshire.

John Francis Harpin Broadbent was born on Oct. 16, 1865, the eldest son of Sir William Henry Broadbent, M.D., F.R.S., first baronet, one of the leading London physicians and clinical teachers in the latter part of the reign of Queen Victoria, who had been physician to three generations of the Royal Family. John Broadbent, of Yorkshire descent on both sides, was educated at Rugby and Oxford, and entered St. Mary's Hospital while his father was still on the active staff there. He graduated M.A., B.M., B.Ch.Oxon in 1892, proceeded to the D.M. degree in 1894, and was elected F.R.C.P. in 1904. At St. Mary's he held the posts of house-physician, house-surgeon, casualty physician, and assistant pathologist and curator of the pathological museum, and became physician to out-patients in 1905. He was elected to the full staff in 1913 and for ten years was Dean of the Medical School, devoting much time and energy and good will to the duties of that office during a difficult period. He retired from the deanship in 1920 and from the active staff of the hospital in 1930. He examined in medicine for the Royal College of Physicians for four years and served on the Council in 1923-5.

Sir John Broadbent, who succeeded to the title in 1907, was secretary of the Section of Medicine at the Sheffield Meeting of the British Medical Association in 1908. In later years he was President of the Medical Society of London and of the Harveian Society of London. He had collaborated with his father in the book *Heart Disease and Aneurysm of the Aorta*, which reached its fourth edition in 1906; his younger brother, Dr. Walter Broadbent, formerly physician to the Royal Sussex County Hospital, Brighton, undertook the editorship of *The Writings of Sir William Broadbent*.

Sir John Broadbent married a daughter of G. P. Field, aural surgeon to St. Mary's, and had four children. Unlike his father, who was a man of robust and outspoken nature, he did not make an immediate impression in the wards or in the lecture-room, but students could feel his warm concern for their welfare and that of the hospital and medical school; and the value of his quiet teaching at the bedside was reinforced by the courtesy and consideration he showed to patients.

H. D. MCKINNA, M.C., M.B.

The very sudden death of Dr. H. D. McKinna of Nottingham came as a severe shock to his many friends. He had been in his usual high spirits, and was enjoying, with all his well-known vigour, the games at a New Year's Eve party at the rooms of his church, when he suddenly collapsed and died.

Henry Drummond McKinna was born at Huddersfield 47 years ago. He was educated at Huddersfield College and Silcoats School, and took his medical degree at Edinburgh University. In the 1914-18 war he was a second lieutenant in the Argyll and Sutherland Highlanders. It was characteristic of him that he joined up before he was of age. He was severely wounded in 1917, and won the Military Cross. On recovery he completed his medical studies at Edinburgh. After graduating M.B., Ch.B., he was house-surgeon at the Nottingham General Hospital, where he met his wife, Dr. Eva Young. They were married in 1924, and had two sons. He settled in practice at West Bridgford, Nottingham, in 1931, first as partner to Dr. Blurton, and on his retirement with Dr. S. C. Mattock. Apart from his large practice, he found time to act as a very capable assistant in the department of dermatology at the Nottingham General Hospital, and also as joint secretary of the local branch of the B.M.A. He was a member of the council of the Nottingham Medico-Chirurgical Society. He was ever keen on the welfare of his brother practitioners, and took endless pains at both local and representative meetings on their behalf.

The following tribute comes from J. G. B. and S. C. M.:

Dr McKinna was worthy of the title of doctor, for he never spared himself in his efforts to bring help and comfort to his patients. He kept well abreast of the times, and any new treatment was not long withheld from his active and capable hands. When most of us would tire of the ordinary routine, he would still have that

buoyant enthusiasm that marked all his work and made acquaintance with him such a treasured memory. Working day and night, he seemed to have unbounded energy, which, in the light of our knowledge now of the frail body that housed this gallant spirit, is nothing short of a miracle. His help was always generously given, no call on his precious time went unrewarded, he would come with a smile and an assurance that was a comfort in the time of doubt. Light did not come to him from eastern windows only, he found it in all directions; where one saw shadows he saw hope, and because, of this great faith and noble outlook we will all miss him the more. Despite his very active life, he found a little time to play a few holes of golf, or the break of a day or so to cast a fly.

What a delightful companion he was! always ready for the fray, never despondent if things did not go right, never critical of failure, ever ready with that well-known smile to give encouragement and advice. How well he could give advice too! never leaving behind any sour taste, but usually something sound and of much help. It would be impossible to write of all the virtues of this great-hearted little man; only can we say a few little words which cannot express what the heart would. To his widow, to Colin and Alan, we would give our sincere sympathy in the days of their great sorrow.

F. E. SCRASE, F.R.C.S., D.P.H.

Dr. Frank Edward Scrase, who died at Newton Abbot on Feb. 4, was appointed medical officer of health for the Metropolitan Borough of Hampstead in 1912, and held office until 1932, when he retired on attaining the age limit. He studied medicine at Bristol and St. Bartholomew's Hospital, qualified in 1893, and took the F.R.C.S. in 1896. He was a member of the first Borough Council of Hampstead from 1900 to 1903, but did not seek re-election. In 1905, having taken the D.P.H., he acted as M.O.H. for a few months during the period between the death of Dr. Herbert Littlejohn and the appointment of his successor. He became honorary deputy M.O.H. in 1908, and in 1912, when the senior office again fell vacant, he was elected to the position.

Dr. Scrase was a man of kind disposition, and very popular among his colleagues. As a public health official he believed in steady, consistent, ordered progress; and during his term as M.O.H. he maintained the high standard which had been set by his predecessors. He was a member and at one time chairman of the Metropolitan Branch of the Society of Medical Officers of Health. In 1928-9 he was chairman of the Hampstead Division of the B.M.A. During his 21 years as M.O.H. he directed the development of many public health services, especially those connected with the campaign against tuberculosis, including the activities associated with the municipal tuberculosis dispensary at Kilburn; and the movement for a pure milk supply free from tuberculous infection. It is perhaps in maternity and child welfare more than in any other section that the gratitude of Hampstead is due to Dr. Scrase. His years of private medical practice before undertaking public office stood him in good stead in this; and the development of this work, as with that connected with tuberculosis, was conducted with the good will and help of the local medical profession. Under his advice and guidance a comprehensive scheme was developed; antenatal clinics were established, health visitors and other staff were appointed. In some particulars, notably in the careful investigation of all the circumstances of each case of illness or death among parturient women and of every infant death, Hampstead has been among the pioneers. Dr. Scrase undertook this work personally many years ago, and a medical subcommittee of the Borough Council has continued the work. The low infantile mortality of Hampstead has for many years been remarkable. Dr. Scrase's interest was not only concerned with infants, however, and many years ago he reported: "In a borough like Hampstead no child should begin school life with any disease or physical defects that could have been prevented or mitigated during the first five years of life by any action that ought properly to have been undertaken. A little effort spent in this direction on young children will, in all probability, result in the diminution of the number of physically unsound workers and potential parents." Many other references could be quoted from his annual reports which indicate the wideness of his outlook and length of vision. Next to work among women and children, Dr. Scrase's chief interest lay in housing, as his many outspoken and illuminating reports have borne witness.

W. E. THOMAS, M.D., J.P.

Prof. R. M. F. PICKEN writes:

Wales has lost a prominent and distinguished member of the medical profession by the death of Dr. W. E. Thomas. Although he was a busy and successful practitioner he had taken an active part in local affairs since the inauguration of the modern system of local government in the last decade of the nineteenth century, serving both on the Rhondda Urban District and Glamorgan County Councils. His medical knowledge and his experience in local government

made him a natural choice as a representative on bodies concerned with health and education. Thus he was a member of the Court of the University of Wales, of the Court of Governors and Council of the University Colleges of South Wales and Monmouthshire, of the Council of the Welsh National School of Medicine, of the Board of Managers and Council of the Welsh National Memorial Association, and of the Board of Management of Cardiff Royal Infirmary. Up to the end of his life he continued to take a very active interest in the affairs of the Medical School and of the Welsh National Memorial Association, being chairman of the Medical Committee of the latter body. The prominent part he took in the central and local activities of the British Medical Association is too well known to need more than mention.

Thomas had not the Welsh gift of oratory. He was at his most vigorous in committee. He read and mastered his agenda papers and never accepted unthinkingly the official or majority view on any subject. He was highly argumentative and, while he watched carefully the possible effects of decisions on medical practice, his primary concern was the best interest of the community. He was a keen Welsh patriot and concerned that Welsh men and women should have a square deal where appointments were concerned, but he was equally determined that the best candidates should be appointed to posts irrespective of their nationality, as the best means of serving the interests of Wales.

Like many other people who are individualistic and inclined to controversy, Thomas was a most kind and reliable friend. If you had a good case requiring support he could always be relied upon to give it. He knew the inner workings of local government in Wales, so that his advice and help to younger men were invaluable. There are many who will miss his presence and his support.

Dr. IVOR J. DAVIES, consulting physician to the Cardiff Royal Infirmary, writes:

I wish to add a personal note to Dr. Arthur Jones's tribute. Dr. W. E. Thomas was our family doctor and everyone at Pentre and neighbourhood had a very warm affection for him. To his exacting colliery duties he added a large private practice. It is remarkable how he managed to do it all—professional, B.M.A., and public duties—so easily and well. "W. E." was quick but safe, methodical and very practical, and always worked to a strict programme or he would never have been able to accomplish so much, and so continuously over half a century. Truly an amazing record, and the secret probably was that he had an exceptionally sound knowledge of modern medicine, an intense love of his profession and fellow men, and never wasted any nervous energy in his work. The early years of his practice were grim days in the Rhondda Valley, for there were no inter-valley roads at that time and no playing fields except for a few reserved for the leading football clubs. It was not until the Miners Welfare Commission became law that we secured recreation grounds—much to "W. E.'s" joy, for the collier was always first in his thoughts. On meeting him at Pontypridd when Glamorgan played its first championship match in the valleys instead of exclusively at Cardiff or Swansea, he remarked, "Now at last we shall see first-class cricket in the valleys." He was keen on sport, and particularly rugby, and never missed an international match, and was usually seen in the company of his old friend Dr. D. Roeyn Jones (president of the Welsh Rugby Union). He was proud of his alma mater—Edinburgh—and revered its great men. After attending a meeting of the Association of Physicians at Edinburgh I referred to its fine clinical demonstrations, when he sharply replied with that characteristic twinkle and shake of the head, "We were always foremost in clinical medicine, and several of your best men in London were Edinburgh graduates." "W. E." was a close friend of the late Earl Lloyd George in the great days of Liberalism, but his political leanings never lessened the miners' unfailing regard for their "doctor." He had a great love of Wales, its literature and music, and spoke excellent Welsh, for he came from the North. He was an elder at our nonconformist chapel, which he most generously supported throughout the long period of his professional life, as was eloquently affirmed at the funeral service by his pastor (the Rev. Idris Davies). W. E. Thomas set a high standard and leaves an influence of imperishable value in the mining valleys, and probably the best tribute to his memory would be to secure a real alleviation of the arduous life of a colliery practitioner by increased hospital and other services.

Dr. ALFRED COX writes:

I should be sorry if my old friend "W. E." were allowed to go without a salute from one who owed much to him in the way of kindness, hospitality, and enthusiastic co-operation in the work of the B.M.A. For many years he, with the late W. J. Greer, of Newport, was in the forefront of every battle at a time when South Wales was full of contract practice problems seemed too impulsive, Thomas was a born fighter. If he sometimes seemed too impulsive, he was a very astute politician and had many of the characteristics of his hero, Lloyd George. W. E.'s knowledge of the Welsh miners' leaders was extensive and peculiar. The B.M.A. could never be too grateful for his help in those critical times.

Centrally Thomas was also a prominent figure, and, as you truly said in your notice, "no Annual Meeting seemed complete without his genial presence." It was not that he spoke often. His work was done amongst the Welsh contingent, who had great confidence in his leadership. No picture of Thomas would be complete without some mention of his lively sense of humour, so I cannot refrain from relating one instance of it of which I was the victim, but a very appreciative one. W. E.'s colleagues in the Glamorganshire educational field presented him with his portrait, and I was invited to attend. I was unexpectedly called on to speak, and, while expressing my pleasure at being able to do honour to my old friend, I said that the artist (a lady, who was present) had missed what I thought was W. E.'s chief characteristic. She had portrayed a benevolent gentleman, a man in whom there was no guile, whereas we who knew him always thought of him as a born fighter, always "trailing his coat" and very sorry when no one accepted the challenge. This was very appreciatively received, but when W. E. got up to respond he said he had been maligned, and by the last person in the world who ought to talk about "loving a fight" for I, he said, was "the A. J. Cook of the medical profession." This brought down the house, for A. J. Cook was the most notorious militant, and almost vermillion in hue, of the miners' leaders at the time. Those who did not know the W. E. of twenty years ago must take it from seniors like A. T. Jones and myself that he was an outstanding figure, not only in B.M.A. circles but in nearly every branch of Welsh social and political life.

By the death on Feb. 6 of HUGH WANSEY BAYLY, M.C., aged 73, the medical profession has lost a colourful and many-sided personality. He was educated at Clare College, Cambridge, where he graduated as M.A. in 1898; and at St. George's Hospital, whence he qualified as M.R.C.S., L.R.C.P. in 1900. He was passionately devoted to the sea and to yachting, and spent some considerable time as surgeon on liners; quite early in this century he had the courage to operate on a case of perforated gastric ulcer on shipboard, having persuaded the captain to alter course so that he should be able to stand up while he did the operation; he was awarded for his pluck and skill by the recovery of his patient, and it was said at the time that this was the first such result on record at sea. Before this he had served with the Yeomanry in the South African Field Force in 1900-1. Later still he was in 1903 house-surgeon at Great Ormond Street Children's Hospital, after which he visited India. A serious attack of acute rheumatic pericarditis hindered his subsequent activities for a considerable time, but did not prevent him from serving as temporary surgeon in the R.N. in 1914-15, and in the R.A.M.C. in 1915-19 wherein he reached the rank of major. He had the melancholy duty of attending the late Raymond Asquith when he was fatally wounded in the trenches, and was himself wounded by a bullet which went right through his knee-joint without touching a bone; he was awarded the Military Cross for his services. Professionally he devoted many years of his career to the study and treatment of venereal diseases, and practised as a specialist in this branch of medicine in Harley Street. He wrote a textbook on syphilis, but did not obtain the unanimous assent of his colleagues to some of the views which he expounded. He was founder of the Society for the Prevention of Venereal Disease, of which he remained a vice-president up to his death. When the recent war began his fondness for the sea and his burning patriotism found an outlet in service as medical officer on a transport in 1939-40; but illness supervened and he was forced to retire into inactivity. It would be futile to claim that Bayly was a great clinician, but he was a man of inexhaustible energy and unbounded courage, both physical and moral. Last year he contributed to the *St. George's Hospital Gazette* a most entertaining (and instructive) account of the many exciting experiences in his adventurous life.

We regret to announce the death of Dr. VAUGHAN PENDRED, of Tilford, Surrey, which took place in hospital at Farnham on Feb. 1. He was born at Herne Hill in August, 1869, and was educated at Westminster School, at Newcastle-upon-Tyne, and at Guy's Hospital. He qualified in 1893, and after serving as obstetric resident and house-surgeon at Guy's graduated M.B. of Durham University with honours in 1896, and obtained the F.R.C.S. in the same year. He proceeded to the M.D. degree in 1901. Before entering general practice he worked as assistant in the throat and ear department of the Newcastle Infirmary and as assistant medical superintendent of Fulham Infirmary. He practised first at Buckingham, then at Coventry, and from 1913 to 1936 at East Sheen, after which he retired to live at Tilford. Dr. Vaughan Pendred joined the B.M.A. in 1897, was chairman of the Richmond Division in 1933-4, and represented it at the Annual Meeting of 1935. He had also been honorary secretary and vice-president of the West London Medico-Chirurgical Society.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The Vice-Chancellor announces that the Rockefeller Foundation has agreed to make available a grant not exceeding £15,000 for research in neurophysiology under the direction of Prof. E. D. Adrian during the five years ending Jan. 31, 1951.

The titles of the degrees of M.B., B.Chir. were conferred by diploma on A. S. Willis of Newnham College in January.

UNIVERSITY OF LONDON

WESTMINSTER HOSPITAL MEDICAL SCHOOL

Two entrance scholarship examinations in anatomy and physiology will be held on March 13 and 14. Applications for further particulars must reach the Secretary, Westminster Hospital Medical School, 17, Horseferry Road, S.W.1, by March 4.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL

Mr. R. Benesch, M.Sc., has been appointed to the British Drug Houses Fellowship for the study of the biochemical aspects of cancer, tenable at University College Hospital Medical School. He will work in the Department of Chemical Pathology under the direction of Prof. C. Rimington.

UNIVERSITY OF EDINBURGH

Prof. H. Davson, D.Sc., of Dalhousie University, will deliver a lecture on "Some Physicochemical Aspects of Vision" in the Biochemistry Lecture Room, University New Buildings, Edinburgh, on Thursday, Feb. 21, at 5 p.m. Students and graduates are invited to attend.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

At a meeting of the College held on Jan. 31, with the President, Lord Moran, in the chair, Dr. B. T. Parsons-Smith was re-elected the representative of the College on the Queen's Institute of District Nursing and Prof. J. W. McNee and Sir Arthur MacNalty on the Imperial Cancer Research Fund. Reports were received from the committee appointed to consider the training of general physicians, from the social and preventive medicine committee on student health, and from the committee on dermatology. All three reports were approved.

Membership

The following candidates, having satisfied the Censors' Board, were elected Members of the College:

H. W. Bunjé, M.B. Lond., Glenys M. M. Donaldson, M.B. Ed., H. H. Doss, M.B. Cairo, A. Erdei, M.D. Vienna, R. H. J. Fanthorpe, M.B. Lond., H. McC. Giles, M.B. Camb., C. H. Goldmann, M.D. Leipzig, Susanna Gordon, M.D. Chicago, H. N. W. Harley, M.B. Lond., W. E. Henley, M.B.E., D.M. Oxon., M. Hewitt, M.B. Lond., A. L. Humphrey, L.R.C.P., D. G. James, M.B. Camb., S. T. H. Jenkins, M.B. Lond., J. D. Judah, B.M. Oxon., J. J. Kempton, M.B. Bristol, Madeleine J. Mackenzie, M.B. Lond., T. N. Morgan, M.D. Aberd., L. Nancekivell, M.B. Lond., L. R. Patel, M.D. Bombay, M. G. Philpott, M.B. Lond., J. D. Roger, M.D. Toronto, R. Schneider, M.D. Berlin, J. C. Scott-Baker, M.B. Lond., J. C. Sloper, M.B. Camb., P. M. Smythe, M.B. Camb., C. J. Williams, M.B. Liverp., H. Wolfsohn, M.D. Lond., F. J. Zacharias, M.B. Liverp.

Licences

Licences to practise were granted to the following 159 candidates (including 27 women) who have passed the Final Examinations in Medicine, Surgery, and Midwifery of the Conjoint Board, and have complied with the necessary by-laws:

D. C. Adamson, R. W. Adlard, P. K. A. Andrews, E. H. Annels, D. A. Arthur, K. M. Backhouse, C. E. Bagg, R. I. W. Ballantine, D. A. N. Barran, A. J. Barry, J. B. Berry, A. V. G. Bibby, G. E. Bond, J. G. Briant, H. G. Broder, W. Brown, M. K. Bryce, K. Burchill, D. J. Burnett, G. H. Carrick, N. R. Chan-Pong, R. Clitherow, H. W. Colson, Olive Cooke, M. G. Cox, W. W. Cree, P. W. Dagger, D. G. Dalglish, P. W. Darby, W. H. Davies, H. R. De Vitre, E. Dillstone, Jean M. Druc, P. W. Durrans, Mary E. Eagles, S. Edelman, S. Eden, M. Evans, G. M. H. Evans, L. A. J. Evans, Elizabeth P. E. G. E. G. Featham, P. A. Feldman, M. R. Fell, A. T. R. W. Forrest, Frances A. Fouracres, J. M. Garratt, E. B. Gethen Smith, Jean M. Gilbert, M. J. Gilkes, J. Gloster, J. H. H. Glyn, Beryl M. Goetze, S. Goldwater, Janet Gordon, R. L. Greenwood, A. W. Halfhide, W. M. C. Halliman, R. J. C. Hart, P. M. R. Hemphill, N. D. H. Heneghan, A. C. Hill, Gina L. Hobbs, H. Hofstadter, B. H. Hogben, Vera Holdway, H. B. Houldsworth, J. D. Huntley, F. L. Jackson, Pauline M. Jackson, G. J. Jacobs, G. V. Jaffé, D. W. James, H. C. W. James, A. M. Johnson, A. T. Johnson, I. H. D. Johnston, G. F. Jolly, I. C. Jones, J. W. Jordan, W. P. Kelly, P. D. A. Kent, D. L. Kerr, S. J. Krister, Margaret A. Lakeman, C. H. B. Lawfield, Elizabeth J. Lee, K. Lowe, D. M. O. Lowry, H. A. R. Loxdale, Grace M. Lukose, Phyllis E. Lyne, N. J. C. McGill, H. W. Macintyre, E. W. F. Mack, Freda S. Mackover, I. K. R. McMillan, Sheila M. McNeile, A. E. Malone, F. M. Mann, B. Marsden, Martha H. Martin, R. F. Martin, C. G. W. Mason, J. D. Medhurst, D. McV. Merritt, R. H. B. Mills, W. I. Murdoch, D. Nuttall, R. H. Oldfield, T. C. L. Parry, R. A. J. Pearce, J. O. Pearce Edcumbe, R. M. Penny, P. P. Philip, Carol M. Plackett, R. M. Powell, R. D. Price, W. L. G. Quinlivan, O. T. Randell, S. S. Raphael, R. W. Rapinet, A. T. Richardson, J. H. Ridgwick, Yvonne H. H. Roberts, Calmen Rosen, C. T. Ross, Dorothy J. Roth, A. H. Saddler, R. St. Aubyn, D. V. Salkeld, Frances M. Saunders, R. E. Sidebotham, N. H. Silvertown, R. S. Smylie, K. A. Sowden, M. H. Stroud, W. K. Sutton, A. K. Thomas, R. H. Thomlinson, J. R. Tighe, H. W. Topham, D. A. H. Trythall, H. Wainstead, E. J. M. Weaver, Joan W. Wilkinson, J. D. Wilkinson, R. H. Wilkinson, J. R. B. Williams, R. D. Williams, C. J. Wilson, R. E. Woolley, G. R. Wotton, Sybil R. Yeates.

Diplomas

Diplomas in Anaesthetics were granted to the successful candidates whose names were printed in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of Jan. 5 (p. 34), and Diplomas in Laryngology and Otology and in Psychological Medicine to those whose names appear in the report of the meeting published in the *Journal* of Jan. 26 (p. 150).

Diplomas in Public Health and Medical Radio-diagnosis were granted, jointly with the Royal College of Surgeons of England, to the following successful candidates:

PUBLIC HEALTH.—J. Attard, Ada Barnett, J. E. Dickson, J. Fielding, T. H. Harrison, C. F. Ll. Hill, P. G. C. Jones, M. S. Moitra.
MEDICAL RADIO-DIAGNOSIS.—G. A. D. Gordon, P. F. Hauch, W. J. Latham, C. F. Parry, D. G. Wollin.

Medical Notes in Parliament

National Insurance Bill

Mr. JAMES GRIFFITHS on Feb. 6 moved the second reading of the *National Insurance Bill*. He said this was a culmination of half a century's development of British social services. The Bill consolidated into one the existing schemes of insurance against sickness, unemployment, and old age. It would bring economy in working and convenience to all concerned. These closely linked schemes would be under the control of a single Minister working through a single Department, and all the schemes would be based upon a single stamp upon a single card.

Sir HENRY MORRIS-JONES: Surely administration of health will remain under the Minister of Health.

Mr. GRIFFITHS said he referred to sickness benefit. All the people of this country would be brought under this all-embracing scheme. The sickness scheme was still not universal to-day. In sickness benefit the Bill raised the leading rate to 26s., compared with the present rate of 18s. for six months and 10s. 6d. afterwards. Grants to dependants were to be introduced for the first time in sickness benefits. The Government intended, in addition to giving cash benefits, to set up a comprehensive National Health Service, and to ensure that there should be the closest link between payment of cash benefits and provision of appropriate treatment. It had been estimated that the loss to the nation from preventable illness was £300,000,000 a year, equal to three-fifths of the total cost of this scheme in the initial year. He asked whether the nation could afford to go on without the scheme in view of the cost of preventable illness. Mr. Griffiths passed to the proposed maternity grant and allowance. He explained that a new allowance of 36s. a week for 13 weeks, 6 weeks before and 7 weeks after a birth, would only be paid if the mother stayed away from work.

Mr. R. A. BUTLER gave general support to the Bill, but calculated that the medical services, of which the House had not properly heard, would cost £105,000,000 yearly.

Sir HENRY MORRIS-JONES criticized the decision to defer or to refuse sickness benefit for 24 days in the case of self-employed persons. The only illnesses which lasted 24 days were seriously acute illnesses like pneumonia or chronic incurable diseases like cancer. Sir Henry remarked that the sickness ratio under the Bill was likely to be much increased. Many medical men told him that the ratio of illnesses of short duration had increased during the war. The position of medical men in dealing with sickness certificates was very difficult. The Minister might hope under the Bill and under the health scheme to have better control over the doctors in this matter, but Sir Henry warned him that he must not try to put the whole medical profession in a strait-jacket, or take away its freedom. If the Government did not get a friendly medical profession to co-operate with it the Bill would be damned.

The debate was resumed on Feb. 7 by Mr. ATTLEE, who said a comprehensive health service was yet to come. That service would be the Government's next instalment. He believed the benefits of the Bill and the provisions of the health service would save the immense loss which the country suffered through illness. Mr. LINDGREN offered favourable consideration in committee of amendments to allow sickness benefit for self-employed contributors to begin earlier.

The debate was again adjourned.

The Food Shortage

On Feb. 5 Sir BEN SMITH (Minister of Food) said the world's position in cereal supplies had deteriorated, and had been made worse by a series of droughts. All importing countries would have to make sacrifices. The British Government had accepted

a reduction of nearly 250,000 tons in United Kingdom wheat imports for the first half of 1946. This reduction could not be met out of stocks held in the country, it would have to be met by an early increase of the flour extraction rate to 80. That might not be the last step. The chance would be effected gradually. It could mean a return to the darker war-time loaf, but no deterioration in the nutritive value of the bread. It would reduce the volume of animal feed-stuffs with a consequent diminution of livestock production and less poultry, bacon, and eggs than the nation had hoped to enjoy later this year. The needs of the food-importing countries of the world were appalling. The world shortage of rice was contributory to the wheat shortage. Countries which could not secure rice turned to wheat or flour. The Government proposed not to issue rice to the civilian population of this country till world supplies became adequate. Owing to the shortage of cereals in India we should obtain less than half the quantity of ground nuts which we had expected from this source for vegetable oils. The whaling fleets sent to the Antarctic had had very poor results. Our stocks of oils and fats had been substantially reduced. He found it necessary to reduce the cooking fat ration by one ounce from March 3.

Mr. T. J. WILLIAMS announced on the same date that from May 1 pig and poultry rations would be based on one sixth of the pre-war stocks.

On Feb. 6 Mr. BEN SMITH answered eleven questions about the food and dried eggs. He said it was expected that during the spring of 1946 there would be a much larger supply of shell eggs than in 1945, and the Government had decided that it was not justified in bringing in as much dried egg as in 1945. There would be a gap in the allocation of dried egg during the period when shell eggs would be at their maximum. When the supply of shell eggs began to fall off the Ministry of Food would start issuing dried eggs again, but he could not say upon what scale.

Mr. HERBERT MORRISON announced on Feb. 9 that Feb. 14 would be devoted in the House of Commons to a debate on the world food shortage.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales infectious diseases were more prevalent during the week, and the following rises were recorded: measles 181, acute pneumonia 140, scarlet fever 89, whooping cough 78. The only large decrease was that of 50 for diphtheria.

Small increases in the notifications of scarlet fever were reported in most areas, the only notable exception being a decrease of 41 in Lancashire. London, with a decrease of 47, was the only exception to the general rising trend in whooping cough. The only large increases in measles were Norfolk 102, and Durham 35. Four counties—Norfolk, Suffolk, Lancashire, and London—contributed two thirds of the total measles notifications. The decrease in diphtheria was due to a few counties in London there were 20 fewer cases, in Warwickshire 14, in Yorks West Riding 13, and in Staffordshire 11, the only increase of note was Durham 17.

Typhoid has been reported from an institution in the Walhamstead district of London, the patients include two of the nursing staff.

Dysentery notifications were 13 fewer than in the preceding week. No further cases were reported from Peterborough where 38 cases were recorded last week. The outbreak in Leicestershire shows no signs of lessening, a further 139 cases were reported in this county during the week. The other large centres of infection were Yorks West Riding 58, London 33, Lancashire 26, Essex 13, Northumberland 13.

In Scotland in contrast with the experience of England and Wales, a fall was recorded in the incidence of most infectious diseases. The decreases included acute primary pneumonia 41, dysentery 24, diphtheria 8. Small rises were recorded for whooping cough and measles, of 19 and 11, respectively.

In Eire a further decline occurred in the incidence of diphtheria, the notifications of this disease having fallen by over one third during the past month. Cases of enteritis and diarrhoea rose from 9 to 22.

Week Ending February 2

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,351, whooping cough 1,265, diphtheria 496, measles 1,167, acute pneumonia 1,794, cerebrospinal fever 71, acute poliomyelitis 13, dysentery 407, paratyphoid 2, typhoid 7. During the week 297 deaths were attributed to influenza in the great towns.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Jan. 26.

Figures of Principal Notifiable Diseases for the week and the corresponding week last year for: (a) England and Wales (London included), (b) Scotland, (c) Eire, (d) Northern Ireland.

Figures of Births and Deaths for the week ended Jan. 26 for: (a) The 126 great towns in England and Wales (London included), (b) London (administrative area), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases, a blank space denotes data not available.

Disease	1946					1945 (Corresponding week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever—Deaths	76	4	37	1	2	1	—	16	—	2
Diphtheria—Deaths	47	21	12	5	2	25	1	14	9	—
Dysentery—Deaths	353	33	51	2	—	25	2	7	—	2
Encephalitis lethargica—Deaths	—	1	—	—	—	—	—	1	—	—
Enteritis—Deaths	—	—	52	9	—	—	—	4	5	—
Infective enteritis or diarrhoea under 2 years—Deaths	66	8	6	22	—	46	5	6	12	—
Measles—Deaths	507	109	116	10	1	12,541	1	—	21	16
Orchitis epididymitis—Deaths	4	2	17	—	—	4	2	15	—	1
Paratyphoid fever—Deaths	—	—	—	—	—	—	2	1	—	—
Primary amoebic meningoencephalitis—Deaths	1,450	97	81	15	22	1,271	106	1	—	—
Scarlet fever—Deaths	273	35	43	8	8	87	11	—	1	—
Smallpox—Deaths	—	109	46	12	26	—	6	2	—	21
Polioencephalitis acute—Deaths	2	—	—	—	—	—	—	—	—	—
Polioencephalitis chronic—Deaths	6	—	1	—	—	—	—	—	—	—
Paratyphoid fever—Deaths	—	—	13	—	—	—	—	—	—	—
Puerperal pyrexia—Deaths	133	7	14	1	—	141	9	15	—	1
Relapsing fever—Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever—Deaths	1,420	129	210	31	26	1,510	2	—	10	—
Smallpox—Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever—Deaths	1	—	—	7	1	—	—	2	—	—
Typhus fever—Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough*—Deaths	1,329	70	9	12	—	1,62	66	11	—	10
Deaths (0-1 year)	—	71	—	—	19	—	—	—	—	—
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding still births)	7,554	1,254	961	256	211	67	922	915	—	115
Annual death rate (per 1,000 persons living)	—	21	16	—	—	—	—	—	—	—
Live births	702	10	854	9	273	6,202	70	814	25	271
Annual rate per 1,000 persons living	—	17	25	2	—	—	—	16	—	—
Stillbirths	218	39	2	—	—	19	15	—	—	—
Rate per 1,000 total births (including stillbirths)	—	—	31	—	—	—	—	—	—	—

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative area), and Northern Ireland.

‡ Includes paratyphoid fever for England and Wales and Eire.

the hot weather, and as everyone does this it is very easy to conform to the custom. In such a case young children not only thrive but have a thoroughly healthy and enjoyable life.

The reason why a tropical country is not suitable for young children is that a hot, and especially a hot moist, climate tends to impair their vigour so that they may be less robust than children at home. Over and above this is the question of disease, especially malaria and intestinal diseases. Where conditions of life are likely to be civilized and comfortable, with good bungalows, fans, and other amenities, very young children, even if the climate is hot, would probably do quite well; but it would be unwise to take them to a tropical country without knowing what the conditions were going to be.

In the case of a young married couple it would certainly be a wise step for the wife and child to be left in England until the husband had had, say, six months' or a year's experience of the country. This would be an advantage in other respects, as he would be able to judge much better what conditions would be likely to be, and he would be in a better position to make things comfortable when his wife did come out. Short of this it would be a good thing to get in touch, if possible, with someone having local knowledge of the country, and to take his or her advice. An important matter which has to be considered is the long separation later when the children grow up. Life in the Tropics may have disadvantages, but it has a great many compensations, even for children, in the way of wider interests and experiences, and many pleasures that are not open to those who stay at home. Where a good opening offers some reasonable risk is well worth taking.

INCOME TAX

Income from Property

D. S. refers to an individual whose sole income is derived from the rents of property, and asks whether there is any way by which assessment under Schedule A can be avoided.

* Income from property is compulsorily assessed under Schedule A, with certain specific exceptions, which do not apply in this case—e.g., in the case of woods commercially managed. (Of the total tax (£25 approximately) payable for 1945–6, £9 15s. will ultimately be returnable as post-war credit.)

Whether Excessive Tax has been Deducted

"ANON." has been a surgeon lieutenant in the Navy since July, 1943, and has had tax deducted from his pay at from £11 5s. to £10 a month. Has he a claim to any refund?

* Prima facie the deductions have been excessive—on the figures given, to the extent of something less than £10 a year—but it is not possible to give advice without further details. We suggest that "Anon." should press the Income Tax Assessor's Department of the Admiralty for a detailed statement of his correct liability.

Replacement of Car

H. G. is in doubt as to whether to sell his present car and buy a new one. The car he has cost £200 in 1941, and he has had depreciation allowances on it amounting in all to £135 and bringing the written-down value to £65. If he now buys a new car he will receive a larger depreciation allowance in future. Does that make the transaction advisable?

* On the figures given H. G. would apparently become liable under the Income Tax Act, 1945, to a "balancing charge" of tax on £135, as the present car can be sold for over £200. That would nullify any advantage that the higher depreciation allowance on a new car would give him. Looked at purely from the income-tax standpoint it would seem good policy to continue using the present car (If the accounts of the practice are made up to Dec. 31 and the transaction were to go through now, the increased depreciation allowance would not be received until the year 1947–8, the tax on which is not due until January and July, 1948.)

Purchase of Debts

W. F. bought a practice including the outstanding book debts. In the event he has recovered a greater sum than the amount he paid for the debts. Is he liable for tax on the excess? (He is assessed on the "earnings" basis.)

* The point has not been decided in the Courts, and it is one on which there is much to be said on both sides of the argument. It seems to have hitherto been the usual practice for tax to be paid on any such excess, and for an allowance to be made to the purchaser for any deficiency. This is not inequitable, perhaps, and some practitioners would suffer if, when failing to recover as much as they had paid for the debts, they were refused any deduction for the deficiency—a result which would necessarily follow if an excess were held not to be taxable. On the whole we do not advise W. F. to carry the contention to appeal.

LETTERS, NOTES, ETC.

Microbial Antagonisms

Dr. GENNARO FUSCO, Medico Provinciale of the Naples Commune, writes: I have read in your number dated Dec. 22, 1945, a review on microbial antagonisms. It is right. For many years much has been written about it. But nobody has written about the antagonist substances that microbes make against themselves. For instance, if one tries to cultivate the plague bacillus on its own terrain of an old culture, growth is no more possible, but instead many other germs will grow. Is it not possible that this self-antagonism of a germ may have a practical and useful application in treatment and diagnosis?

A Case for Diagnosis

Capt. E. R. D. EASTMAN-NAGLE, S.A.M.C., writes from Rome: In reply to Fl. Lieut. G. A. Powell-Tuck's inquiry (Dec. 29, 1945, p. 950) I was myself "bitten" similarly on the hand while in the desert in Egypt in 1942, in similar circumstances. More detailed investigation revealed the point of a copying-ink pencil, presumably broken from that used by the local counterpart of the "dhobi" to mark the linen of his several clients with Arabic cyphers which he could interpret. Immediate expression of the point, and application of iodine, avoided the "secondary" infection which appears to have occurred in the original case, but the "blue" persists.

Efficiency of Ultra-violet Apparatus

Mr. J. W. KOLBERT (Hanovia, Ltd.) writes: The interesting paper by Fl. Lieut. B. C. Elliott (Dec. 22, 1945, p. 881) and your annotation (p. 890) discuss matters which, as you well say, should be known to every practitioner who employs ultra-violet light. In drawing conclusions from Fl. Lieut. Elliott's facts you have, however, omitted one item on which we should like to add a reassuring comment. We refer to the deterioration of lamps in use. Such depreciation of output is an inherent and marked feature of any and every quartz mercury arc, and while our own progressive efforts to reduce it have been not unsuccessful it is never negligible in amount. It is, however, obviated by the use of the "intensity stabilizer." Provided the user keeps a record of operating hours and duly uses the device he is relieved of all trouble due to deterioration.

Telephonic Delays

Dr. F. JOYCE (London, S.E.5) writes: I would like to draw attention to one glaring defect in the organization of many of the large voluntary hospitals, one conspicuous exception to this being the London Hospital. This defect is very old-standing and a source of irritation to all general practitioners. I refer to the procedure adopted when outside doctors ring up on the 'phone for admission of urgent cases. Usually the house-surgeon or the casualty officer on duty has to be fetched to answer the call and decide as to admission. The trouble is he is in some distant part of the building: it takes ever so long to locate him, and even then he may be engaged in operating or at some other critical occupation and cannot come immediately to the 'phone. Often, especially at night, one may be kept waiting from half to three-quarters of an hour. Surely something could be done to obviate this plague—for plague it is.

Toxic Effects of High Octane Petrol

Mrs. JEAN PATEY, F.R.C.S.Ed. (Handforth, near Manchester) writes: With reference to the question and answer on toxic effects of high octane petrol (Jan. 26, p. 152), is it not probable that the patient is suffering from "subacute" lead-poisoning? I believe that a proportion of high octane petrol contains lead. In view of the symptoms and signs ("pains in the back, epigastric fullness, gross hypertension, and severe retinitis") this should be borne in mind when carrying out further investigations.

Aged Blood Donors

Dr. N. J. C. RUTHERFORD (Farnham) writes: The modern method of bleeding to provide serum for hospitals during the war has, I am informed, become popular among people of advanced age. Having started the procedure on patriotic grounds, they found that the loss of blood benefited their health, consequently they continue the treatment by regularly attending blood transfusion centres. I heard recently of one lady aged 81 and another aged 72 who swear by the treatment. Apparently the age limit of 60 has gone by the board in competition between centres to keep up their supply figures. Should there be a limit?

New Year Honours

An omission from the New Year Honours list (Part II), published in the *Journal* of Jan. 19 (p. 100), has been brought to our notice. Cmdr. Thomas Henry Neville Whitehurst, M.R.C.S., L.R.C.P., Officer Commanding, No. 6 Ferry Pool, Air Transport Auxiliary, was appointed O.B.E. (Civil Division) "for services to aviation."

EXPULSION OF PATHOGENIC ORGANISMS FROM THE RESPIRATORY TRACT

BY

J. P. DUGUID, M.B., B.Sc.

(From the Department of Bacteriology, Edinburgh University)

The role of droplet spray in the transmission of infective diseases of the respiratory tract is not yet fully understood. Modern methods of observation have revealed that very large numbers of droplets are expelled during sneezing, coughing, and speaking, and that most of these are small enough to remain air-borne as "droplet nuclei" (Wells, 1935; Bourdillon, Lidwell, and Lovelock, 1942; Jennison, 1942; Duguid, 1945, 1946). Droplet nuclei (Wells, 1934) are the solid residues of those respiratory droplets which are small enough (less than about 100 microns in diameter) to evaporate completely before falling to the ground; after their formation they are capable of remaining air-borne for some minutes or for some hours, and of travelling long distances inside buildings. The demonstration that many such droplet nuclei are produced during expiratory activities has made it appear likely that air infection by droplet spray plays a part of major importance in the transmission of infection (see Wells and Wells, 1936). It has been found, however, by those who have investigated the expulsion of pathogenic organisms by infected persons that aerial infection is much more limited than is suggested by the purely physical studies of droplet spray, and that the pathogenic organisms of the respiratory tract (e.g., haemolytic streptococci and tubercle bacilli) are not expelled as readily or in as great numbers as the commensal organisms from a normal mouth or an indicator organism (e.g., *S. marcescens*) from an artificially infected mouth.

Bloomfield and Fely (1924), examining four patients with acute streptococcal tonsillitis, exposed blood-agar plates 3 to 12 in. (7.5 to 30 cm.) in front of the mouth during speaking, coughing, and sneezing for one-minute periods; droplets containing haemolytic streptococci were expelled by only one of the four patients, a few during coughing and a few during sneezing. In observations carried out in a similar manner during coughing by throat carriers, droplets containing haemolytic streptococci were found to be expelled in only 1 out of 9 tests on five carriers (Colebrook, 1933), and by only 1 out of 14 carriers (Paine, 1935). Hare (1940) examined 12 throat carriers of haemolytic streptococci, exposing five blood-agar plates in a quarter-circle in front of and below the mouth, at a distance of one foot from it; a few droplets containing haemolytic streptococci, comprising from 0.3 to 3.5% of the droplets recorded, were found to be expelled in 8 out of 37 tests of coughing six times in all, 11 infected droplets, and in 15 out of 47 tests of speaking or one minute (in all, 27 infected droplets). It appeared that the infected droplets were too large to remain air-borne as droplet nuclei; no droplet nuclei containing haemolytic streptococci were recovered by the Wells air-centrifuge from the air in front of the mouth in any of seven tests of speaking by five carriers. The production of some infected droplet nuclei during sneezing was demonstrated in subsequent tests (Hare, 1945). However, Hare does not believe that direct infection of the air with droplet nuclei plays any important part in the transmission of infection. He suggests that infection is spread through the air mainly by infected dust particles liberated from clothing, bedding, and room furnishings, after these have been soiled by the large infected droplets which fall out of the air within a few seconds of their emission. This view is supported by the findings of several investigators who have observed that numerous haemolytic streptococci may be present on the skin, clothes, and bedding of infected persons, and in the dust of rooms high they occupy, and also that these haemolytic streptococci are stirred up into the air in large numbers during sweeping, bed-making, and body movement (White, 1936; Brown and Allison,

1937; van den Ende, Lush, and Edward, 1940; Hare, 1941; Thomas and van den Ende, 1941; Thomas, 1941; Cruickshank, 1941; Wright, Cruickshank, and Gunn, 1944; Hamburger, Puck, Hamburger, and Johnson, 1944; Edward, 1944; Hamburger, Green, and Hamburger, 1945).

Tubercle Bacilli

The expulsion of tubercle bacilli during coughing by patients with open pulmonary tuberculosis has been demonstrated frequently; the infected droplets are caught on slides held in front of the mouth and are examined microscopically. Goldie (see Winslow and Robinson, 1910; Chapin, 1912) found that tubercle bacilli were expelled at one time or another by every patient examined, and on 14% of occasions when only a single cough was given. Ziesche (1907) made 61 examinations on 22 patients with open pulmonary tuberculosis, holding a 224-sq.-cm. glass plate 40 to 60 cm. in front of the mouth for 30 minutes during natural coughing; tubercle bacilli were expelled by 13% of the patients at the first examination and by 79% of the patients who were examined frequently; in 29 out of 61 tests tubercle bacilli were found on the exposed plate—less than 10 bacilli in three cases, between 10 and 100 in fifteen cases, between 100 and 1,000 in nine cases, 1,445 in one case, and 20,174 in one case. It appears that very few, if any, of the expelled droplets which contain tubercle bacilli are small enough to remain air-borne as droplet nuclei. Laschtschenko (1899) carried out five tests, in each of which a patient with open pulmonary tuberculosis, coughing naturally at intervals, sat in a small chamber for five hours while 10 cubic metres of air from the chamber were examined by filtration; air-borne tubercle bacilli were demonstrated in only two out of the five tests. Heymann (1931) carried out similar tests, each of one hour's duration; in most of these no air-borne tubercle bacilli were demonstrated, but on one occasion virulent tubercle bacilli were recovered from the air more than 30 minutes after the patient had left the chamber. The positive results obtained in these tests must be interpreted with caution, for they may as well have been due to infected dust particles liberated from the clothing of the patient as to infected droplet nuclei. Raising of infected dust seems the most likely cause of air infection, for tubercle bacilli have commonly been found in the dust of dwelling-places occupied by persons with open pulmonary tuberculosis (e.g., Cornet, 1899).

Organisms affecting the Respiratory Tract

Little appears to be known about the expulsion by infected persons of droplets containing such organisms as *C. diphtheriae*, *N. intracellulalis*, *H. influenzae*, *Dip. pneumoniae*, *Staph. aureus*, and the viruses of acute cornea, influenza, measles, smallpox, and other diseases affecting the respiratory tract (see Hare, 1945). There is, however, some evidence which suggests that certain of these pathogenic organisms may commonly be spread by infected dust. Crosbie and Wright (1941) found that virulent diphtheria bacilli were present in large numbers in the floor dust of diphtheria wards, that these bacilli remained viable in the dust for some months, and that they were stirred up into the air by sweeping; Avery and his colleagues (1917) and Sillman (1917) demonstrated the presence of viable pneumococci in room dust; and Edward (1941) showed that the influenza virus could remain viable in dust for some days or weeks.

In the absence of sufficient information, gained by direct observation, of the number of infected droplets which may be expelled by persons with such respiratory infections, it has been customary to assess the likelihood of infected droplet-spray production, and of subsequent air-borne infection, from the observed frequency of throat carriage of the pathogenic organisms concerned. During respiratory tract disease caused by infection with *Str. pyogenes*, *Dip. pneumoniae*, *C. diphtheriae*, *N. intracellulalis*, *H. influenzae*, and

Staph. aureus, or with certain viruses, the causal organisms are usually present, often in very large numbers, in the secretions of the tonsillar and nasopharyngeal regions. Moreover, apart from cases of actual disease, pathogenic organisms of many species may be carried in the throats of healthy persons—carriers—who form a considerable proportion, often from 1 to 10%, of the normal population. Droplet spray does not, however, originate readily from the tonsillar and nasopharyngeal regions. Jennison (1942), discussing the mechanism of droplet formation, argues that most droplets must originate from the secretions at the front of the mouth, except in the case of coughing with the mouth kept well open, when the zone of greatest droplet formation may be in the pharyngeal region. Photographic studies of droplet spray have shown that, in sneezing, droplets may be emitted from the nose as well as from the mouth; such nasal discharge is, however, usually much scantier than the oral discharge, more infrequent, and often made up of large masses of secretion rather than of discrete droplets (Bourdillon and Lidwell, 1941; Jennison, 1942). In a study (Duguid, 1945) of the numbers of droplets expelled during various expiratory activities the site of droplet origin was observed by use of an indicator organism, *S. marcescens*; it was found that most of the expelled droplets originated from the anterior mouth (about the lips, front teeth, and tip of tongue), and that only a few, perhaps between 0.01 and 1%, originated directly from the faucial region during coughing and sneezing, and from the nose during sneezing and normal breathing. Not many of these scanty nasal and faucial droplets were small enough to remain air-borne as droplet nuclei.

The production of air-borne infection with droplet nuclei must therefore depend mainly upon the presence of pathogenic organisms in the saliva of the anterior mouth. Faucial and nasal carriage may, on the other hand, be of much greater importance with regard to the production of air infection with infected dust particles: pathogenic organisms may be expelled from the nose or from the throat in masses of secretion or in large droplets and so give rise to infected dust. Bloomfield and Felty (1924) showed that, in contrast to the slight dissemination of infection in droplet spray, large numbers of haemolytic streptococci were emitted from the throat of an infected person in expectorated "hawkings." Recently Hamburger, Green, and Hamburger (1945) have shown that haemolytic streptococci are dispersed much more readily from the nose than from the throat. In an examination of 400 patients with haemolytic streptococcal infection of the upper respiratory tract it was found that about 80 times as many haemolytic streptococci were expelled on to the bedclothes by patients with strongly positive nasal cultures as by patients with positive throat cultures but negative nose cultures. The haemolytic streptococcal content of the air of a ward containing patients with positive nasal cultures was about 35 times as high as that of the air of a ward containing patients with only the throat cultures positive. Of 12 traced hospital cross-infections 11 originated from patients with positive nasal cultures.

It appears, then, that the danger of air-borne infection should be assessed not in terms of the occurrence of throat carriage of pathogenic organisms but in terms of the occurrence of oral carriage and nasal carriage. Moreover, infection of the nasal cavity and of the anterior mouth does not occur in regular association with infection of the throat. Pathogenic organisms may be disseminated forward from the throat during sneezing, coughing, hawking, and speaking, but the resulting infection is limited in duration by the action of eliminative mechanisms present in the mouth and in the healthy nose. Bloomfield (1921, 1922) showed that pathogenic organisms carried in the upper respiratory tract were for the most part confined to certain circumscribed localities, especially to the tonsils and pharynx; he described the presence in the mouth of a rapidly acting eliminative mechanism whereby bacteria are swept back to the pharynx in the salivary stream. Appleton and his colleagues (1938, 1944) found that the time required for the elimination of foreign organisms from the mouth varied (e.g., from 1/2 to 8 hours) with the numbers of organisms introduced, and that elimination was accelerated by increase of salivation. The removal of bacteria from the mouth appeared to be brought about mainly by the mechanical flushing action of the saliva and perhaps partly by a direct antibacterial action, ascribable to lysozyme activity, to sulphocyanate content, or to the antibiotic action of the normal salivary flora. An antibacterial action of the saliva has been described in the case of the diphtheria bacillus by Bézi (1932), by Dold and Weigmann (1935), and by Casassa (1937); in the case of the tubercle bacillus by Kanter and Appleton (1940); and in the case of the meningococcus by Gordon (1916). Elimination of bacteria from the nasal cavity appears to be effected similarly (in from 1/2 to 24 hours) by the backward current of the cilia-motivated mucus film and perhaps partly by a bactericidal action, as by lysozyme (Bloomfield, 1919; Arnold, Ostrom, and Singer, 1928).

Oral Carriage and Nasal Carriage

Few studies have been made of the oral carriage of pathogenic organisms; moreover, most of those published refer to the oral cavity as a whole and not to the anterior mouth alone; their

significance with regard to air infection is therefore difficult to assess. Oral carriage of haemolytic streptococci was found in 12% of examinations of healthy persons (Min. Hlth. Rep., 1930) and in 40 to 70% of examinations of throat carriers (Hare, 1940; Hamburger, 1944). Nasal carriage of haemolytic streptococci has been found with about one-quarter the frequency of throat carriage, in 0.05 to 5% of healthy persons (Min. Hlth. Rep., 1930, 1939; Peacock, Bigler, and Werner, 1939; Williams and Harper, 1944; Hamburger, Green, and Hamburger, 1945). Nasal infection has been found in from one-third to two-thirds of patients with acute streptococcal infection of the upper respiratory tract (De Waal, 1940; Hamburger, Green, and Hamburger, 1945).

Oral infection with diphtheria bacilli has been observed occasionally; a few published cases are quoted by Appleton (1944), and Reiche (1915) found labial lesions in 49 out of 7,314 fatal cases of diphtheria. The presence of diphtheria bacilli in the nose is much more common, occurring in healthy carriers, in cases of nasal diphtheria, and in a proportion of cases of faucial diphtheria: Boissard and Fry (1941, 1942) found diphtheria bacilli in nasal swabs from 19 out of 231 normal children examined at the time of an epidemic, and in nasal swabs from more than a third of 388 patients with faucial diphtheria.

Appleton (1944) has reviewed studies of the occurrence of tubercle bacilli in the mouth. Tuberculosis of the oral cavity has been found only rarely—in 127 out of 67,000 tuberculosis necropsies. Tubercle bacilli have been found frequently, however, in the mouths of patients with open pulmonary tuberculosis: for instance, in the mouths of 10 out of 20 patients by Gloyne (1922), and on the lips of patients by Gulbrandsen and Keller (1935).

The amount of infection disseminated in droplet spray is determined not only by the frequency of the occurrence of pathogenic organisms at the sites of droplet-spray formation but also by the numbers of these organisms present in the secretions at such places. Hamburger (1944), examining 554 samples of saliva from 156 persons with infected throats, found that the numbers of haemolytic streptococci in the different samples varied from 100 to 5,000,000 per millilitre, being in most cases between 1,000 and 1,000,000 per millilitre. On the basis of an observed droplet size-distribution, it has been calculated (Duguid, 1946) that of 5,000 droplets expelled by a cough only about 230 (4.6%) and 6 (0.1%) would be likely to contain pathogenic organisms when, respectively, 1,000,000 and 1,000 of these were present per millilitre of the secretions atomized. The number of infected droplets small enough to remain air-borne as droplet nuclei was calculated to be about 60 in the former case and 0 in the latter.

The present investigation was carried out in an effort to ascertain whether the expulsion of infected droplets depends upon the existence of pathogenic organisms in the secretions of the anterior mouth; this had appeared probable, as the great majority of droplets originate from the front of the mouth. Although the results of the investigation were to some extent inconclusive with regard to this question, it is considered that it may be of value to record them, for published observations of the expulsion of pathogenic organisms in droplet spray have been few and not very extensive.

Experimental

Three groups of infected persons were examined: 87 persons with haemolytic streptococci present in the throat, including 50 scarlet fever patients and 37 throat carriers; 50 faucial diphtheria patients with positive throat cultures; and 20 patients with pulmonary tuberculosis, in whose sputum tubercle bacilli had been demonstrated.

The mouth-spray droplets expelled by each person during a series of six voluntarily produced coughs were collected on a culture plate or microscope slide held about 3 in. (7.5 cm.) in front of the mouth. (Only the larger droplets would be collected by this method, which depends upon direct impingement. However, most of the pathogenic organisms expelled are contained in the large droplets. The majority of those expelled would be collected on the culture plate as these had an area (about 12 sq. in.: 77 sq. cm.) at least as great as the likely area of spread of the droplets at 3 in. (7.5 cm.) from the mouth. A smaller proportion would be collected on the microscope slides, which had only one-quarter of this area (3 sq. in.: 19 sq. cm.). Subsequent statements as to the numbers of infected droplets found to be expelled are subject to these limitations of technique.)

In the case of haemolytic streptococcal infections blood-agar plates were exposed; in the case of diphtheria, Hoyle tellurite plates; and in the case of pulmonary tuberculosis, microscope slides which had been warmed to prevent condensation from the breath obscuring the outlines of the droplet marks. After aerobic incubation for 48 hours the beta-haemolytic colonies on the blood-agar plates were counted; a separate count was also made of all the other colo-

present. Some of the beta-haemolytic colonies on each plate were subcultured in 5% serum broth and tested for soluble haemolysin production against sheep red cells; only those which produced soluble haemolysin were recorded as haemolytic streptococci. After incubation for 48 hours a count was made of these colonies on the Hoyle plates which had the appearance of diphtheria bacillus colonies; a separate count was also made of all the other colonies present. Some of the colonies on each plate were subcultured and their fermentation reactions tested; those which fermented glucose but not sucrose were recorded as diphtheria bacilli. The microscope slides which had been exposed to the coughing of the tuberculous patients were stained by the Ziehl-Neelsen method. Each slide was searched systematically for droplet marks under the low power of the microscope; the droplet marks were measured with the aid of a micrometer eyepiece and were searched for tubercle bacilli under oil immersion. The total number of droplets encountered on each slide, the number of droplets containing tubercle bacilli, and the number of tubercle bacilli in each droplet were recorded.

Before each test of coughing, and also after it for the tuberculous cases, swabs were taken from the throat (the surfaces of both tonsils and of the adjoining parts) and from the anterior mouth (the inner surfaces of the lips, the inner and outer surfaces of the front teeth and gums, and the tip of the tongue). In the examinations for haemolytic streptococci and diphtheria bacilli the swabs were plated on blood-agar plates and Hoyle plates respectively; the colonies were identified in the manner described for the cough-plate colonies, and their numbers were noted. In examinations for tubercle bacilli the swabs were first treated with acid by the method of Nassau (1941), and each was then rubbed on the surface of two Löwenstein egg-medium slopes; these slopes were examined at intervals during four weeks of incubation for growth of *M. tuberculosis* colonies, and the number of these colonies was noted.

Results

During a series of six coughs, droplets containing haemolytic streptococci were found to be expelled by 39 out of 87 persons with infected throats; between 1 and 10 infected droplets were expelled in 27 cases, between 10 and 100 in nine cases, and between 100 and 400 in the other three cases. In all, 1,109 infected droplets were expelled during 522 coughs—that is, about two infected droplets for each cough. As would be expected, the greatest numbers of infected droplets were generally expelled by the coughs which were the most forceful and which produced most droplet spray. Of all the droplets expelled by the 87 patients those containing haemolytic streptococci comprised only 10%. The proportion of droplets infected, however, varied greatly from case to case—between 0 and 80%. Haemolytic streptococci were found in the anterior-mouth secretions of 13 out of the 87 persons examined; the numbers of these were in six cases very small, in three cases moderate, and in only four cases comparable to the numbers found in the throat secretions. There was no apparent correlation between the expulsion of infected droplets and the presence of haemolytic streptococci in the anterior mouth. Infected droplets were expelled by 5 of the 13 patients with positive anterior-mouth cultures and by 34 of the 74 patients with negative anterior-mouth cultures; 63 infected and 720 non-infected droplets were expelled by the five patients with positive anterior-mouth cultures, and 1,046 infected and 7,500 non-infected droplets were expelled by the 34 patients with negative anterior-mouth cultures. This would suggest that some of the cough droplets, including most of the infected ones, must have originated directly from the throat. Such a conclusion, however, cannot be made with certainty, for it is possible that a few haemolytic streptococci were indeed present in the anterior-mouth secretions of those patients who gave negative anterior-mouth cultures, but that they were overgrown by the mouth commensal organisms in the heavily inoculated parts of the culture plates.

During a series of six coughs, droplets containing diphtheria bacilli were found to be expelled by 10 out of 50 patients with faucial diphtheria; only one infected droplet was expelled in five of these cases, two infected droplets in three cases, and, respectively, 10 and 27 infected droplets in the other two cases. In all, 48 infected droplets were expelled during 300 coughs—that is, about one infected droplet for every six coughs. The infected droplets comprised about 4% of all the droplets (which contained organisms cultivable on tellurite medium) found to be expelled by the 50 patients. Diphtheria bacilli were discovered in the anterior-mouth secretions of 12 out of the 50 patients; only very small numbers were present in 10 of these

patients and moderate numbers in the other two. There was no complete correlation between the expulsion of infected droplets and the presence of diphtheria bacilli in the anterior mouth. Infected droplets were expelled by 6 of the 12 patients with positive anterior-mouth cultures (in all, 43 infected droplets) and by 4 of the 38 patients with negative anterior-mouth cultures (in all, 5 infected droplets).

Droplets containing tubercle bacilli were found to be expelled during a series of six coughs by 10 out of 20 patients with open pulmonary tuberculosis. In all, 410 droplets were found on the slides exposed to 120 coughs; 36 of these droplets were infected, 19 containing between 1 and 10 tubercle bacilli, 9 containing between 10 and 100, 3 containing between 100 and 1,000, 4 containing between 5,000 and 20,000, and 1 containing about 40,000. The bacilli were packed so closely in the five most heavily infected droplets that only a rough estimate could be made of their numbers. All of these 5 droplets and 10 other infected droplets in addition were produced by one patient, who must have expelled at least 50,000 tubercle bacilli during the six coughs. Much smaller numbers were expelled by the other patients: one was found to expel 200 tubercle bacilli (in one droplet), a second to expel 175 (in nine infected droplets), a third to expel 60 (in one droplet), a fourth to expel 13 (in three droplets), a fifth to expel 6 (in three droplets), and the other four patients each to expel only one or two tubercle bacilli in a single droplet. The stain-marks of the infected droplets ranged from 30 to 3,000 microns in diameter, nine being under 100 microns. It is probable, therefore, that some of the infected droplets were small enough to remain air-borne as droplet nuclei. None of these small droplets, however, contained more than a very few tubercle bacilli. In the examinations made before coughing, tubercle bacilli were found to be present in the secretions of the throat of 15 out of the 20 patients, and in the secretions of the anterior mouth of 10 of the 20 patients; in two other patients infection of the anterior mouth appeared subsequent to the coughing. The tubercle bacilli were usually numerous in the throat secretions (e.g., a few dozen to a few hundred colonies being obtained on the slopes), and they were usually scanty in the anterior-mouth secretions (e.g., a few to a few dozen colonies being present on the slopes). A positive throat culture was obtained from all of the 10 patients who expelled infected droplets, and a positive anterior-mouth culture from eight of these. No evidence, therefore was obtained to suggest that infected material was atomized in the bronchi and expelled directly from there: formation of infected droplets probably occurred in the throat or in the anterior mouth, these localities having been soiled previously by sputum coughed up from the bronchi.

Summary

Droplets containing haemolytic streptococci were expelled during a series of six coughs by 39 out of 87 scarlet fever patients and throat carriers; 1,109 infected droplets were expelled during 522 coughs. Haemolytic streptococci, usually in small numbers, were found in the anterior-mouth secretions of 13 out of the 87 patients.

Droplets containing diphtheria bacilli were expelled during a series of six coughs by 10 out of 50 patients with faucial diphtheria; 48 infected droplets were expelled during 300 coughs. Diphtheria bacilli, usually in very small numbers, were found in the anterior-mouth secretions of 12 out of the 50 patients.

Droplets containing tubercle bacilli were expelled during a series of six coughs by 10 out of 20 patients with open pulmonary tuberculosis; out of 410 droplets collected during 120 coughs, 36 were found to contain tubercle bacilli in numbers varying from 1 to 40,000. Before coughing, tubercle bacilli were found in the throat secretions of 15 out of the 20 patients, and in the anterior-mouth secretions of 10 of the 20 patients.

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PLASMA VISCOSITY: A CLINICAL TEST

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While investigating the mechanics of blood sedimentation one of us (Whittington, 1942) found that if the maximum rate of fall of the cells is plotted against the plasma viscosity a complex pattern is formed. Under strictly controlled conditions this pattern is reproducible in any laboratory. Its somewhat bizarre appearance is shown by Fig. 1, which incorporates the results of our further investigations. Fig. 1 shows, moreover, that if the controlled E.S.R. is even a roughly proportionate index of a patient's pathological condition the plasma viscosity is not. And, of course, vice versa. From 63 cases of pulmonary tuberculosis Miller (Miller and Whittington, 1942) concluded that plasma viscosity was the more significant index. The 645 experiments reported here confirm this finding.

Method

Our technique is given in detail elsewhere (Houston, Harkness, and Whittington). Lack of space prohibits its full reproduction here. It is based on the use of a viscometer* which requires only 0.7 ml. of plasma and which is capable of an accuracy of about 99.8%. A water-bath, centrifuge, and stopwatch are the only other special pieces of apparatus required.

The viscosities quoted here are all "referred to Viscometer No. V5." Individual viscometers, if correctly calibrated, will agree in their results for pure liquids; but the apparent viscosity of a given colloidal solution will differ somewhat from instrument to instrument. Thus every viscometer will give its own

characteristic version of Fig. 1. This phenomenon may be made use of to standardize viscometers for plasma: the method is described elsewhere (Houston, Harkness, and Whittington).

A simpler scheme of standardization is as follows: any new viscometer, direct from the glass-blower, may be set up alongside V5 (which is still in existence) and a series of three plasmas (one normal, one medium, and one high-viscosity) run through both instruments. These three double tests provide in themselves enough data for the accurate calibration of the new instrument, which will give plasma viscosities "referred to V5" as in Fig. 1. Those investigators wishing to build up their own version of Fig. 1 for themselves will require to measure maximum sedimentation velocities in the manner described (Houston, Harkness, and Whittington).

Our results are given here for citrate plasma prepared by centrifuging a mixture of one part of 3.8% sodium citrate solution and four parts of venous blood. An empirical correction (Houston, Harkness, and Whittington) has been made for varying plasma dilution due to haematocrit variations.

Material

In all, 645 experiments were carried out; 223 were on cases of pulmonary tuberculosis at the Crossley Sanatorium, and 385 on patients with various pathological conditions encountered in Montrose Asylum (850 beds). These conditions included skin sepsis, gangrene, syphilis, malaria, paratyphoid, rheumatic fever, meningitis, pneumonia, pernicious anaemia, cerebral haemorrhage, carcinoma, and bone and pulmonary tuberculosis. In addition, 37 controls were drawn from radiologically and clinically normal members of the sanatorium staff and from psychotic patients who were physically normal.

Results

Space will not permit the reproduction of our results in detail. It is hoped that the four diagrams will summarize them effectively.

Fig. 1 was prepared by plotting simultaneous measurements of plasma viscosity and maximum sedimentation velocity (under strictly standardized conditions of cell volume, etc.). For convenience in considering the clinical aspect of our results the viscosity range (from roughly 1.4 to 2.1) has been arbitrarily divided into numbered zones by perpendiculars drawn from the "wave-peaks" as shown in Fig. 1. The 37 normal controls had a mean viscosity of 1.546. Of these, 30 (81%) fell in zones 1 to 3, the remainder falling in zone 4, with the highest at 1.626. There is, of course, no clearly defined boundary of normality, and zone 4 may be regarded as a threshold or transition range.

Fig. 2 shows the average viscosities corresponding to normal and Ministry of Health groups "minus," "plus 1," "plus 2," and "plus 3" in pulmonary tuberculosis. These cases were classified at the Crossley Sanatorium.

At Montrose, 177 tests in all were done on 79 patients giving viscosities in zone 6 or higher. These patients were suffering from various diseases. Using the maximum viscosity recorded for each patient, the accompanying Table gives the incidence of deaths among these high-viscosity cases.

Table showing Death Rate in Viscosity Zones

Viscosity Zone (V5)	Number of Cases	Deaths	
		No.	%
6	25	5	20
7	19	7	37
8	9	4	44
9	17	11	65
10	5	3	60
11	4	4	100
Totals	79	34	43

Discussion

(a) General

The conclusion to be drawn from Fig. 2 seems inescapable. At least in a chronic disease such as pulmonary tuberculosis there is an increase of viscosity corresponding on the whole to an increase in the extent and severity of the disease process.

* Supplied (to the design of R. B. W.) by the Scientific Glass-Blowing Company, 12-14, Wright Street, Manchester, 15.

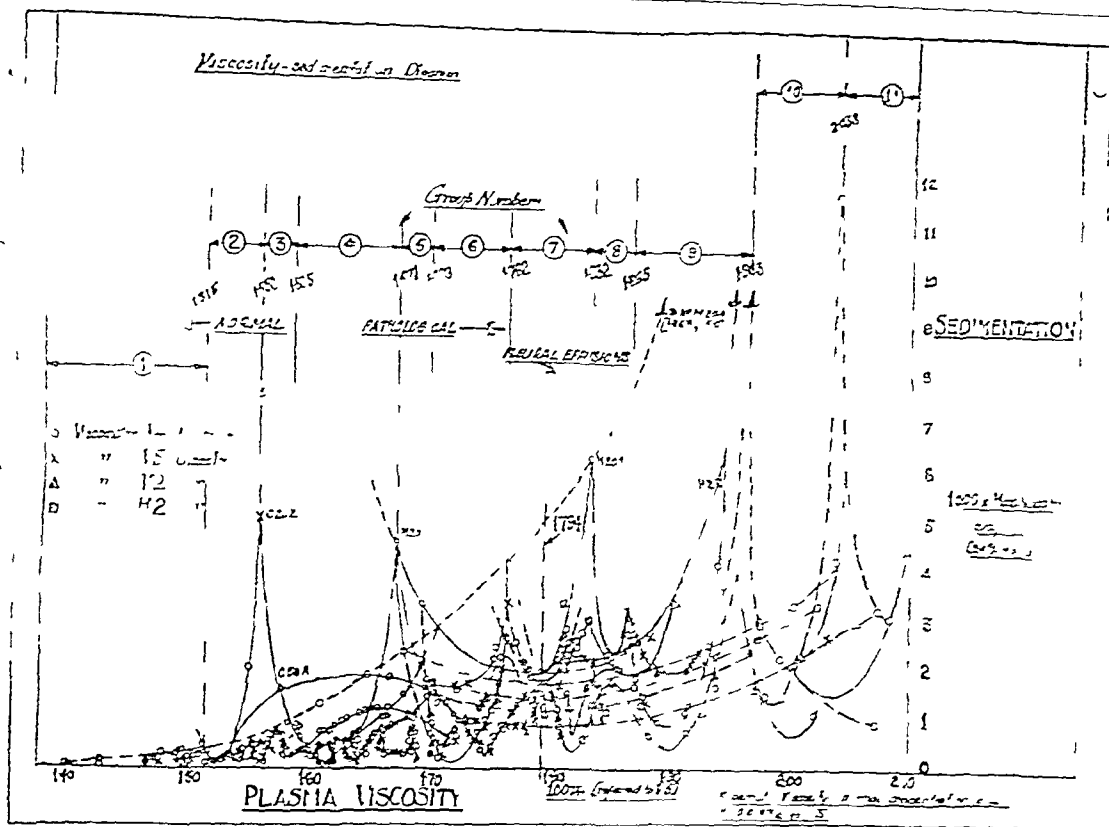


FIG 1

Of course Fig 2 shows only average results. It would be absurd to claim, for example, that every tuberculous patient with a viscosity of 177 must necessarily fall into the Ministry of Health group plus 2. The diagram merely implies that if a large number of patients in group plus 2 be examined the average of their plasma viscosities will be about 177—referred to V5).

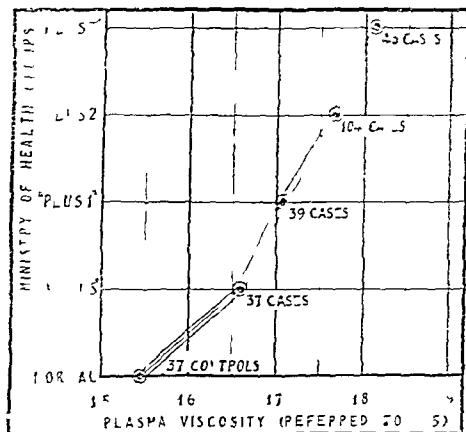


FIG 2—Distribution of Ministry of Health groups in pulmonary tuberculosis (223 cases + 37 controls)

But Fig 2 refers only to pulmonary tuberculosis from our experience in following the progress of both acute and chronic cases we are of the opinion that in general the viscosity increases

the viscosity to the right in Fig 1) as the pathological condition worsens and that with recovery the viscosity decreases again according to a shift to the left. In every complication or intercurrent infection may temporarily reverse the latter movement.

The grave prognosis in general to be associated with very high viscosities we feel, an inevitable conclusion to be drawn from the Table. That this, however, is only a generalization is shown by the fact that two patients with viscosity in zone 10 did eventually recover. (They were cases of paratyphoid and of rheumatic fever.)

We have mentioned that there is no clearly marked boundary between the normal and the pathological but that zone 4 may be regarded as a threshold range. Here fall the early and the late results of pathological processes together with some normals. The finding of a result in zone 4 appears to call for further investigation. This conclusion was brought home to us at Montrose, where two mental patients who were normal to physical examination and picked to act as normal controls gave results high in zone 4. Within six months the both developed definite signs of pulmonary tuberculosis. Further a member of the staff who gave a high zone 4 viscosity reading and who was at the same time clinically, radiologically, and bacteriologically negative developed active pulmonary tuberculosis within three months.

A zone 4 viscosity, then may be held to call for further investigation, but it need not occasion alarm. Seven of the Crossley staff controls were (low) in zone 4 and have as yet shown no signs of pathological disturbance. We have evidence that the use of the sulphamide drugs can produce an increase in the plasma viscosity sufficient to shift a physically normal zone 2/3 individual into zone 4. Other drugs may have a similar action. Moreover, we have as yet totally insufficient data as to physiological changes—e.g. menstruation—for do we know

to what extent a trifling infection (such as a common cold) may affect the viscosity.

A glance at Fig. 1 will confirm what we have said already—that viscosity and corrected sedimentation velocities cannot both be accurate indices: in our experience reliability is to be placed on the viscosity test, whatever the sedimentation result may be. Cases will be seen in Fig. 1 with extremely high viscosities but with sedimentation velocities falling within the range of normality. Case C202 is an interesting (though rare) example of the converse phenomenon, occurring in a clinically and radiologically normal female member of the sanatorium staff. Only five higher sedimentation velocities were ever recorded in our whole series. Viscosity was normal (zone 2/3). Repeated after 14 days, both velocity and viscosity results were practically identical. Observation of the sedimentation rate alone would have occasioned great alarm. Seven months after test C202, she is still perfectly healthy.

(b) Terminal Decay

Here we must describe an exception to the foregoing generalizations—a process which by its very exception may be of great importance to prognosis. So far we have in effect described a cycle of viscosity (normal—maximum—normal), a cycle which coincides with the clinical cycle (health—disease—recovery). But in many cases in which the disease process continues without respite to a fatal end the viscosity rises to a maximum value and then gradually falls towards the normal. In this way a value in the range of the normal may be reached in the moribund. We have called this phenomenon "terminal decay." In chronic conditions it may appear months before death, while in acute conditions it may precede death only by a few days or even a few hours. Some examples of this terminal phenomenon are shown in Fig. 3. We cannot state positively that this viscosity cycle (normal—maximum—normal) is invariably followed. It will be appreciated that the necessary evidence is not easily obtained from human subjects; but the general case is illustrated by the curves of Fig. 3.

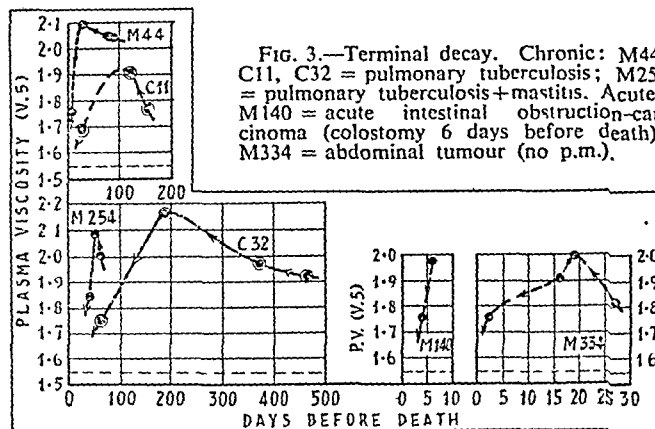


Fig. 3.—Terminal decay. Chronic: M44, C11, C32 = pulmonary tuberculosis; M254 = pulmonary tuberculosis + mastitis. Acute: M140 = acute intestinal obstruction-carcinoma (colostomy 6 days before death); M334 = abdominal tumour (no p.m.).

Thus, before finally accepting any plasma-viscosity measurement as an indication of clinical condition, the possibility of decay must be considered. If this possibility is not out of the question the test should be repeated after a suitable interval. If the viscosity is increasing, decay is not present provided there is no intercurrent disturbance. If the viscosity is falling the plasma is either on the terminal path or is showing recovery. We feel that the clinician will easily decide this point. Sometimes, however, it is clear from a single viscosity reading that a patient is on the terminal path—for example, Case C50A, viscosity 1.576 (zone 3), 21 days before death from pulmonary tuberculosis. Here the viscosity result merely emphasized what was clinically all too obvious.

Fractionation of the plasma proteins is of distinct value in the recognition of terminal decay; but unfortunately any discussion of the serum and plasma proteins is beyond the scope of the present brief report.

(c) Plasma Viscosity and Management of Pleural Effusions

Fig. 4 shows the incidence of pleural effusions in 23 cases. There was definite clinical and radiological evidence pointing

to the actual formation of fluid at the time of test in each case. Fifteen (65%) were found to be in viscometric zone 7.

We consider Fig. 4 highly suggestive. It appears to indicate that zone 7 forms a critical region in which the exudation of fluid is highly probable. Of course our present small number of cases does not allow us to lay down definite limits beyond

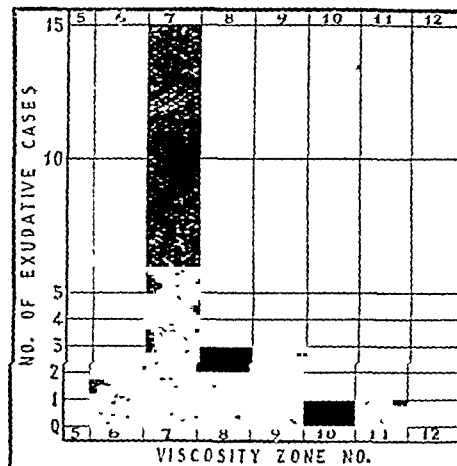


Fig. 4.—Distribution of pleural effusions (23 cases).

which fluid cannot be exuded. But our experience indicates that if an effusion be aspirated while the viscosity is in zone 7 the fluid will re-form; recurrence is unusual when aspiration is delayed until the plasma viscosity has shifted either to the right or to the left. We have found, moreover, that a recovering patient sometimes has an effusion as his viscosity passes through zone 7 from right to left.

Viscosity measurements may thus prove of importance in the management of pleural effusions. (We hope to investigate this possibility further.)

Conclusions

Plasma viscosity can be of diagnostic value in revealing otherwise hidden pathological changes, as is emphasized in the Discussion (a). As a diagnostic test, however, it seems to be completely non-specific.

The prognostic value of the viscosity test appears to be high.

The viscosity test should be found valuable in the treatment of chronic disease, inasmuch as it provides a good index of deterioration or recovery.

Viscosity estimations may have special value in the management of pleural effusions.

A comparison of the sedimentation velocities in Fig. 1 with our findings for viscosity should show the impossibility of correlating sedimentation rates (even under controlled conditions) with the clinical picture.

These conclusions are drawn from 645 experiments on the plasma viscosity in a wide variety of pathological conditions.

We wish to thank our committees of the Royal Asylum, Montrose, and of the Crossley Sanatorium, Frodsham, for the facilities kindly afforded. Invaluable technical work was done by Miss Norah Brown and Mr. Archibald C. Harris.

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At the annual meeting of the Governors of the Dental Hospital of Manchester it was announced that a department of preventive dentistry and research is to be created. Its work is to be linked with the school health services and maternity welfare centres, and with the new department of child health. Funds for the research to be undertaken have been provided by the Nuffield Trustees, who have made a grant of £30,000 spread over ten years. The University is also expected to provide financial assistance. The team of specialists will include an experimental physiologist, a bacteriologist, and two research fellows, together with the necessary laboratory and technical assistance and clerical staff. The intention is to launch a large-scale clinical study of the causation of dental disease.

NON-ABSORPTION OF MEPACRINE: DESCRIPTION OF A CASE

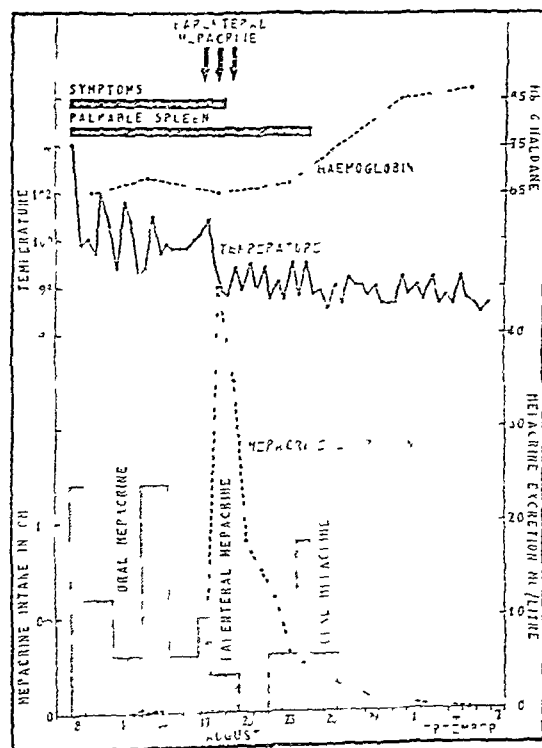
BY

JOHN YUDKIN, M.D., Ph.D., F.R.I.C.

In a paper published last year (Yudkin, 1945) I suggested that patients with malaria who do not respond well to oral mepacrine therapy might show a low urinary excretion of the drug. In such cases parenteral administration might be of value. Since then I have examined specimens of urine from hundreds of individuals on suppressive or therapeutic mepacrine and had not found one in whom there was a failure of absorption nor has it been reported by other workers. In August, 1945, however, such a case was seen in a West African military hospital. The patient was a young European naval rating with malaria who did not respond to large doses of mepacrine orally; he excreted only extremely small quantities of the drug in the urine and responded rapidly to a few small doses intramuscularly.

Case History

A stoker aged 20 was admitted to a naval sick bay on July 18, 1945, with "fever." Parasites of MT malaria were found in the blood and he was treated with quinine 10 gr (0.65 g) t.i.d.s for 5 days. He did not improve and was transferred to the military hospital on July 23. Examination of the blood revealed no malaria parasites, but he was still pyrexial, had rigors, was vomiting and complained of abdominal pain and headache. He was given a course of mepacrine as follows: 0.2 g four-hourly for 24 hours, 0.1 g four-hourly for 48 hours, and 0.1 g t.i.d.s for 48 hours—that is a total of 3 g in five days, in daily amounts of 1.2, 0.6, 0.6, 0.3 and 0.3 g. The patient was symptomless in four days, no parasites were present in the blood, and he was discharged fit on Aug 1.



On Aug 4 he reported again to the sick bay with pain and tenderness in his left foot. His temperature was 100°, and examination of the blood showed the presence of parasites of MT malaria. His foot was treated with local heat, and the condition subsided in three days. His malaria was treated with quinine 10 gr t.i.d.s for four days but again did not respond, and he was admitted to the military

hospital on Aug 8. On admission he complained of fever and malaise, his temperature was 104°, and his pulse 110. His spleen was palpable and malaria parasites (*P. falciparum*) were seen in the blood films. The same course of mepacrine was started at once. At the end of the fifth day, after 3 g of the drug, he was still pyrexial and his symptoms and general condition somewhat worse. He was given further large doses of oral mepacrine for four more days—1.2, 1.2, 0.3 and 0.3 g—t.i.d.s. Under the direct supervision of the senior medical officer, the patient's condition showed no signs of improvement and malaria parasites were still found on Aug 17. Examination of the blood on the day after admission showed a haemoglobin of 65% (Haldane) and a white cell count of 8,400. An attempt to improve the haemoglobin level was made by the administration of 100 mg of iron sulphate 2 t.i.d.s, but the haemoglobin was still 65% on Aug 18.

Urinary analysis between Aug 12 and 17 had demonstrated little or no mepacrine—less than 0.5 mg/litre—revels all other patients even had showed a concentration of 40–100 mg/litre after the first gramme of the drug.

On Aug 17 the tenth day in hospital, it was decided to use intramuscular mepacrine. A total of 0.9 g was given in divided doses—0.3 g at 2 p.m. and 0.2 g at 6 p.m. on Aug 17, 0.2 g at 6 a.m. on Aug 18, and 0.2 g at 10 a.m. on Aug 19. Within 26 hours of the first injection the patient was free from all symptoms and his temperature had fallen to 99°. Malaria parasites were completely absent from the blood from Aug 18 onwards. During the remainder of his stay in hospital his temperature never exceeded 99°. The spleen ceased to be palpable one week after the first injection. The haemoglobin responded slowly to the continued administration of iron in the same doses, and a level of 85% was reached by Aug 21.

An index of the level of mepacrine in the blood is given by the results of urinary analysis. One hour after the first injection the concentration rose to 0.2 mg/litre; one hour after the third injection it was 45 mg/litre and thereafter it began to fall. On Aug 22, when the concentration had fallen to 12 mg/litre, further oral mepacrine was begun and a total of 2.1 g was given over 5 days—0.3, 0.3, 0.3, 0.3, and 0.3 g. In spite of this the concentration of urinary mepacrine continued to fall steadily and reached zero on Sept 5. Before discharge I was decided to see whether the patient was able to absorb quinine. From Aug 28 he was given 5 g (0.42 g daily) all specimens of urine examined subsequently showed the presence of quinine by giving a positive Tartrated reaction. He was discharged from the hospital on Sep 6 and instructed to continue prophylactic quinine pending his return to the United Kingdom.

Discussion

Urinary specimens from very large numbers of individuals taking mepacrine by mouth have been examined, the numerous others in this field. No case has previously been described in which there was an almost complete failure to absorb the drug. The interesting features of the present case are the attack of malaria within two weeks of a previous attack, the lack of response to large doses of oral mepacrine, and the rapid response to relatively small doses of parenteral mepacrine. The absence of all but traces of urinary mepacrine during oral administration and the high concentration after parenteral administration, followed by the rapid clinical improvement, show that the absence of response to oral mepacrine was due to a failure of absorption from the alimentary canal. Another interesting feature was the failure to improve the haemoglobin level with iron until the malarial infection had been removed.

It is not clear why both attacks of malaria did not respond to oral quinine. It is possible that the patient did not absorb quinine during the malarial process, although he was able to do so after he had been cured. The inability to absorb oral mepacrine, however, persisted after his cure. The fact that the second attack of malaria occurred within three days after being discharged from hospital following his first attack shows that this attack, too, had not been cured by oral mepacrine.

Summary

A case of MT malaria in a European in West Africa which failed to respond to intensive therapy with oral mepacrine is described. Urinary analysis showed that the patient was not absorbing the drug. Subsequent administration of mepacrine intramuscularly resulted in a rapid recovery.

I have to thank Col. A. J. Leslie-Spinks, commanding officer, and Lieut. Col. A. S. Hollins, officer in charge of a Medical Division, for permission to publish this case. I am especially grateful to Capt. P. U. Colver, medical specialist, for his keen co-operation and his generous clinical advice.

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THE CEPHALIN FLOCCULATION TEST IN
MALARIA

BY
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(From the Department of Bacteriology, American University of Beirut)

Since the cephalin-cholesterol flocculation test was first described by Hanger in 1938 it has been applied almost entirely to the study of diseases of the liver parenchyma, especially to jaundice and cirrhosis. Hanger (1939) used the test in the differentiation of obstructive from hepatogenous jaundice. These findings were confirmed by Nadler and Butler in 1942. Hanger and Patek in 1941 correlated the results of the test and the clinical course of 40 patients with liver cirrhosis. In 1942 Mateer and his co-workers made a very thorough comparative study of the newer liver function tests and came to the conclusion that the cephalin flocculation test is one of the three best hepatic function tests recommended for routine use.

The clinical investigators who have made extensive use of the cephalin-cholesterol flocculation test seem to agree that: (1) the test is negative in normal individuals; (2) it is a more sensitive indicator of active disturbance of the liver parenchyma than any of the so-called liver function tests; (3) it provides the best available indicator as to prognosis in hepatic disease. I have been unable to find in the literature any mention of the use of this test as an index of "insult" done to the liver by infectious processes.*

The purpose of this paper is to report my findings on the behaviour of the cephalin flocculation test in malaria, with consideration of the possible use of the test as an index of the activity of malaria parasites in the tissues of the host.

The cephalin† used was prepared according to the method described by Hanger (1938). The preparation of the testing emulsion and the method of reading and recording the results of the tests conformed with Hanger's original procedure. The cases studied consist of three groups: (1) cases of malaria collected from Anjar‡; (2) cases of malaria observed in the wards of the American University Hospitals; and (3) cases in which malaria and liver disease were ruled out.

Group 1: Cases of Malaria Collected from Anjar

The sera of 92 cases were studied in individuals varying from 4 to 80 years of age. The duration of symptoms varied from 2 weeks to 3 years. In each case we obtained: (1) a short clinical history; (2) the size of the liver and the splenic index in centimetres; (3) blood smears for malaria; (4) blood for the cephalin flocculation test. Only two cases which had no history of chills, fever, splenic enlargement, or other signs of malaria could be included as controls. In both, smears for malaria and cephalin flocculation tests were negative.

Results.—Of the 92 persons with a positive history 83 had a positive cephalin flocculation reaction—80 of these being ++ and above—and 65 had positive smears. Of the 9 cases with a negative cephalin flocculation reaction 4 had negative smears,

4 had *Plasmodium falciparum* infection, and only one had *Plasmodium vivax* parasites in the blood smear. There seems to be no definite correlation between sex, age, duration, last

Table showing Distribution of Cephalin Flocculation Reactions in 92 Cases of Malaria from Anjar. (Group 1.)

Cephalin Flocculation Test:	0	±	+	++	+++	++++	Total
P. vivax	1	—	—	1	4	8	14
P. falciparum	4	1	—	—	3	15	23
P. vivax and P. falciparum	—	—	—	—	1	2	3
Questionable rings	—	—	—	2	2	19	23
Neg. smear but positive history	4	1	1	5	3	15	29
Total	9	2	1	8	13	59	92

attack in days, splenic enlargement, and the cephalin flocculation test. The correlation between the clinical diagnosis, the cephalin flocculation test, and positive blood films is shown in Fig. 1.

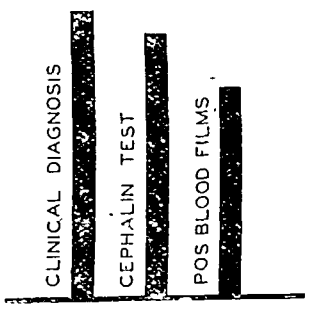


FIG. 1.—Correlation between clinical diagnosis, the cephalin flocculation test, and positive blood films in 105 cases of malaria.

On the basis of the above data we conclude that in malaria the cephalin flocculation reaction is predominantly positive and may be strongly so.

Group 2: Cases of Malaria Observed in the A.U.B. Hospital

This group consists of 13 subjects varying from 14 to 67 years of age. In addition to the procedures followed in Group 1, these cases had their cephalin flocculation tests repeated with a view to finding the response of the test to antimalarial treatment.

Results.—In all of these cases except one the cephalin flocculation reaction was strongly positive on admission (++++ and above), and came down to + or negative after antimalarial treatment was administered (Fig. 2). In the one exception which

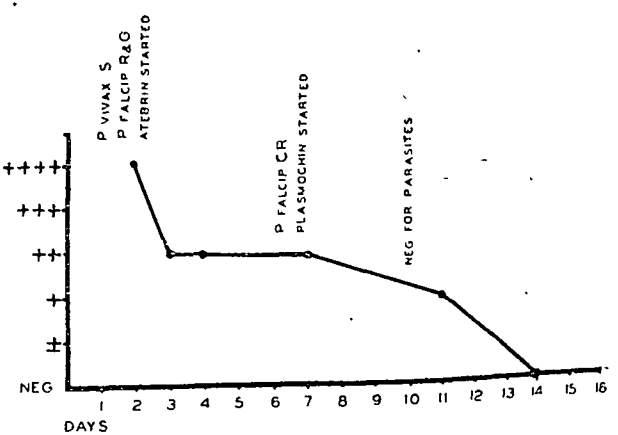


FIG. 2.—Behaviour of the cephalin flocculation test in a case showing satisfactory response to therapy.

* After this paper was written Mirskey and co-workers reported on the test being positive in ten cases of malaria. This preliminary report, entitled "Hepatic Dysfunction in Malaria," was published in *Science*, 1944, 99, 20. They noted that patients treated with a high-carbohydrate high-protein high-vitamin diet showed a rapid disappearance of the positive cephalin reactions, while patients not treated in this manner showed a positive reaction for as long as one year after the last attack. Group 2 in my series were not treated in the manner those authors describe; in fact, these patients received ordinary ward diets, and yet their reactions became negative within a period of about two weeks from the start of antimalarial treatment.

† The cephalin used was prepared in the Department of Biochemistry of the American University of Beirut.

‡ Anjar is an Armenian refugee village situated in the Bekaa Valley, on the outskirts of the Anti-Lebanon Mountains, on the Damascus road 15 km. from Chitaura. It is one of the worst-infested malarious districts in Syria and the Lebanon.

showed a tendency to relapse despite intensive antimalarial treatment given thrice in the hospital, the cephalin reaction remained consistently +++ even when the patient no longer had symptoms of malaria and was readmitted to the E.E.N.T. Service for ulcerative keratitis. I have used the test on cerebrospinal fluid in two cases with cerebral malaria and coma and found i

to be —. The cephalin flocculation test done on the blood of these two cases was —+ in one case and +++ in the other. Blood smears showed the presence of *P. falciparum* in both cases. In a case of chronic malaria with splenomegaly the cephalin flocculation test on the splenic blood was —, while on the peripheral blood it was —+—, despite the fact that no malarial parasites could be demonstrated from either the splenic puncture material or the peripheral blood.

On the basis of the above data it seems reasonable to conclude that the cephalin flocculation test is an index of malarial activity in the tissues of the host.

Group 3 Cases in which Malaria and Liver Disease were Ruled Out (Controls)

This group of 90 cases consisted of subjects observed in the AUB Hospital wards, and may be considered as a group of controls.

Results In all cases the cephalin flocculation test was negative.

Discussion

In a paper I have presented evidence that in the great majority of malarial cases the cephalin flocculation test is positive to a significant degree. The percentage of positive tests was greater than the percentage of positive smears in our series. The fact that the test became positive near the onset of clinically recognizable symptoms should facilitate an early diagnosis of malaria where infectious hepatitis is ruled out, even though splenic enlargement may not be noted and blood films may still be negative for plasmodia.

I suggest that the cephalin-cholesterol flocculation test be carried out as a routine on all prospective blood bank donors, and that all positive reactors be excluded as possible carriers of malaria or infectious hepatitis. The need for the application of such a procedure to persons who have been in high malarious areas, particularly returning personnel of the Armed Services is obvious. The simplicity, reliability and established significance of this test in infectious hepatitis and chronic malaria make it the obvious method of choice for routine use.

Summary

The cephalin flocculation test was done on sera obtained from 105 malarial cases. A positive flocculation reaction was obtained in 96 cases (91.4%) it being ++ and above in 94 cases (89.5%). The proportion of positive smears was 73.7% (77 cases).

The cephalin flocculation test tended to become negative with anti-malarial treatment. It thus may be used safely as an index of the activity of malarial parasites in the host.

Use of the test on cerebrospinal fluid is suggested in cerebral malaria to determine the degree of activity of the infection.

Routine use of the cephalin test on all prospective blood bank donors is also suggested.

I am indebted to Dean G. H. Miller, Professor of Internal Medicine, Drs. E. W. Dennis, Professor of Bacteriology, and S. E. Kerr, Professor of Biochemistry, of the School of Medicine of the American University of Beirut, for their encouragement and valuable suggestions, and to Miss A. Der Boghossian and Mr. K. Seradainian for their technical assistance. I also wish to thank Professors H. Yem Komshian, G. Khayat, and C. Baylor, of the Department of Internal Medicine, AUB Hospital, for permission to include their cases in this paper.

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SOME PAEDIATRIC PROBLEMS PRESENTED AT BELSEN CAMP

BY

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AND

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Looking through the case records from the paediatric department in the Belsen Hospital three cases seem worthy of permanent record.

Case I

A Czech girl aged 14 was found somewhere in the forest area in a very bad condition with the diagnosis of "heart disease". She was removed to the children's hospital and her case was followed up as fully as possible. She had a past history of typhus in the horror camp. Before admission to the children's hospital her mother on her case stated that she had been suffering from diarrhoea and had shown some oedema. For the last 48 hours she had received injections of nicotinic acid and calcium, and sulphate hazo-bis-methyl. She was rather big for her given age (probably more than 14 years), was much emaciated, and appeared conscious, of her current illness unusually apathetic. Temperature 99-102° F., pulse 120.

On examination cardiac dullness was found to extend some 2 in (5.3 cm) outside the left nipple line and 1½ in (3.8 cm) to the right of the sternum and above the third rib. There was no visible pulsation. The heart sounds were normal, no murmurs. There was a cough with a little sputum. Moist sounds were heard all over the chest, most pronounced on the left side. C.N.S. Reflexes were decreased on admission. The abdomen was thin but no tenderness was manifested there. No oedema was present. The lungs were normal. Radio has revealed considerable enlargement of the heart shadow both in size and soft generalized shadows in both areas. The appearance suggests dilatation seen in initial stages of malarial infection and the clinical condition is compatible with pulmonary congestion (see Fig. 1). The blood sedimentation rate for the

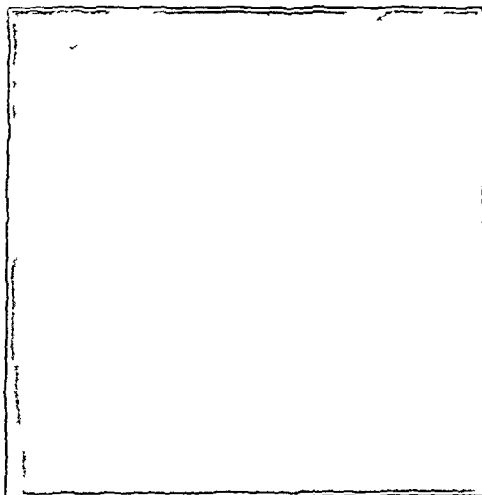


FIG 1—Skiagram of Case I, June 1, 1946

first hour was 144 mm (Westergren), blood urea, 12 mg/100 ccm plasma protein, 6.5 mg/100 ccm, haematocrit, 26, colour index, 0.9, haemoglobin, 45%, red blood cells, 2,960,000, white blood cells, 5,800 (polymorphs 62%, lymphocytes 38%), erythrocytic normochromic anaemia, iron deficiency.

After discussion pericarditis was considered to be the most probable diagnosis, taking into account the temperature, the size of the heart, and the lack of murmurs. Aspiration of the pericardium was attempted the posterior route being chosen. The needle was

* Blood examinations carried out by Capt. P. L. Molesworth.

The Minister of Health has made an Order under Section 2 of the Water Act, 1945, dealing with the constitution of the new statutory Central Advisory Water Committee, which will be set up in due course. The Order follows the lines of that for the Central Housing Advisory Committee, by providing that the Minister himself shall be in the chair and the Parliamentary Secretary will be the vice-chairman. The committee will have twenty other members and, like the previous non-statutory committee under the chairman ship of Lord Milne, will represent all the interests concerned with water supply matters. Members will be appointed for four years with 50% retirement every two years.

pushed slowly as far as the heart muscle and slowly withdrawn, but only a few drops of blood entered the syringe.

We considered the matter again in the light of this finding, and felt that the most likely diagnosis was still pericarditis, probably tuberculous, with pus too thick to pass through the needle. The possibility of a pure dilatation due to vitamin B deficiency was also considered, and the child was given a diet rich in vitamin B₁ and later injections of thiamine hydrochloride. The nicotinic acid injections were also continued. Within a week the child's appearance had quite altered. Her temperature fell to normal; she ceased to be apathetic, but remained unresponsive and somewhat hostile, though by this time all the other children in the beds around her had lost their terror symptoms. Later the temperature rose again, though not to the same height as before, but her clinical improvement was continuous. We now decided to include her among the cases for evacuation to Sweden. (Previously her condition had seemed too bad to warrant this.) She stood the journey well and was admitted to the Lung Clinic in Malmö. Here she was x-rayed again exactly one month after the previous film. The heart (Fig. 2)

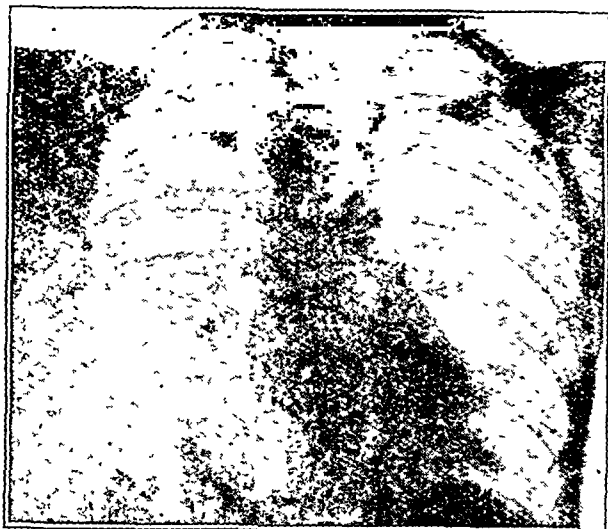


FIG 2—Skiagram of Case I, July 23, 1945.

had now come in completely; the skiagram shows, however, a considerable degree of pulmonary tuberculosis, accounting for the temperature.

One of us (W. R. F. C.) took the skiagrams to Stockholm, where he discussed the case with Prof. A. Wallgren and others. Prof. Wallgren felt that the diagnosis rested between a pure dilatation of the heart—probably of the B₁-deficiency type—or a serous effusion which had cleared up. He showed a case of the latter from his records. The general opinion leaned towards the diagnosis of a beriberi heart.

Comment on Case I

Other observers (Collis, 1945; Lipscomb, 1945; Vaughan *et al.*, 1945; Mollison, 1946) at Belsen have said that frank vitamin deficiency syndromes were rare among the adult population. Among the children we saw no case of vitamin A deficiency or scurvy, nor did we observe any case of active radiological rickets. Tetany was not uncommon, however, and many cases were undoubtedly suffering from a derangement of the calcium-phosphorus balance. Lack of facilities made it impossible for us to investigate the blood calcium, phosphorus, and phosphatase. Vitamin B deficiency (both B₁ and B₂) was, however, not uncommon. Although we did not see textbook cases of beriberi or pellagra, many of the children had lost their reflexes and had defective balance; others showed a non-infective type of diarrhoea which improved with nicotinic acid. They also showed stomatitis, glossitis, and marked pigmentation of exposed parts of the skin. Hence it is not improbable that the above case is a true beriberi heart.

Case II

This case will be of interest because of its association with tuberculous allergy and the aetiology of erythema nodosum. L. G., a boy aged 9, while in hospital suffering from a slight cold was tuberculin-tested as a routine, with a negative result. Six days later the temperature rose sharply and continued to climb, reaching 103° F. in five days. On the second day of the fever the typical red raised eruptions of erythema nodosum appeared on the extensor surfaces

of the legs. The following day he was again tuberculin-tested, and the reaction had now become positive. His skiagram showed a typical early primary lesion around the hilus of each lung, spreading out into the parenchyma, particularly on the right side. The sedimentation rate was 120 mm. (first hour Westergren).

This case shows the classical picture of the primary tuberculous state in a heavily infected child with a rapidly developing high allergy and erythema nodosum.

Comment on Case II

After the typhus, starvation, and fear syndromes had been overcome the final clinical problem among the children was tuberculosis. We calculated that typhus combined with starvation had reactivated over 1,000 cases of pulmonary tuberculosis in the camp. Hence it was not surprising that a very high percentage of the children were infected. In a survey carried out by one of us (P. C. M., assisted by M. John Moerman, Ghent Medical School) 80% of the children were found to be Pirquet-positive (average age in group, 7.1 years).

Every phase of the disease was observed. We saw children, as above, at the beginning of their allergic response, in the primary complex, others healing, and others healed. There was a group of about ten showing secondary generalized spread (miliary tuberculosis, caseous bronchopneumonia, and tuberculous meningitis), and seven cases of the adult type of phthisis in children aged from 9 to 15.

It will be of interest to many to hear that the Swedish Red Cross took all but the dying patients to Sweden, where already all the primary cases are well on their way to recovery and most of the tertiary (adult type) are greatly improved.

Sedimentation Rate.—Mollison (1946) observed that the sedimentation rate was greatly increased in starvation states at Belsen, and that its return to normal took usually some two months. We carried out the sedimentation test in over 100 children, and repeated it on several subsequent occasions in many. Starvation alone seldom produced a sedimentation rate of over 50 mm. for the first hour. But when combined with the post-typhus state and tuberculosis the most surprising results were recorded, as in the cases above. The record was 147 mm. in the first hour (Westergren). In spite of this, however, we found the test of very great value in assessing the degree of activity to tuberculosis and the progress of our cases generally when repeated at regular intervals.

Case III

A boy, Z. Z., aged 5, was admitted to the children's hospital, Belsen, from the general hospital on the death of his mother. His mother, an Austrian Catholic, died at Belsen of typhus. The father, a Slovak Jew, last heard of in Sachsenhausen, was probably dead. A sister, aged 6, was alive and well in camp. Two other children died in Ravensbruck lager. Nothing was known of the patient's past history.

On admission he was very emaciated. He lay rolled up in a ball under the bedclothes, moaning, and wouldn't eat or speak. Examination revealed pleurisy with an effusion on the right side, and some infiltration in the right and the upper zone of the left lung. The temperature was irregular, rising to 101°. Sedimentation rate, 101 mm. first hour (Westergren). Pirquet plus. 10 c.cm. of serous fluid was aspirated to exclude empyema.

The child was hand-fed with specially appetizing meals while being talked to in his own language. He was given a high-protein diet with an addition of vitamins and calcium, and at first was kept in a warm room; later he was placed in the open air. After one week he began to talk; after two weeks his appetite returned; and after eight weeks the sedimentation rate was 50 mm. He was then evacuated to Sweden. The latest report states that he has put on 7 lb. (3.2 kg.) and is now almost well.

Comment on Case III

The above case illustrates the final problem of the Belsen children. It is a social one of the most profound complexity. Here we have a little boy of 5, together with his sister of 6, whose parents have been cruelly murdered and whose family and home have been destroyed. What is to become of him? Is he to be brought up Jew or Catholic? Is he to be left in an orphanage? He has found a temporary refuge in Sweden, but what of the future?

The work reported above was greatly assisted by M. John Moerman and other members of the Shaf Medical (Belgian) Mission. Our thanks are due to the senior medical officers and officers

Summary

The literature concerning "spontaneous rupture of the liver" has been reviewed briefly, and particular attention has been drawn to the only case on record of spontaneous rupture complicating pregnancy. A further case is here described, and it is interesting that both have terminated successfully. The aetiology in the present case is very obscure, but it is suggested that the rupture may have been caused by a sudden hypertension. Spontaneous rupture of the liver should be borne in mind when seeking a cause for intraperitoneal haemorrhage of hidden origin.

I wish to extend my thanks to Mr. J. Gaymer Jones and Mr. D. Maxwell for their permission to publish this case.

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Medical Memoranda

Unusual Sequel of a Large Overdose of Insulin

The following case of prolonged and profound hypoglycaemic coma seems worth recording on account of the following features: (1) the huge dose of insulin; (2) the prolonged hypoglycaemia in spite of large doses of glucose; (3) the persistence of mental symptoms for a considerable time after the correction of the blood sugar, and the subsequent complete recovery of normal mental function.

CASE HISTORY

A man aged 25, a known diabetic for 13 years, was recently stabilized on 30 units of soluble insulin twice daily and a diet of 240 g. of carbohydrate. In the 1940 air raids he was badly concussed, and has since been treated at the Maudsley Hospital for depression and "mental absences."

On the evening of July 7, 1945, he took his usual dose of insulin and his supper. He went out, returning at 10 p.m. rather quieter and more depressed than usual. An hour later he told his mother that he had taken a very large dose of insulin for no known reason. It was found that he had emptied a 10-c.c.m. ampoule of 80 units per c.c.m. soluble insulin which had been in use only 3 days, and it may be presumed, therefore, that he had taken a large part of the 560 units remaining in the ampoule. His mother said that he then took 3/4 lb. (340 g.) of sugar by mouth and returned to bed. Next day at 6 a.m. he could not be roused, and 1½ hours later he was admitted to King's College Hospital in hypoglycaemic coma. On examination he was found to be deeply comatose, flaccid, and sweating profusely. The pulse was slow and bounding, rate 52, and the blood pressure 130/80. All deep reflexes were absent. He was given 30 g. of glucose intravenously, and immediately became rigid, started shouting, and was difficult to control. A further 20 g. of intravenous glucose was given, and he became just able to drink, though irrational and noisy. An hour later the blood sugar was found to be 45 mg. per 100 c.c.m., so more glucose was given by mouth, and the patient seemed quieter though still mentally confused. At noon he became drowsy again, and a further 20 g. of glucose was given intravenously and more by mouth. However, the latter was almost immediately vomited together with undigested food from supper the previous night. Half an hour afterwards his blood sugar was 34 mg. per 100 c.c.m. in spite of the 70 g. of glucose so far given intravenously. It is interesting to note the continued fall in blood sugar in spite of the large and repeated doses of glucose.

The patient's general condition was still deteriorating, so 5% glucose-saline was given intravenously, and by 6 p.m., after 2 litres (= 100 g. glucose), the blood sugar was 210 mg. per 100 c.c.m. In spite of this raised blood sugar the patient remained confused and restless, and became violent and maniacal on the slightest stimulus. Morphine 1/4 gr. (16 mg.) and other sedatives, such as paraldehyde and hyoscine, were given four-hourly throughout the night without good effect. At 2 a.m. the intravenous glucose-saline was discontinued after 5 litres of fluid had been given, and after a stomach wash-out the patient was able to retain sugar drinks by mouth. His carbohydrate intake was then adjusted by mouth, and small doses of insulin were given to prevent ketosis. In spite of normal diabetic control, the patient's mental condition was completely unchanged. With 6 gr. (0.4 g.) of sodium gardenal he slept throughout the morning of July 9, and at noon his blood sugar was 190 mg. per 100 c.c.m. He continued in a deep sleep until early afternoon, and then awoke very drowsy but mentally clear and orientated. He had complete amnesia for the whole incident since supper-time on July 7. He made an uneventful recovery and was seen again a fortnight later at the Maudsley Hospital, where little change in his mental state was reported.

I wish to thank Dr. R. D. Lawrence for his help in preparing this paper.

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 King's College Hospital.

Reviews

HISTORY OF MALARIA IN AMERICA

Malaria in the Upper Mississippi Valley, 1760-1900. By Erwin H. Ackerknecht. (Pp. 142. \$2.00.) Baltimore: The Johns Hopkins Press. 1945.

It has always been difficult to correlate the facts about malaria prevalence in America with the epidemiological features of this disease in the Old World. The reason is easy to appreciate, for malaria in the New World is not an age-long established disease in indigenous races as it is almost everywhere in the Old World, but one associated with the unique conditions of a continent peopled within a few hundred years by white pioneer settlers and their descendants. We know nothing about what the conditions were before this settling, even whether malaria existed at all, and, except for the efforts of a few writers to probe into the darkness, very little about malaria during the early years of American occupation. A recently published rather remarkable monograph entitled *Malaria in the Upper Mississippi Valley, 1769-1900*, by E. H. Ackerknecht of the Johns Hopkins Institute of the History of Medicine, is therefore of unusual interest, since it is a record of a very complete and exhaustive investigation of this whole subject. Not only does it give the story of malaria in America in a more complete form than has ever been done before, but as an epic of the history of earlier pioneer settling it makes fascinating reading.

After pointing out the great difficulties which surround any effort to obtain quantitative information imposed by the absence in those times of any adequate knowledge of malaria, its confusion with typhoid fever, and so on, the author takes up in detail the material he has collected regarding each one in turn of the five States comprising the area dealt with—viz. Illinois, Missouri, Iowa, Wisconsin, and Minnesota, these States having been chosen as best likely to yield the information desired. In each State there was a long interval (epidemiological latency, the author terms it) before malaria became prevalent—a strong argument for the view that malaria was not indigenous in the Western Hemisphere in pre-Columbian times. This period of healthiness was succeeded by such prevalence of the disease that, as the author says, malaria in the nineteenth century was the American disease. The pictures gathered from many sources give a grim insight into what the condition along the rivers and in other early settlements must have been. With more settled conditions and a more stabilized population there followed everywhere, towards the end of the century, a great decline in the incidence, amounting in a large part of the area to virtual disappearance of malaria (and with it, we may interpolate, the curious high prevalence of blackwater fever in America).

It is not possible in a short notice to do justice to the wealth of detail and great interest attaching to what the author has written in regard to the causes which led to the decline of malaria; suffice it to say that he has closely and objectively investigated each possible factor, including a most instructive review of the part played by quinine—again not quite what might have been supposed and a most illuminating sidelight on the early history of this drug. The work concludes with a very full bibliography of the many sources of information consulted.

REGIONAL ANATOMY ILLUSTRATED

Illustrations of Regional Anatomy. By E. B. Jamieson, M.D. Complete volume. Seven sections. Sixth edition. (320 illustrations. 75s., plus 10d. postage.) Edinburgh: E. and S. Livingstone. 1946.

This work has now been published in a single complete volume, the sixth edition. It comprises seven formerly separate sections: I, Central nervous system; II, Head and neck; III, Abdomen; IV, Pelvis; V, Thorax; VI, Upper limb; VII, Lower limb. These sections can still be bought separately in their original form, each section being fitted into a loose-leaf cover in such a way that any plate can be removed for independent use and afterwards replaced, when desired, in the holder. The total number of plates, many of which have been distinctively coloured, is 320.

In Dr. Jamieson's preface to the sixth edition he gives an account of the origin of the first five sections of the series—

namely in response to a demand by his students for a permanent record of the blackboard drawings which he made to illustrate his lectures. This demand was met by Dr. Jamieson and his artist at that period, Mr. E. Pierce, who together produced a "First Series—Sections I to V—partly on the foundation of the original blackboard drawings, partly by drawings from actual dissections, while others were built up by a process of reconstruction of muscles, vessels, nerves, and other soft parts, on a framework provided by a drawing of the bones of the particular region to be depicted. Later, with the help of the artists Mr. R. W. Matthews and Mr. J. M. Philp, the series was completed by the production in 1936 of Sections VI and VII. The illustrations have the merit of clarity, which is largely due to distinctive colouring and simplicity, the latter being rendered possible by the method adopted of combining previous knowledge of topographical relations of the soft parts, with a foundation consisting of a skeletal framework of the region. The clearness of the drawings has been greatly enhanced by the skilful manner in which the names of the parts are given in full, or as easily recognized abbreviations, and their position indicated by pointer-legends—either black pointers on a neutral white background or white pointers on a black background, as in Plate 169 A and B. Improvements on former editions have been effected in several important respects—namely: (1) replacement of some of the older drawings by new; (2) addition of new drawings; and (3) the enlargement of parts of certain figures, which have been printed as separate plates at a greater magnification—e.g., Plate 98: "Contents of the Middle Ear."

The production of the sixth edition, of *Illustrations of Regional Anatomy* in book form as a single volume, will no doubt satisfactorily supply the demand for such a book as an alternative to the older type of edition, in which the plates comprising each separate section are bound together in loose-leaf covers, and the single volume will be found more suitable for use by graduates and students who have passed the pre-clinical stages of their curriculum.

CLINICAL CARDIOLOGY

Heart Disease. By Samuel A. Levine, MD, F.A.C.P. Third edition, revised and reset. (Pp 462, illustrated 30s.) London: W B Saunders Company 1945

The general plan of this work remains unchanged, but a number of additions have been made to bring it up to date. A series of topics has been chosen which cover pretty well the most important points connected with disease of the heart. Each chapter is a self-contained discussion of the matter with which it deals. The treatment is very readable; the author discourses in a pleasant style, drawing much upon his wide experience and quoting interesting cases which illustrate his points. He does not fail to refer to his own mistakes, those experiences are always valuable, for often they are the most instructive.

The book is written chiefly for men in general practice, and accordingly much stress is laid upon the importance of bedside diagnosis without resort to elaborate investigation. Dr. Levine shows fully how very far the unaided senses, when properly trained, can go in the diagnosis of cardiac disease. The book will also be very useful for the senior student and for the general physician; in fact, the cardiologist will read it with interest and profit. The author gives his own views and ideas freely, and many of his reflections are stimulating; all the more so because they differ from those usually made. There is a long section on electrocardiograms—actually nearly a third of the book. This is well set out and most of the illustrations are good. The style is rather too discursive, and it would be easier to assimilate the facts if there was more summarizing. The chapter on heart failure is perhaps the least satisfactory—mitral stenosis is not the best example to take, although it is so common.

SCHEMES FOR MEDICAL CARE IN THE U.S.A.

Prepayment Medical Care Organizations. By Margaret C. Klenz. Bureau Memorandum No. 55. Third edition June, 1945 (Pp 148 25 cents.) Washington: United States Government Printing Office

This report is a significant addition to the evidence of the rapidly growing interest in the United States in schemes for the provision of medical care by insurance of some kind. It gives

particulars of 235 schemes in the U.S.A. and 16 in Canada which were in existence in April, 1945.

The development of these organizations can be traced mainly to voluntary industrial schemes in which both employers and employees took part; but in 1917 the State of Washington passed an Act which required employer and employees to share equally in the cost of medical care for accidents and injuries, and a few other States have followed. Many of the schemes have been fostered by groups of doctors in cities, others resemble those of our trade unions and friendly societies. Medical societies in various parts of the country, particularly on the Pacific side, have sponsored many of them, and it is estimated that about six million people were entitled to a pre-paid service of some kind in 1945. The extent of these services varies greatly, many of them tending to limit the benefits to surgical care in hospitals. Comparatively few give a comprehensive service, and nearly all of them are under the aegis of the medical societies have an income limit. This is not the case in the few which are sponsored by the Government. There were 100,000 doctors in active practice in the U.S.A. in 1941, and of these 44,000 had indicated their willingness to participate in pre-payment schemes.

The report will be found of interest to those who study the growth of the world-wide movement towards making medical service available in a self-respecting way for those of the community who need it but cannot meet sudden and extensive emergencies. There is little in any of the schemes which is not familiar to members of the profession here, except that the subscriptions seem to be on an ampler scale than in this country.

Notes on Books

The Imperial Bureau of Animal Breeding and Genetics (Hendry's Buildings, West Main Road, Edinburgh) has issued as one of its technical communications a monograph by JAMES ANDERSON, F.R.S., M.P.C.V.S., of the Experimental Station, Nanyasha, Kenya, on *The Semen of Animals and its Use for Artificial Insemination* (price 7s 6d). A foreword by Dr J. E. Nichol, deputy director of the Bureau, notes the wider realization in recent years of the possibilities of artificial insemination as a method to aid the development and improvement of livestock production, especially of dairy cattle and to control disease. In 1933 the Bureau published a review of the subject by Dr Arthur Watkinson; in the present monograph Dr James Anderson gives a comprehensive summary of the voluminous literature which had accumulated up to the close of 1943, with some later references in a supplement. There is a full bibliography.

Dr FRANK C. EVE, many of whose writings on the subject have appeared in these columns, has published a small book, *Artificial Respiration Explained* (E. and S. Livingstone Ltd., 7, Teviot Place, Edinburgh 3, plus 3d. postage). In Chapter I Dr Eve explains natural respiration, and in Chapter II artificial respiration (mouth-to-mouth, circulation, ventilation of the lungs); in Chapter III he reviews the situation concerning the three chief methods of resuscitation, and others; in Chapter IV he discusses causes and treatment of asphyxia, and in Chapter V gives brief instructions in the chief methods, including, of course, the rocking method associated with his own name. The text is freely illustrated with line blocks and reproductions of photographs. The language is simple and should be well understood by any intelligent first-aiders.

The Industrial Welfare Society, 14, Horseman Place, Westminster, S.W.1, has issued two new publications. The first, entitled *Doctors' Conference*, reports the proceedings at Leicester College, Nottingham, last August, and includes papers by Lieut.-Col. G. R. Hargreaves on "Integration of the Serviceman and Citizen," and Lieut.-Col. T. F. Main on "Some Aspects of Personal Maladjustment." This report of 120 pages costs 5s 6d. The second pamphlet, entitled *Points for Planners* (price 1s 6d) is a guide to firms planning accommodation for welfare and personnel departments in new or adapted premises. There is a section on first aid and health services.

The report of the Director-General to the Council of the United Nations Relief and Rehabilitation Administration for the period April 1, 1945, to June 30, 1945, is published in London for U.N.R.R.A. by Barrup Matheson and Co. Ltd. This, the third of the series, describes a period of rapid expansion in which U.N.R.R.A. entered upon its first large-scale activities. The main subjects dealt with are supply operations for relief of distress; care and repatriation of displaced persons; health, welfare, and other services; liaison and negotiations; finance; allocation and provision of supplies, including medical and sanitary equipment; and organization and personnel.

examinations in food inspection and inspection of premises, students are to keep a day-book of their practical work throughout the course and examiners are to take account of it in assessing marks.

In some ways the new courses will be more exacting than the old for students, and also for teachers, because instruction will be more demonstrational and not merely supervisory, as so much laboratory instruction tends to be. There are, however, exemptions from classes for students with appropriate clinical or public health experience, and the combination of academic study with approved part-time practical occupation, which the scheme makes possible, should provide a good training for medical officers of health. It should be clearly understood that the new system is intended to provide an adequate basic training in public health, by means of the preliminary course and certificate, for all officers wishing to work in a public health department. The limited numbers who aim at being medical officers of health will go on to the diploma; the others, presumably, will seek a higher qualification in the particular specialty in which they are engaged, whether it be child health, tuberculosis, infectious diseases, venereal diseases, or some other recognized field of public health work. It is to be hoped that employing bodies will fall into line and cease to require all entrants to the service to hold a diploma or degree in public health.

FLUORESCENT TRACERS

In this age of atomic energy much work has already been done on the use of radio-active isotopes for tracing the metabolism of compounds in the animal body. And now, following the identification of tubercle bacilli by fluorescence microscopy, it is interesting to read that the property of fluorescence is being used to trace the location of particles in tissue.

Yagoda and Donahue¹ have shown that many minerals the dust of which is toxic are also represented by natural specimens having the property of fluorescence under ultra-violet rays. The fluorescent mineral is identical with the more abundant non-fluorescent ones in gross chemical composition, hardness, density, and solubility; it differs only in containing a trace constituent held in solid solution which serves as an activator for the transformation of ultra-violet rays to visible light. The fluorescence of these substances, inhaled as a finely divided dust, persisted after being acted on by tissue fluids and reagent solutions used in the preparation and staining of thin sections. The sections of the lung on a slide could also be incinerated at 400° C. in a muffle furnace without destroying the fluorescence of the mineral dust; the fine dust particles were in fact best observed in the resulting ash pattern. Yagoda and Donahue describe experiments with three fluorescent materials: willemite, a zinc silicate with an intense green fluorescence; hyalite, a hydrated variety of amorphous-free silica with a pale-green fluorescence; and scheelite, a calcium tungstate with a fluorescence which varies from blue to yellow according to the molybdenum content. The lungs of a rabbit were insufflated with powdered willemite which passed a 100-mesh screen, and, after 18 hours, examination of the lungs and trachea under ultra-violet light showed the dust adhering as a continuous film on the mucous lining of the trachea and as scattered collections on the cut lung surface, and microscopical investi-

gation disclosed that the particles were located within the bronchi and alveoli. In the second experiment hyalite was injected subcutaneously into a rabbit, which was killed 30 days later. Sections of the nodules at the points of injection, when examined under ultra-violet rays, revealed the presence and distribution of the foreign dust particles by their characteristic pale-green fluorescence. Lastly, animals were exposed for several months to scheelite, and here fluorescence microscopy showed the particles to be located in dense deposits within the interalveolar septa, usually in the vicinity of small- to medium-sized bronchi. Finely granular, evenly distributed particles were also seen in the septa, and in lesser amounts uniformly distributed throughout the lung. Some was found in the periphery of the peribronchial lymph nodes.

This work suggests that fluorescent-tracer technique may become a valuable method of histochemical investigation of inhaled dust, particularly in laboratory investigations designed to simulate conditions in mining or industry. The fluorescent mineral may be used as the dust for investigation, or it might be added in small quantities to the non-luminous variety; or where a fluorescing specimen of identical chemical composition is not available the tracer technique might be used by adding a fluorescent inorganic preparation having density, solubility, and particle size distribution similar to those of the dust under investigation; it might be assumed that wherever a fluorescent particle was observed it was accompanied by the dust.

STUDENT HEALTH SERVICES

The Social and Preventive Medicine Committee set up by the Royal College of Physicians of London in 1942 has now presented a third interim report, giving further and closer attention to its earlier recommendation "that student health services should be available in every medical school, and that under the general supervision of the head of the department of social and preventive medicine they should be used as an instrument of teaching." No final decisions could be reached as to the medical staffing of such services, especially in regard to the provision of treatment, until more was known about a National Health Service. It was also premature, for the same reason, to set out any details of a "student health centre" of the type suggested in the committee's original report. Nevertheless the evidence, mainly from students themselves, revealed such a disquieting position that it seemed urgently necessary to bring the matter to the notice of university authorities. Moreover, though the committee originally confined itself to the narrower question of the health of medical students, it became clear that all university students must be considered. The present report therefore takes up the broad issue of health services for the undergraduate (and the resident graduate too) and gives guidance on general lines of policy without going into detailed suggestions. The evidence before the committee has convinced it that there is a serious amount of sickness among university students; that many university authorities are almost wholly indifferent to any measure of preventive medicine; that facilities for care of sick students (except those suffering from serious illness) are sadly deficient; and that matters of diet and lodgings are in some instances given only perfunctory attention from the point of view of health. The recommendations, briefly summarized, are as follows: (1) Universities should accept greater responsibility for the health of students. (2) Arrangements should be made for medical examination after entry and periodical examinations during the student's stay, to detect physical and mental disabilities and to indicate available means for

¹ *J. industr. Hyg.*, 1945, 27, 193.

forming a complex compound with iron. Other substances, such as formaldehyde and lactic acid, may help in the production of acidosis. It is interesting to note that Rees suggests that the oxidation of methyl alcohol is checked by the consumption of ethyl alcohol, and states that a sign of poisoning may be averted if it is drunk once or repeatedly after the consumption of methyl alcohol.

RHEUMATIC BRAIN DISEASE

It is common knowledge that rheumatic fever involves the central nervous system. Sydenham's chorea being the best-known example. Recent researches conducted in the United States suggests, however, that the incidence of lesions in the brains of patients with a history of rheumatic fever is far greater than has been realized before. In a review of his work Bruesch¹ has pointed out that in only one of thirty patients who had rheumatic valvulitis was the brain free from changes. These changes consisted of obliterating endarteritis of the small meningeal and cortical vessels with subsequent gross or microscopic softening in the cerebral cortex. They are clearly a sequelae from cerebral embolism occurring in patients with mitral stenosis during auricular fibrillation. Involvement of the brain may arise many years after the acute stage of rheumatic fever. The possibility that these lesions may give rise to mental symptoms led Bruesch to study a group of 500 consecutive necropsies in a mental hospital. He found evidence of rheumatic heart disease in 5.3% as compared with an estimated figure of less than 1% for the general population. Among schizophrenics the incidence was as high as 9%. Bruesch discusses a possible causal relation between rheumatic fever and various types of mental disease, but it is clearly desirable that any such conclusion should be deferred until more statistical evidence is available. Even if further work should confirm the results obtained by Bruesch, the relation between schizophrenia and rheumatic disease might well prove to be a concurrent nature not unlike that of tuberculosis. It is also said to be relatively frequent in schizophrenics.

It has been stressed by Bruetsch and others that the vascular changes in the brain are not pathognomonic of rheumatism, but may also be found in other conditions—for example, bacterial endocarditis. It remains to be seen whether recent work on allergy may throw light upon the pathogenesis of the lesions, which are not unlike those described in anaphylactic experiments after protracted sensitization.² This would place the rheumatic lesions in line with periarthritis nodosa, for there is now strong experimental³ and pathological^{4,5} evidence that this condition is an allergic reaction, and, perhaps, also with thromboangiitis obliterans. Both conditions are now assuming some neuropathological importance, as they appear to affect the brain more often than was previously known.⁶

The main library of the Royal College of Surgeons was not seriously damaged when other parts of the building were bombed, and the books have now been returned to the shelves. Several tons of books had been evacuated to Downton Castle, Ludlow; Alfinch Court, Worcester; and the National Library of Wales. Rearrangement of the Library is now proceeding and the Reading Room is open once more to students from all parts of the world.

¹ *Nev. med. Bull.*, Wash., 1945, 44, 1099.
² *Ibid.*, 1945, 44, 1107.
³ *Acta med. scand.*, 1943, 113, 558.

[illegible]

NOTES ON THE PSYCHOLOGY OF PRISONERS OF WAR

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Prisoners of war have of late enjoyed and suffered much of the limelight, psychological and otherwise, but in general it is the late, rather degenerate, form of the species—"the ex-Kriegie" or "liberated P.O.W."—who has kept the centre of the stage, and there are, I think, still some points about the psychopathology of imprisonment which merit discussion.

A word about terminology: I have throughout used the word "Gefangenitis"—chiefly because I like it; but it must not be read to imply any pathological condition. It is of course impossible to say what the normal reaction to P.O.W. life should be; even if adaptation is taken as a criterion there is a further difficulty. Those who were best adapted to imprisonment found the greatest difficulty in readapting in England. The Freudian criterion of ability "to work and to love" is also of little help in differentiating "normal" prisoners in a solely male population where most work helped the enemy. It is used here simply to describe the psychology of Gefangenitis.

Acute Gefangenitis

One of the most interesting facts about the psychology of imprisonment antedates the surrender, and it is odd indeed that it should have attracted so little attention. I spoke about this to a very large number of prisoners, and the extraordinary fact emerges that practically none of them even considered the possibility of their being taken prisoner. My own case is fairly typical. I knew for five days that we were fighting a rearguard action on Crete; I had a good idea of what had happened at Dunkirk and in Greece; I visualized death and wounds fairly often during that period, but I never thought of being taken prisoner, although the impartial observer, had he been about, would probably have put our chances of being taken prisoner at about 2 to 1 on, even on the first day. It would seem, therefore, that there was some strong unconscious factor inhibiting normal reasoning. The "censor" apparently "passed" thoughts of death, while "blue pencilling" thoughts of imprisonment—a fact suggesting that rather deep unconscious factors are involved—and it appears reasonable to look for some general psychological reaction among those who were taken prisoner.

It is unfortunately difficult to write with certainty about those early days. There were no mass-observers about, and each prisoner had other interests more pressing than a minute dissection of his fellow prisoners; still, the general impression was so striking that a generalization can be risked. The simplest way is to describe the extreme case, not the average. He will be lying down, alone, and will be silent. If others are near he may exchange a few words, but will, oddly enough, not grumble. If one asks how he feels he will almost certainly tell you to "f—k off," but if pressed will say he's "b—d" or "dead." In appearance he will be dishevelled and dirty and unshaven, even though water be plentiful and he has a razor in his pocket. Orders and requests by his own officers will have no effect on him; he will obey his captors slowly and sullenly. He will be deaf to all ideas of escaping, will often be surprisingly uninterested in food. Such were the extreme cases, which were not rare; but nearly all showed something of the syndrome.

Those prisoners whom I saw on the north coast of Crete after the surrender had been well-disciplined soldiers a few days before, interested in their appearance, and full of initiative. Since then they had made severe physical exertions; they had been hungry and probably thirsty; they had been heavily bombed and seen their fill of sudden death; they had been separated from their officers, and they honestly believed that the Higher Command were dithering incompetent idiots.

With such a mass of possible factors it is at first difficult to say whether the actual experience of being taken prisoner had any effect. One is tempted to say that they had been through so much that the final result is not surprising; but a short examination shows that there are certain difficulties inherent in the obvious explanation.

Hunger and thirst do not usually lead to inactivity—quite the reverse; the belief that the Higher Command were dithering idiots, although common in the Middle East at that time, did not usually have such catastrophic effects. Many, too, had been separated from their officers during the retreat and had retained their discipline and initiative, but when hospitals were reconstituted after capture there was no return to law and order. It is true that they had lost the stimulus of fighting, but they still had the duty of escaping. Yet it is remarkable how few escapes took place in the early days of captivity, although the opportunities then were plentiful. The bombing was severe in Crete; but it was a thing of the past, and can hardly have been responsible. Fatigue is admittedly a possibility; but the worst fatigue was over, and they were capable of further great exertions under German orders. It therefore seems possible that part of the syndrome, at any rate, was due simply to being taken prisoner.

Subjectively my own memory of the period is chiefly one of colossal inertia, which was thrown into relief by the fact that I had a lot to do. I was working at a small hospital, and as I was the only German-speaking M.O. had a fair amount to do in addition to the ordinary medical work. I remember waking each morning and being unable to get up. I was not tired—I was just apathetic; it was often an hour before the remnants of my Presbyterian conscience drove me down to start work. And during the whole of that period every act, every decision, required an effort out of all proportion to the circumstances.

I was very forcibly reminded of another prisoner I had seen during another war. He was a Moorish cavalryman who had been slightly wounded and brought to our hospital. He died—although his wound was of no importance and there seemed no other medical cause for death. There appeared to be a very definite connexion between the Moorish *jelo de se* and the symbolic death of our acute gefangenitis.

Subacute Gefangenitis (Dulagitis)

The new prisoner reaches his first transit camp a few days or a few weeks after capture. He looks forward to it as a centre of some sort of organization; it brings hopes of letter-writing and regular meals, baths, and modern sanitation. He is nearly always bitterly disillusioned. He was, at any rate, in 1941 at Salonika, which was the first transit camp for all prisoners captured in Greece and Crete. I was there from June to Nov., 1941, and it is on my experiences there that this part of the article is based. I have, however, discussed the matter with other M.O.s who were in the Libyan and Italian camps, and the pattern appears fairly constant.

Here again there is an excess of factors, all possibly effective, so that it is difficult to distinguish cause and effect. There was first of all hunger: on a diet of 1,000 calories everyone is nearly always hungry. There was also almost always a marked shortage of water. Nearly everyone had diarrhoea, and most of them hypoproteinaemic oedema; the sanitation was deficient and primitive to a degree; overcrowding was appalling; and there were innumerable bed-bugs. The nervous tension of the camp was kept at breaking-point by shooting inside the wire every night and often during the day. The news in the second half of 1941 was not very good, and morale was very low. The average P.O.W. arrived at the transit camp still in the apathetic stage, and the psychopathology of transit camps really consisted of the fate of apathy. There was inevitably one group of prisoners who remained apathetic; they became more and more horizontal, ceased washing, and ceased caring. They were difficult to treat; a few died of intercurrent infections.

The other symptoms are best considered under various headings.

(i) "Midsummer Madness."—People normally sensible and eminently reasonable did or said things which showed they had completely lost their sense of proportion. I give two examples from officers who might be expected to have retained their equilibrium better than others: (a) There were relatively few M.O.s at one period, and as we were receiving only 1,000 calories we wished to share out the work. One doctor refused to work, saying he wouldn't work unless the Germans gave him more food—regardless of the fact that it meant others had to do more work in his absence. (b) A padre asked me to translate a letter into German in which he

expressed his undying devotion to the Führer! When I expressed anger and astonishment he seemed very surprised. Associated with this was a certain amount of collaboration with Germans, among both Serbs and British. One case was particularly disastrous to the British in the camp. These people were "strangers and afraid in a world they never made." They had woken up in a new world where the old standards no longer existed and where they searched in vain for new.

(ii) Appearance of neurotic symptoms as seen on the sick-parades. There were numerous hysterics and hosts of hypochondriacs.

(iii) *Furious Aggressive Tendencies*.—These were directed against the Germans and, oddly enough, against their own officers (including M.O.s!). In conversation no officer who left Crete, free, escaped the most biting criticism, and death did not save many others from the most vicious attacks. It was also typical that the attacks were launched in the foulest possible language. The extent of the feeling can be judged from the fact that it was generally assumed, without any evidence to support it, that one very senior officer had committed suicide. It also appeared between the various national groups present in Salonika—i.e., Australia, New Zealand, Ireland, England, Scotland, India, Cyprus, Palestine, Yugoslavia. There were some bitter fights between the various national groups. This feeling was very carefully fostered by the Germans.

(iv) *Fatigue*.—This was widespread, affecting all ranks and all nationalities. People normally slept on all their worldly possessions, and took them with them on parade. Distrust was complete. I remember being unable to sleep at night because I had left some reserve food with such respectable people as the Friends Ambulance Unit. I am happy to say that it was still there in the morning.

The picture is admittedly complex, but I think a certain simplification can be introduced by discussing the acute "hunger" syndrome separately. I saw its effects at various other times, and it is reasonably well known. (We were on 1,000 calories diet, so the use of the word "hunger" is really justified.) The first signs are increased motor activity directed towards getting food, accompanied subjectively by irritability and the hunger pangs. Then follows a fairly rapid deterioration of the conscience, characterized in Salonika by first stealing from the Germans, then from other P.O.W.s, and then from one's friends. Next, activity gets gradually less, and finally apathy appears if the diet is low enough. This apathy does not appear until there are obvious signs of malnutrition.

If we then, as it were, subtract this syndrome from the whole symptomatology of "dulagiti," there remain the "midsummer madness," the neurotic symptoms, and the ill-directed aggression, appearing as apathy disappeared. The continuing state of apathy could be seen as a continuation of two separate tendencies. It is therefore reasonable to suggest that the psychological mechanisms involved in the early stages of imprisonment probably consist of normal aggression being directed inwards, producing the picture of apathy or symbolic death, and that in the recovering process there is a period of "feeling lost" associated with ill-directed aggression and escapist hysteria.

The reason for this profound effect of imprisonment is harder to guess, but the fact that death was considered by the "censor" preferable to imprisonment suggests that rather deep layers of the unconscious were involved. It is possible that this surrender of male to male involves some unresolved residue of the Oedipus complex.

Chronic Gefangenitis

(a) Psychological Medicine

In general, psychological medicine in imprisonment was very similar to that in peacetime. There were the same anxiety neurotics, hypochondriacs, compulsive neurotics, hysterics, and psychotics as in normal life. Whether they were more numerous than usual no one knows; no statistics or comparable group is available. One inevitable difference was the extent of malingering. It was very difficult for an Army doctor to change from the habitual severity with malingerers to an attitude of complacency if not actual encouragement. In many cases the differential diagnosis between psychoneurosis and malingering was very difficult. Most prisoners felt it their duty to malinger as much as possible to decrease the German war effort, and this idea strongly reinforced any hypochondriac tendency.

Another point of interest was the national preference for particular organs among the hypochondriacs. The French

pain round both rib-margins; the Russians had pains in their backs; the British concentrated on their stomachs, with the "effort" syndrome a good second. The Germans, I gather, had roughly the same interests as the British, but their doctors tended to treat the effort syndrome with cardiazol (leptazol) and strophanthus.

One learned in time how to cure them. The French could always be cured by injections—they preferred injections of liver, but that was too much for my conscience! The Serbs always reacted to massage, the Russians to heat. A barium meal was found to be best for the British stomachs (it was effective before any results were known), and psychotherapy for the effort syndrome. It is probable that the doctor's mistakes of one epoch produce the type of hypochondriac of the next! In 1943 and 1944 it was interesting and frightening to watch the growth of the Tb. neurosis, as the routine x-ray examinations were carried through without any adequate explanation.

Had I done more psychotherapy it would have been interesting to generalize about the aspects of P.O.W. life which had produced the strain causing the appearance of the neurosis. Actually the majority of the neuroses I saw were deep-rooted in civilian life; of the others I can only say that "repressed aggression" seemed the best way to describe what had caused the trouble. Let me give an illustrative case.

A Scot of about 30 was admitted with various complaints, diagnosed as effort syndrome. Psychological treatment was difficult as he refused to talk, but after a few days he came into the open on the subject of why he was not sleeping. He started telling me his dreams, and I was suddenly involved in a very vivid description in broad Scots of a long and very bloody massacre of Germans. His previous psychological history was all right, but he had developed a passionate hatred of the Germans in France in 1943 and during the surrender at Saint-Valery, which was not decreased by the march into Germany. At the beginning he tried violence with Germans—but found, like so many others, that it did not pay. He had then tried to work it off on his companions, but they got quickly tired of it; after two weeks of it myself, I did not blame them. He had then developed his heart symptoms and his sleeplessness. I did not attempt to analyse the case any further, but let him work off his feelings and tried to direct his energies towards escaping and saw him with some success. Other similar cases could be cited, but they would have no statistical importance.

(b) Sex

The secret sexual lives of prisoners were much less lurid than one might have thought, but they were not without interest. There were first of all the secret normal lives in defiance of the medieval German racial laws. They were far more numerous than one would have imagined. There was a certain tobacco factory in the IX area whose history would make a good "Tommy by Warlight" and would doubtless have a great success, and the barbed wire became the linear descendant of the locksmith in its relation to love. Less romantically there was a very definite increase in masturbation. This in general did little harm; but there were a few who became depressed and worried, feeling grossly guilty and fearing all the classical fates of madness, feebleness, and impotence.

As regards homosexuality, the most obvious sign of it was the popularity of dances among the P.O.W.s, which were widespread. The extent of actual sodomy was very hard to judge, not only because it was concealed from M.O.s but also because of its sporadic appearance: there would be a great deal in one working party, where it spread rapidly by a sort of infection, while neighbouring working parties would have none; but the general incidence was probably very low. The cases of which I heard fell into the following groups. (a) Those initiated by a P.O.W. who had been an active homosexual before the war. One of these stated—for what it is worth—that "P.O.W.s were much more easily seduced than civilians." It happened that I treated two who had been seduced in this way, for non-psychological complaints, but they spoke to me about it and claimed to have had heterosexual imagery throughout. It appears to have done them no harm, apart from some increase in guilt feelings. (b) Those initiated by regular soldiers, who had not previously been homosexual. There seems to be a vague homosexual tradition among regulars, and they turned to it when bored. In general, homosexuals were treated more

I have the impression that sexual abstinence did not prove such a psychological strain as might have been expected.

(c) Hunger and Economic Factors

British prisoners were not chronically hungry in general. The Red Cross parcels prevented that; their diet was monotonous, but they were rarely hungry. On the other hand, there were numerous groups of P.O.W.s who were much less well off than the British—e.g., French, Serbian, and Russian. In "mixed" hospitals these groups met, and one was able to judge the effect on behaviour of small groups, living on different economic levels, under otherwise identical conditions. The calorific levels were approximately 2,900 (British), 2,100 (French), 1,700 (Serbian). A "class" system established itself at once, the British "hiring" for food or cigarettes French or Serbs to do their washing and other dirty work; the French employed the Serbs. Ill-will followed rapidly on both sides, but it was striking how much more vocal and aggressive the higher-calorific groups were in criticizing the lower as regards the quality of their work and their demands for payment.

I was able to carry out a questionnaire on a group of Serbs as they left the hospital. A Serb cadet officer acted as intermediary, and no one suspected that it was being done. The questions asked were: Do you think more or less of the British after meeting them in this hospital, and why? The result was that 87% thought less, and the reasons given were: "their bloody condescension" and "their damned parcels." The first on analysis proved to refer to the way in which the British gave them occasional food and cigarettes—an interesting example of the failure of charity to solve economic problems. It is certainly true that the parcels saved our health, but it is equally true that they ruined our reputations.

It is obvious that these feelings were partly nationalistic, but it was made very clear, at another hospital, how important the economic factor was. This was a hospital solely for tuberculosis, and permission was obtained to give all patients British parcels. This hospital was even more international than the other, but the international rows were very much fewer. I also had an opportunity of experiencing this problem myself. It happened that the staff of one hospital consisted of two French M.O.s and one British (myself), and ten British orderlies. As the French M.O.s got very few parcels, my standard of living fell considerably below that of my orderlies. I remember being amused and ashamed at my irritation with what I felt was my orderlies' condescension, and by the general increased friction between the orderlies and myself during this period.

It must be stressed that in all these cases the "lower" class has been on a very low economic level, and are therefore not comparable with the conditions in civilian life. It was unfortunate, too, that no groups presented themselves when the differences were solely qualitative and not calorific, but the whole was impressive evidence for the importance of the economic factor.

General

Apart from all these minor groups of psychological phenomena, it is reasonable to ask if there were any general phenomena appearing among P.O.W.s which might be attributed to the effect of imprisonment itself. I have discussed this with many P.O.W.s, and there seems to be general agreement about the following two: (i) increasingly frequent attacks of bad temper; (ii) increasing lack of enterprise and initiative, leading in some cases to apathy. In general one could say that the first year was spent in adaptation, the second was the best year, the third began to be a strain, and the fourth and following years left no one unscathed.

The simplest and most probable explanation of these is again, I think, the problem of aggression. Mechanically it is easy to visualize the syndrome as being due to the aggression slowly turning inwards, with occasional "break-through" to the outer world. Theoretically it is not, I think, surprising that aggression should loom so important in Gefangenitis. Sex and food deprivation produced no major conflict in themselves; they merely caused aggressive hate directed towards the Germans, and this increased aggression, perpetually tantalized by the barbed wire and the ever-present guard, could find few outlets compatible with survival as a prisoner. Hence the conflict and the neurosis.

The Returned P.O.W.

On this basis one would naturally expect the returned P.O.W. to have difficulty in coping with this suppressed aggression, and that in general he would be "in revolt"; but on this subject there are many more objective observers than myself, and I feel it is better left to them, with, however, the plea that some attention should be paid to the psyche of repatriated prisoners. At my own medical board there was not one question which could in any way be construed as showing interest in my feelings, and they did not even measure my B.P.!

Another point worth making is about their guilt feelings. These are very strong among repatriated P.O.W.s. It is not perhaps generally recognized that this is a new phenomenon caused by liberation. Little was seen of it among P.O.W.s while still in captivity. It is part of the liberation syndrome, which has been freely confused with "Gefangenitis."

DENTISTRY IN NATIONAL HEALTH SERVICE

TEVIOT COMMITTEE'S FINAL REPORT

The Interdepartmental Committee on Dentistry under the chairmanship of Lord Teviot, which was set up nearly three years ago, has completed its work. It issued an interim report in November, 1944,¹ in which it recommended a comprehensive dental service as an integral part of the Government's national health scheme. It will be recalled that the White Paper declared that a dental service must be an exception to "comprehensiveness" because there were not, and would not be for some years, enough dentists to provide it. The final report of the committee is now published.² In many respects it accords with the report of the Goodenough Committee, and applies to dental education some of the recommendations to which the Goodenough Committee gave a wider reference.

Recruitment of Dentists.

The number of dentists practising in Great Britain is just under 14,500. The committee states that up to a total of about 20,000 there is no likelihood of securing entrants more quickly than they are needed. To achieve a total of 20,000 in 20 years will call for an intake into the profession of just over 800 a year. The student entry will have to be larger than this because of the proportion of students—about 10%—who fail to qualify. In pre-war years the annual student entry was only 340, and during the war it fell below 300.

Although so similar to medicine in training and practice, dentistry may, owing to its more restricted field, lack the appeal which medicine makes to the young person in search of a career. The work may seem distasteful to many. It imposes the strain of continuous application to precise operations and confinement to the chair-side. The range of financial reward is not as high as in medicine, particularly for salaried posts, yet dental education is costly for the student, and after qualification he may require considerable capital to set up in practice.

The committee suggests certain measures for bringing dentistry to the attention of public and secondary schools. The dental schools also should make themselves well known to potential students. It may be expected that the increasing appreciation of dental health and the rising demand for treatment following the inclusion of dentistry in the National Health Service will have its reflection in the added status and attractiveness of the profession.

Dental Education

It is considered by the committee that all dental schools should be integral parts of a university; at present two schools (Edinburgh and Glasgow) are not. The Government, the universities, and the dental teaching hospitals should make available to dental students better educational facilities than exist at present. The first problem is to find teaching staff of requisite quality. Teachers should be encouraged to engage in dental research and to study all developments of their subject, and should have sabbatical leave. All teaching appointments should be adequately remunerated with graded

¹ *British Medical Journal*, 1944, 2, 765.

² Cmd. 6727. H.M. Stationery Office, Kingsway, W.C.2. Price 1s.; post free 1s. 1d.

salary scales, reasonable increments, and superannuation rights. The Goodenough Committee recommended a national range of salaries for medical teachers, and the same should obtain for dental teachers.

At present four universities although they have medical schools, do not provide facilities for the teaching of dental school students. It is considered unlikely that Oxford will be able to contribute to dental education in the near future. Cambridge is understood to be prepared to assist. The establishment of a dental school at Aberdeen might eventually be explored by the university. In Wales favourable consideration is likely to be given to the establishment in Cardiff of a complete course of training for a degree in dentistry. It is hoped that all the schools will in future admit women students.

More could be done in offering financial assistance to prospective students. As a short-term policy a certain number of State scholarships designated to dentistry should be offered for open competition. Loans as distinct from scholarships or bursaries are not regarded as desirable. Awards should not be conditional upon the student's undertaking public dental service after qualification. The need for better postgraduate education is stressed, and a postgraduate teaching school in London is recommended. To meet the cost of improving and extending dental schools and adequately remunerating the teaching staff the committee recommends a Government grant of £1,250,000 for capital expenditure, with annual grants of £100,000, rising to £300,000 within five or six years.

Government of the Dental Profession

The committee (except for one dissenting member) urges that dentistry should now be self-governed instead of being within the orbit of the General Medical Council. The separate Dental Council which would replace the Dental Board would include one representative from each of the 16 universities or corporations granting degrees or licences in dentistry, eight direct representatives of dental practitioners, three Crown nominees and, for the purpose of education and examination functions six members appointed by the General Medical Council. The committee makes one comment here.

An independent position need not be an isolated position. Had we thought that these proposals would lead to the isolation of dentistry from medicine in general we should have rejected them. Our view is, however, that the professional association of doctors and dentists can be all the closer and more cordial when each profession is self-governing.

The dissenting member, Major-Gen. J. P. Helliwell, holds that it would be a profound disservice to dental education if the Dental Board were reconstituted as an independent council, and he adds that although the General Medical Council agreed to the proposal "it did not seem to show any great enthusiasm for the transfer of its functions with regard to dental education," and only agreed to it on condition that the reconstituted council should include additional members from its own body. He quotes the President of the General Medical Council as stating in his evidence before the committee that he was of opinion that dentists should possess a basic medical qualification.

Certain amendments of the law are suggested by the committee in the light of its proposal that a comprehensive public dental service be instituted. One suggestion is that means be taken to bring to an end the shops to which the public are invited by advertisement to bring dentures for repairs without the intervention of a dentist.

Dental Research

The encouragement of dental research is regarded by the committee as a duty of the whole community. The necessary funds should be voted by Parliament, and the reconstituted Dental Council should be divested of the obligation, under which the Dental Board laboured, to devote surplus funds for certain purposes, including research. Existing agencies for dental research should be utilized, and not only should there be a dental member on the Medical Research Council but that body should be advised by a Dental Research Committee.

"The need, stated in its simplest terms, is that much more dental research of high quality should be done. We need to acquire further knowledge of the oral tissues in health and disease and of their relation to general fitness; to find and assess methods of applying that knowledge in order that dental disease may be prevented; to

determine the best means of treating dental disease, and to establish standards for the drugs and materials with a dental surgeon employs. Dental disease (including disease of the oral tissues) is one of the most common of all diseases. The committee have proposed that the community should undertake a responsibility for the dental treatment of all who need it. It therefore becomes a public duty, as well as being manifestly in the public interest, to find out more about dental disease and how it may be prevented."

It is added that oral care is a subject of outstanding importance in dental research, although there are also many other subjects which perhaps do not catch the public understanding so easily and which have an immediate bearing on oral health.

Finally the report deals with the question of dental workers. After setting out the arguments for and against the registration of the dentists' work to operative dentists, the committee unanimously recommends that the institution of an "examination" of that kind should be a proof of a shortage of dentists to work the comprehensive dental service. A scheme for the training of "dental hygienists," whose work should be limited to the scaling, cleaning, and polishing of teeth and the instruction of patients in the technique of oral hygiene, always of course under the responsible direction of dentists, should, the committee recommends, be initiated immediately on such a scale as to provide an adequate test of their value.

The committee held 24 two-day meetings and received oral evidence from 35 organizations and individuals.

HUNTERIAN DINNER AT THE COLLEGE OF SURGEONS

John Hunter was born on Feb. 14, 1728, and died on Oct. 16, 1793. The Hunterian dinner in commemoration of his birthday was held, under an endowment of the year 1813 at the Royal College of Surgeons of England, Lincoln's Inn Fields, on Feb. 14 for the first time since 1939. The revival of this festival after his 118 years and the partial destruction of the College building, was made noteworthy by the presence of many men of high rank in public and professional life, including 22 of the 31 Trustees of the Hunterian Collection, headed by the Lord Chancellor of England, Lord Jowitt. The number of trustees at the dinner would have been 25 if a company of more than 130 but the Prime Minister, the Chancellor of the Exchequer and the Secretary of State for War had to call off at short notice owing to the need for them to attend an important debate in the House of Commons. The guests were received by the President, Sir Alfred Webb-Johnson, Bt., and the Vice-Presidents, Sir Max Page and Sir Hercules Onley, in a part of the ground floor which few could recognize as the scene of havoc depicted in a photograph taken after the air raid in 1941.

When "The Memory of John Hunter" had been honoured in silence the toast of "The College" was proposed (in the absence of Mr. Attlee) by Lord Jowitt, who said that the great traditions of British surgery had won the heart of the country in war and in peace. The Government wanted to bring the best type of recruits to surgery and give them a proper reward, because the active support of the medical profession was essential to any scheme of national health service. Though he could not now say more on the subject he knew that this view was firmly held by his colleague Mr. Aneurin Bevan, who was present at the high table but was not speaking that night.

The President expressed the pleasure of the Council in greeting four Ministers of the Crown, five Ambassadors from foreign Powers, and many representatives of the Dominions which emphasized the imperial and international value and significance of the College and of its proudest possession—the Hunterian Collection and the great Museum which was built round that original nucleus. The medical profession had been rendering service to the utmost of its strength all through the trying times of war, and in this home of surgery, he wanted to pay a special tribute to their colleagues of the nursing profession and to the gallant women who drove the ambulances with care and consideration through the terrors of the blitz. When the time of trial came to the College itself much was spared in the holocaust; though it had been impossible to evacuate scores of thousands of specimens from the Museum many were safely stored, and thanks to Sir Hugh Lett's Herculean labours many

were rescued and the library had been evacuated to safe areas. Much progress was afoot with plans for restoration and for carrying them out. Sympathy and encouragement had poured in from all sources, from the King to the humblest worker in the biological sciences, and from all parts of the world came gifts and promises of future help. Not only had the munificence of Sir William H. Collins already provided an endowment of £200,000 for the scientific departments but the President was able to announce that Sir William had just made a further gift of £100,000 to the College on certain conditions. This then was no ordinary occasion: it marked a milestone in the history of the College. The plans now in hand provided for enlarged museum space, extension of research rooms, rooms for separate study and common-rooms for postgraduates from all parts of the world, extensions of the library, and a great conference hall. The Wellcome Trustees made a magnificent gift, and the Council valued equally with this their collaboration and the help of Sir Henry Dale, so that a group of medical museums could be established in London that would be a Mecca for students from all countries. Thus they carried on the great Hunterian tradition. For the heads of the two Sections of Pathology and Anatomy the Council searched the world for men of the highest attainments and secured the services of Prof. R. A. Willis, of Melbourne, and Prof. F. Wood Jones from Manchester. With their expert help it would set about restoring the greatest possession of British medicine, one of the bases of biological knowledge—a great staff college of learning built up round the collection of the founder of scientific surgery.

The President read a message sent that day to the King expressing deep appreciation of His Majesty's constant interest and encouragement as Visitor of the College, and adding that, thanks to the generous support of scientists in all parts of the world, good progress was being made in the heavy task of restoring the unique museum. The King replied from Buckingham Palace saying:

"Please convey to the members of the Council and Court of Examiners of the Royal College, and to the Trustees of the Hunterian Collection, my sincere thanks for their kind message. As Visitor of the College, I am very glad to hear that the anniversary of John Hunter's birth is once more being observed in the customary manner, and that such generous help towards the restoration of the Hunterian Museum has been forthcoming from your fellow-workers in so many countries."

The health of the guests was proposed by Sir Max Page, and Dr. Wellington Koo, Chinese Ambassador, and Mr. A. V. Alexander, First Lord of the Admiralty, both replied, the former drawing an analogy between a major surgical operation and war and its aftermath; and the latter paying tribute to the great and grand work of Service doctors of every rank. Sir Kenneth Ogilvie proposed the health of the three Hunterian orators since 1939—Prof. A. H. Burgess, Mr. Victor Bonney, and Prof. G. Grey Turner—and contrived in a few words to set forth the character and achievement of the man whom the College delights to honour from generation to generation. Prof. Grey Turner, Hunterian Orator for 1945, replied to the toast.

TECHNICAL ASPECTS OF CREMATION

It has been authoritatively estimated that in the next twenty years the number of cremations in Great Britain will reach a quarter of a million per annum, or about half the total death rate. At present there are in operation 58 crematoria (36 owned by local authorities or joint boards and 22 by private companies), and in 1944 there were 39,016 cremations—an average of 675 at each place. With the gradual change of public opinion on the aesthetics of cremation versus burial it is anticipated that the average will rise to 1,000 a year, and that the number of crematoria will be 250. Some 200 new crematoria are, in fact, planned for erection when building conditions permit. The progress of the movement was more rapid in the immediate pre-war years than at any time in its history, and it will be accelerated during the post-war reconstruction period, when many problems concerning the alternatives of using valuable land for cemeteries and erecting crematoria of appropriate design will call for solution. The fuel technologist as well as the cremation advocate has been responsible for much of the progress. Of the 58 crematoria now operating, 47 employ gas as the incinerating medium, four are coke-fired, five (one of which uses both gas and electricity) are heated by electricity, one uses oil, and one "bottled" gas.

Many cremations are carried out in the hot chamber using preheated air only. There are now eight furnaces at Golders Green. Conversions have been made from coke to gas at Golders Green, Manchester, Sheffield, Hull, Woking, and Liverpool, and further conversions are in prospect. Recent developments have been directed to improvements in technical operation, the application of heat, and the provision of "recuperation" for heating the air required for oxidation. The time required for a complete cremation with gas-heated furnaces varies within narrow limits, about 75 to 90 minutes being typical. Wide differences exist between human bodies, but incineration can usually be carried out in a hot furnace with the aid of preheated air from the recuperator only.

The first really modern incinerating furnaces were installed in this country about 1923. The gas incinerator of to-day is the outcome of long experience, improvements having been made from time to time in the last twenty years. A special burner has been developed which operates with a fan under low pressure for the air supply; this speeds up the cremation and is more efficient. The waste flue gases are conveyed to a tower by rectangular flues, the products of combustion being exhausted into the atmosphere well above the level of the ground. In the natural-draught furnace the burners are arranged in a combustion zone in the ash-pit chamber, which is immediately beneath the grid hearth-bricks or the coffin supports. Where no other manufactured fuel is available the coke-fired cremating furnace is in use.

SUMMER SCHOOL IN SOCIAL BIOLOGY

The British Social Hygiene Council will be holding a residential Summer School in Social Biology, at Wadham College, Oxford, from Aug. 1 to 15. It is being planned to illustrate the scientific approach, through biology, to human life and culture, as well as the ways in which the biological sciences find application in individual and social life. It is designed to appeal to teachers in all types of schools, and others concerned with education. The main course of lectures will deal with broad aspects of social biology of interest to specialists and laymen alike; the evening lectures will be given by distinguished visiting biologists and social workers. A series of practical demonstrations, and of visits to scientific institutions, research departments, and other places of interest in and around Oxford is under arrangement. The fee will be £14 14s. Further particulars may be had from the British Social Hygiene Council, Tavistock House North, London, W.C.1.

Reports of Societies

PENICILLIN TREATMENT OF OSTEOMYELITIS

A combined meeting of the Sections of Orthopaedics and of Surgery of the Royal Society of Medicine was held on Feb. 5 for a discussion on the treatment of acute osteomyelitis with penicillin. Mr. W. B. FOLEY presided.

Mr. VAUGHAN HUDSON described a laboratory and clinical investigation conducted at the Middlesex Hospital. It comprised 37 cases of acute or subacute osteomyelitis in which penicillin had been used. In 30 of the cases the organism was *Staph. aureus* and in 7 *Str. pyogenes*. In the majority, when the case came under treatment, the infection had been present for some days; only 2 were seen as early as the fourth day. The youngest patient (who died) was 1 year old; the oldest (who recovered) was 70. In 6 cases, had penicillin not saved the life of the patient and given time and opportunity for the focus to be discovered, the patient would have died with the cause of his mortality unrecognized. It was proper that the results of penicillin treatment should be regarded with the greatest reserve. The vagaries of this disease were well known, and were exemplified by one of these patients who, after many vicissitudes, recovered from a gunshot osteomyelitis of the femur, after surgical operation, in 1918 and remained well for twenty-five years until he spontaneously developed a recurrence of the disease in the second world war.

The severity of the disease varied very much from year to year and from patient to patient. In one patient there might be a multiplicity of foci, in another the whole of one bone might be affected, and in a third the disease might be localized to one small area. The organism had a peculiar property of hibernation, and if operation was done during the hibernating period the organism was rarely discovered. It was soon apparent that penicillin swept the organisms from the blood stream and reduced the acute lesion to a chronic one, the

Correspondence

Psychology of the One-eyed Man

SIR,—The article on this subject by Lady Duke-Elder and Dr. E. Wittkower (Feb. 2, p. 155) deserves the careful attention of all concerned, both employers and medical examiners. Grievous wrong has been done in the past to men so handicapped, largely through our imperfect understanding of their cases. Let us hope that with better knowledge of their psychology we shall avoid the mistakes of the past.

Having made more than a thousand ophthalmic examinations for pensions after the last war I think there is one point that deserves emphasis. Again and again I found one-eyed men attributing some defect of vision in their remaining eye to the loss of the other eye. They argued that one eye had now to do the work of two, and must, therefore, be severely strained. Any defect of vision in the remaining eye due to astigmatism or other error of refraction was accepted, wrongly, as inevitable and incurable. It should be pointed out to these sufferers that this view is entirely mistaken. A one-eyed man is in one way less liable to eye-strain than before the loss of his eye. All strain arising from errors of muscle balance, such as hyperphoria and/or weak convergence, are eliminated, presumably, by the loss of one eye.—I am, etc.,

Banstead, Surrey.

HERBERT CAIGER.

Ocular Signs in the Prisoner of War from the Far East

SIR,—Since the days of Clive the description of the European released from an Asiatic prison—half-starved, covered with sores, and exhibiting signs of food deficiency—has generally included the words "half-blind." Families with the Indian Army tradition will have heard such stories about their forebears amongst the prisoners of the Black Hole of Calcutta, of Tipu Sahib, and of the days of the great English expansion through India. Baird, Stoddart, and Gale are names that spring to mind, and I would wager that investigation would reveal a high incidence of central scotoma. To come to our times, the literature of the preceding thirty years for ophthalmic signs associated with food deficiency was summarized by R. H. Elliott in 1920 (*Tropical Ophthalmology*). Unfortunately his work had received only passing mention in the standard textbooks of this country until the recent war against Japan. There is nothing new under the sun, and here with these unfortunate partly blinded prisoners of war we have a problem that has engaged the attention of clinical observers over the past fifty years. It used to be said that the great charm of ophthalmology was that it was the one branch of our art that could approach science in its precision. Therefore our care must be to get the ocular signs of this syndrome defined and limited before we become embroiled in controversy over the various subdivisions of dietetic deficiencies in our search for the cause.

In May and August, 1945, Capt. W. M. Rich and I examined a small number of men that had been released at Rangoon. Doubtless some of these men were also examined elsewhere, but at the time of our original article we had not the benefit of the experience of other observers. Our report was sent for censorship in September, and after various vicissitudes was only finally published in the *Journal* of Jan. 5 (p. 20).

Our conclusions were that there were discrepancies between the ocular signs previously described and those exhibited by our cases after their arrival in England. The outstanding points appeared to be that there were no ocular muscle pareses, no peripheral visual field constriction, and that the number of men with signs of a bilateral retrobulbar neuritis (I use the term advisedly) was high, whilst the scotomata to white targets seemed to show a characteristic "tailing" but had some affinity to those of the toxic amblyopias. We also tried to review the relevant literature from the ophthalmic point of view, pointedly skirting ariboflavinosis rather than plunging headlong into a morass of speculation on dietetic deficiencies.

Reports on similar cases can be found in the December copies of the *British Journal of Ophthalmology* and of the *Journal of the Royal Army Medical Corps*. From these reports it would appear that the patient while in Asia exhibits his scotoma, is sometimes deaf (two cases only of the 219 examined have been sufficiently deaf to force the examiner to raise his voice beyond conversational level, and neither of these manifested scotoma), has considerable kerato-

conjunctival abnormality, and that his legs are more often affected than his arms by his food deficiency ("beriberi" is used advisedly). A blunderbuss of multiple vitamin therapy is discharged at him on his voyage home, which achieves considerable improvement, especially with regard to the state of the lesions of his cornea and conjunctiva (as might be expected). In this connexion Capt. Churchill's article is of considerable value in detailing the prison diet.

Since the time of the Rangoon cases some 219 men (all ex-Japanese P.O.W.s) have been referred to this centre for visual defects by their medical officers. In each case a scotometry has been performed, and to date some 54 have been found to suffer from bilateral central scotoma. I hope soon to be able to correlate these findings. Ridley's description of the Thailand cases (*Brit. J. Ophthalmol.*, 1945, 29, 613) showed that, but for the vitamin therapy on the way home, most cases might be expected to show abnormality in limbal vascularization. Even so, a recent annotation in the *Journal* (Dec. 22, 1945, p. 889) has suggested that to the ophthalmologist and his slit-lamp the abnormal limbus is not readily acceptable.

Dr. H. G. Garland (Jan. 26, p. 143) proposed to exclude the B₁ portion of the B complex as a cause for this syndrome, for some reason that he does not state. I regret that I am unable to subscribe to this, as the history of several cases shows that an incipient ocular defect was aborted by the use of thiamin in the prison camps. Rather would I tend to exclude vitamin A, as does Churchill. Vitamin B₁₂ is most definitely involved.

Dr. Garland and Dr. FitzGerald-Moore have suggested that beriberi is a coexisting deficiency picture. Rather than postulate a further subdivision of disease may I be permitted the following comment. Over forty years ago the Japanese noted a definite time relation between the onset of the scotoma and the set of clinical signs which they knew as beriberi or *karkare*. Some 75% of my 200-odd cases of visual defect have claimed that they have suffered from "wet or dry" beriberi, and the interest is that 45 out of my 54 cases of bilateral central scotoma have a history of this disease with a fairly constant time relation between the onset of the two.

The pathological findings in the C.N.S. in beriberi are those of demyelination, haemorrhages, and subacute inflammation of the white nerve fibres and their surrounding membranes. Even allowing for Kagoshima's report, why postulate a simple degeneration without inflammation in the optic nerve, due to a deficiency of only a portion of the B complex? The December *British Journal of Ophthalmology* (p. 655) notes that Major Maynard of the A.I.F. has returned home with some sections of the brain complete from the eye to the occipital cortex. Until his report is published may I be permitted to retain the expression "retrobulbar neuritis," which fits best into the ophthalmic picture.

In conclusion may I express my profound admiration for the ingenuity and skill in improvisation of the medical staff in these camps scattered throughout Asia, who used any available means to hand from shark liver to red palm oil to allay the ravages of this disease. What does amaze me is that there seems to have been no trachoma reported.—I am, etc.,

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Major, R.A.M.C.

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Newcastle-upon-Tyne.

Blindness in the British Commonwealth

SIR,—In a comprehensive survey of this problem (Oct. 27, 1945, p. 557) Prof. Arnold Sorsby states, in reference to the causes of blindness in the African Colonies, "Trachoma is probably rare but not unknown, as was previously believed." So far as Uganda is concerned, trachoma is endemic and is the principal cause of visual disability among Africans. In the sphere of ophthalmic surgery operations for the relief of trachomatous trichiasis-entropion head the list by a long way.

An analysis of 1,000 consecutive case records from the eye department of Mulago Hospital shows: trachoma, 285; diseases of the conjunctiva (excluding trachoma), 164; anomalies of refraction and accommodation, 125; diseases of the cornea and sclera, 79; diseases of the lids, 60; diseases of the uvea, 59; injuries, 48; diseases of the lens, 24; N.A.D. (chiefly tests for fitness as drivers, etc.), 24; diseases of the retina, 23; glaucoma (primary and secondary), 23; diseases of the optic nerve, 21; systemic diseases (including the C.N.S.), 18; helminthic infestation of the eye, 28 (onchocerciasis, 11); ophthalmoplegia, 7; panophthalmitis, 4; phthisis bulbi (bilateral), 3; diseases of the orbit, 3; diseases of the lacrimal sac, 2.

Prof. Sorsby mentions recent studies on onchocerciasis. This condition has been recognized for more than ten years as a serious cause of blindness in certain parts of the Protectorate, notably around the headwaters of the Nile, where the population is exceptionally dense. The 11 cases shown above can give no indication as to its true incidence, for the infected area

is some fifty miles (80 km.) distant from Kampala; these 11 cases had all come from that area. Since we (at present) know no cure for onchocerciasis, its eradication as a cause of blindness is an entomological problem of some magnitude.—I am, etc.,

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Medical Service
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Loss of Vision following Haemorrhage

SIR,—I venture to submit the following notes based on a study of the literature and on my own small experience. It is rare for any individual to have experience of more than one or two cases.

Instances were recorded in young men in the 1914-18 war (Pincus, 1918), and Tidy has stated that "no age is immune."

Papilloedema in some degree is probably present in nearly every case, but may be missed if the examination is not made at an early stage.

Narrowing of the retinal arteries is inconstant and not uniform. The continuation of the affected vessels does not accord with the blind areas in the visual fields as it does in cases of occlusion of a branch of a retinal artery. The type of narrowing is not the same as that present in elderly people who have diseased arteries. Narrowing of the arteries is probably a sequel rather than the cause of the condition.

Cases characterized by central scotoma with little or no peripheral field change have been reported, and, presuming the observation to be correct, suggest a lesion of the retinal ganglion cells or of the macular fibres—a view advocated by Holden. The clinical course of the disease, its signs and symptoms, regarded as a whole suggest the action of a nerve poison rather than a vascular disturbance.

Apart from the work of Holden little, if any, research appears to have been undertaken. Holden bled dogs and found degeneration of the retinal ganglion cells. Mayou reported a case of a dog which became blind after severe haemorrhage from the intestine. Thorough perimetric examination undertaken as early as possible might throw some light on the nature of the condition.

Tidy's treatment by transfusion, liver, and iron seems very plausible, but requires confirmation.

An extensive literature exists. A good account of the condition is given by Groenouw. I append several references not mentioned in the recent correspondence. The condition was apparently known to Hippocrates—I am, etc.,

Edinb:rz

H. M. TRAUAIR.

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Juvenile Delinquency and its Remedy

SIR,—The views expressed by Dr. R. H. Ahrenfeldt (Feb. 2, p. 216) concerning the fallacies of statistics relating to juvenile delinquency are undoubtedly sound, but one must question the wisdom of emphasizing, except in theoretical discussion, that the roots of later antisocial actions are deep-seated in the unconscious mind and far back in childhood. Everyone who works in psychiatric clinics for children knows that there are very many cases of theft, breaking and entering, wandering, and malicious damage which never reach official cognizance, and a great many more are undiscovered. So it is that the statistics are misleading.

Juvenile delinquency arises in most cases from one direct cause or a combination of several direct causes. Children who are backward educationally become frustrated with hopelessness bred of constant failure, and may indulge in truancy, with all its temptations to escape from it, or adopt some wild behaviour to gain compensation in notoriety. Broken homes or warring parents fail to give children emotional security or discipline or even normal family interests and occupations, and the resulting vague disturbances of peace of mind may cause a child, untrammelled by control and ordinary ethical standards and with time heavy on his hands, to try to square things up by taking things from others, maybe his more favoured brethren,

or even drive him to run away from the conditions that are disturbing to him. The number of cases where delinquency depends on specific mental illness is negligible, and then the trouble is usually obvious.

Psychiatric theory applied to delinquency can explain the deeper mechanisms which are operative in it, but it does not excuse the misdeeds nor help in the practical solution of the problem. Its application has, in fact, hindered progress, creating the erroneous belief that the whole matter is so deep and delicate that no direct methods to deal with it should ever be tried. This has given free rein to those who hold that crime is a mental disorder, and inhibited the common sense in their efforts to do something about it. Juvenile delinquency will persist until it is recognized that children gain stability and security from work, control, and discipline, and that these can be applied as well as understanding and correction of the underlying causes of the unacceptable behaviour.—I am, etc.,

London W 1

WILLIAM MOODIE.

Homosexuality

SIR,—The letter of Mr. D. Stanley-Jones (Feb. 2, p. 179) reflects very adequately the views of medical men who have knowledge of patients afflicted with sexual inversion. It would, however, be rash to assume that all homosexuals are to be pitied. Many are untreatable by psychological methods, because they disdain treatment or seek it only when faced by lowly social complications. Homosexuals of this type are proud of their condition and regard themselves as of superior quality to those whose sexual instincts are normally directed. The size of this group is unknown, as only a few from it seek medical advice. But, in addition, there are very many homosexuals who do realize their abnormal state, regret it, and long for release from it. Some of these can be cured, and others can be helped to make a satisfactory adjustment to life.

The estimate of 2% of the population made by Havelock Ellis is probably an intelligent guess; there are no figures on which such a calculation might be based. The number of homosexuals is high and may well be more than 2% of the population.

From time to time these unfortunate people come into the hands of the police. The working of the legal machine is by no means uniform. The wisdom or discretion of judges and magistrates shows much variation. On occasions I have appeared as an expert witness when a homosexual had come for trial. My experience has been on the whole favourable, and I have been impressed by the broad-minded attitude of certain judges and magistrates who, on hearing medical evidence, have put the prisoner on probation. This, of course, has not always followed.

In many instances, presumably, no medical evidence is called. Within the last few months severe sentences have been passed on persons found guilty of homosexual practices. Mr. Stanley-Jones refers to one such case. Another example is the sentence recently passed upon an Edinburgh schoolmaster. The protection of the public is apparently a chief consideration in the mind of the judge who passes sentence. This is clearly important, but it can be over-emphasized. I have, from time to time, seen the "victims" of homosexual practices, and the psychological trauma from which the occupants of the Bench consider they must suffer has been absent. The incident had made little or no adverse impression on the youth, as an adjustment had been made to it. To protect a youth from such an experience is very important; but the normal boy will not be blighted for life if he is unfortunate enough to have been on terms of sexual intimacy with a homosexual man. There are other factors in such relationships; and the sexual activity may play a minor part in a friendship which often has in it much of value.

It is true that the medical profession is largely uninformed about sexual perversions. But ignorance is less widespread in the younger generation. In certain medical schools systematic lectures on the psychoneuroses are given in the clinical years, and teaching on sexual abnormalities is included in these. Much remains to be done. Such lectures should be in the curriculum of every medical school. Similar courses of lectures for general practitioners were given regularly in various centres in London before the war and are being resumed. Before we condemn

the obscurantism of the legal profession we must set our own house in order. Some judges are not swayed by medical opinion even when it is available. Their interpretation of the law is their only guide. It is time, therefore, to amend the law so that they may be freed from the compunction which may well arise in the administration of a code condemned by informed opinion.—I am, etc.,

London, W.1.

E. A. BENNET.

SIR,—I was much interested in Mr. D. Stanley-Jones's most eloquent letter (Feb. 2, p. 179). Now that this subject has been opened in your columns I hope that it will be ventilated more fully by authorities better qualified than I.

I have no claim to write as a psychologist, but as a venereologist I am frequently called on to advise on various aspects of sex, including homosexuality or inversion. Many of my invert patients have been treated, some of them for prolonged periods, by medical psychologists with complete absence of success. From my own impressions and from what I have read, I think one must distinguish between genuine inversion, almost certainly a congenital condition, and those who have, as the result of certain circumstances, temporarily acquired the habit of homosexual practices. I believe that it is this latter type of case that may be benefited by psychotherapy. With inversion there appears to be an inborn unwillingness to be cured. In such a case I should imagine that it would be as difficult to achieve a reversal of the sexual aim as it would be in a heterosexual—i.e., normal—subject.

In the pathetic case mentioned by Mr. Stanley-Jones surely the man was being punished not so much for his homosexuality as for his lamentable absence of control. Offences against little girls, equally or even more common, are in a similar category. Distressing as it is, I cannot help feeling that psychological treatment would be quite hopeless in a man of his age and record. Society must protect its children to the best of its ability. I do not see any alternative in this particular case.

I feel sure that Mr. Stanley-Jones is in general mistaken about the "ignorance of sexual abnormalities" in the Prison Medical Service, and I think that if this unfortunate man shows any desire to co-operate, all that is possible in the way of psychological approach will be done.—I am, etc.,

London, N.W.8.

F. G. MACDONALD.

SIR,—I would like to support the protest uttered by Mr. Stanley-Jones against the sentence of fourteen years' imprisonment recently meted out to a scoutmaster convicted of immoral conduct with boys. It is true that the law lags some fifty years behind public opinion and that the public has not yet realized that the homosexual is not himself responsible for his inversion, that the medical profession cannot be held entirely guiltless if, with more knowledge, it accepts the Law's method of dealing with such cases. Minors of both sexes must be protected against sexual assault, but the Law's "treatment" of homosexuality is an anachronism in an age which recognizes that it is sometimes amenable to suitable medical measures. Is it not giving the Law our approval when we remain silent?—I am, etc.,

London, W.1.

KENNETH WALKER.

SIR,—In view of Mr. D. Stanley-Jones's letter I am writing to call attention to a resolution passed at the recent annual general meeting of the Prison Reform Council, in case it might be of interest to your readers:

"Resolution 2: This meeting records its opinion that the present arrangements for dealing with persons convicted of homosexual offences, sexual malpractices, and assaults and similar offences, are inadequate and deplorable, and asks that whilst the present practice of committing to prison is followed, the best possible psychological treatment should there be available, and calls for a change in the law whereby such offenders shall no longer be sent to prison but placed—where necessary—under more suitable restraint."

In dealing with such cases there appear to be two lines of approach: (1) preventive, (2) curative. Under the former heading the early environment must be studied, for there is much evidence that sexual malpractice (e.g., homosexuality) is mostly acquired and is the outward and visible sign of inward emotional disturbances generated by unfortunate early environ-

ments. Frequently the parents have wanted a girl rather than a boy, and as the boy grows up he is over-indulged—a tendency in parents towards an unwanted child. In addition, perhaps his hair is kept too long and his garments in early life are more feminine than masculine; habits of cleanliness are enforced too rigidly and too early, while that amount of roughness and independence so wholesome for the developing male is checked, and in its stead dependence is encouraged, with the development of "the mother's boy." Early protests to such handling become generated in the boy and repressed. The thinly disguised wish of the parents for a girl may result in the boy becoming a resentful caricature of one.

Another frequent cause of early difficulty is found in the child that is brought into too close proximity when young with adult sexuality. It is even found to be unwise to let children share the parents' bedroom, for precocious looking is stimulated. The wiser parent will arrange for his child, whether male or female, to have its own room—perhaps opening off that of the parents.

During the first six years of life it is wise for parents to abstain from manifesting undue interest in the child's anal activities. They should avoid stimulating the child's erotic zone, either directly or indirectly, for such stimulation may predispose the child towards imitation and repetition, with the perpetuation of unnatural practices. Therefore, unless it is absolutely necessary for the child's health, it is wise to avoid (a) rectal examination, (b) an enema, (c) a suppository. In other words, the adult should do nothing that could be construed by the child as a "rape," or breaking into his "house." Such treatment, however well meant, can only foster those suspicions of an adult and incite fear, for such suspicions reside in the mind of every child. Confidence in adults is acquired and never innate.

To overcome any such fear that may have been aroused, the child tends to become subsequently too passive. It may offer its own house or body to be broken into. The child may then grow up to become a solicitor—that is, if male the passive homosexual, and if female the prostitute. Alternatively, if such a man be of a more vindictive turn of mind, he may develop retaliatory habits and become the house-breaker or the raping adult who may even sexually assault children of the age that he was when he was (as he felt it) "assaulted."

Should prevention fail, the only efficacious treatment to my mind is psycho-analysis, but the individual must wish for this, and it is useless if carried out under duress. Such treatment has the advantage that the patient can carry on with his ordinary work, coupled with daily visits to his analyst. Opportunities are provided in the treatment for the liberation of those affects and emotions that have hitherto been pent up—such affects due to all those early interferences that have preceded the formation of his perversions. Only then is there a chance of such propensities becoming diminished and even ultimately disappearing. The earlier in age such treatment can be carried out the easier it will be. After being a short time under treatment the patient is more easily able to control his tendencies so that they are kept within bounds and at any rate no longer obtrude upon a disgusted public. Later on, as Mr. Stanley-Jones has stated, they may be able to be given up entirely, though naturally this must largely depend upon how strong is the wish in the patient to be cured, how early in life the provocative stimulus was aroused, and if the patient can continue his treatment for a sufficiently long period.

An interesting commentary on the Law's approach to such matters is provided by the fact that where it takes little or no notice—as in the case of female homosexuality—it tends not to obtrude itself unduly upon the notice of the public, whereas in the case of male homosexuality, about which matter the Law has tended to become over-zealous in its attempt to stamp out such practices, they flourish and indeed become more and more insistent. So far from showing signs of diminishing, it appears to be on the increase. It is only necessary to visit any public lavatory in this metropolis to observe how numerous such practices must be—what with the writings on the walls, holes bored in lavatory doors, etc. The very recent case of a scoutmaster sentenced to fourteen years for certain serious offences against four boys in his troop, referred to by Mr. Stanley-Jones, is a case in point. He had had two previous convictions, one in 1922 and another in 1932, and so far as one can gather he had had no psychological treatment for his obsession.

It must be remembered that anyway the homosexual is a rebel. The more you try to excommunicate a rebel the more of a rebel does he behave. The Law as at present constituted makes two cardinal errors at least, to my mind, in its handling of this matter: (1) It obliges the homosexual's (unspoken) request for a homosexual environment by sending him to prison, segregated from the opposite sex. (2) It obliges the homosexual's craving for notoriety (exhibitionism), first by the spying and watching needed for the police to take action; secondly, by the committal, prosecution, and trial that must follow. Homosexuality is kept alive by such treatment. The prisoner is discharged after a long or short sentence, remaining still the homosexual but now one with a grievance, and so the blackmailing type may result.

Unnatural offences are not to be satisfactorily dealt with by the attempted forcible restraint of the offender in a strictly unnatural (i.e., homosexual) and artificial environment such as prison provide. Even were psychological treatment to be provided for such a one (which it is not), it is doubtful whether such an environment would not work against a successful outcome. Success in psychotherapy depends so much on the voluntary nature of the treatment; it cannot be carried out under duress. The public naturally must be protected, but prison seems hardly the ideal way to achieve this—I am, etc.

London W

A CYRIL WILSON

SIR,—May I, as a psychiatrist and a practising psychotherapist, add my own profoundly indignant protest to that of Mr Stanley-Jones against the sentence of fourteen years' penal servitude passed on a scoutmaster recently.

It should be possible—and I shall be the first to join forces—to make psychiatry's weight felt against the passing of such judgments. I possess records of other such cases, none, however, so ghastly in their severity as this one and I shall welcome any further data any of your readers may care to send me or the subject.

I should also be grateful to receive the co-operation of psychiatrists, preferably those who, like myself, are uncompromisingly heterosexual, in order that concerted action may be taken towards a modification of existing laws—I am, etc.

A Wood House, Kingswinford, Staffs

WM A O'CONNOR

SIR,—Mr. D. Stanley-Jones's letter (Feb. 2, p. 179) must have been a shock to those readers who complacently assumed that law and medicine advanced side by side in these enlightened times and learned judges eagerly sought the advice of psychiatrists in appropriate cases. The sentence of fourteen years' penal servitude for homosexuality takes one back to the days when people of sound mind were put in chains. Is there no medico-legal organization to protect psychopathological cases such as this from out-of-date laws and direct the sufferer to the proper channels of treatment?

When the husband of one of my patients was summoned for indecent exposure I made strong representations to the defending solicitor, who was able to persuade the stipendiary magistrate to await the examination of the patient (accused) by an eminent local psychiatrist. As a result of the latter's findings the man was bound over on condition he attended the specialist for treatment. This he did until a cure was effected.—I am, etc.,

Hull

L. I. HARDY

"Cord Round the Neck"

SIR,—The stupendous total of 5,000 confinements attended by Dr Robert Anderson (Feb. 9, p. 219) with no stillbirths which he could ascribe to the common obstetric finding of cord round the neck seem most remarkable, and should, no doubt, scotch the obstetric superstition! (Mr. Mortimer Reddington, Jan 19 p. 109) under which we have, shall I say, sheltered for so many years.

In the past twenty-four years I suppose I have attended a mere 500 cases if as many, and I seem to remember not a few in which the cause of the stillbirth appeared to be "cord round the neck." Two cases come to my mind.

The first was a lady in her thirty-eighth week, who, in the absence of disease or trauma, had a sudden concealed haemorrhage. Delivery took place a few days later. The stillborn child had a very tight short cord wound round its neck, and the placenta showed a central area which obviously had been dragged away from the uterus

with the short cord some days previously. I take it that the descent of the head into the pelvis gave the final tug that pulled the centre of the placenta away from its site.

The second case had a happier ending. A middle-aged lady, who had lost her first baby in childbirth and who was desperately anxious not to lose her second, was found to be a breech. This I turned by external version on more than one occasion, but back the baby turned *almo* immediately. There seemed to be an elastic "something" that pulled the head out of its proper position. I made the provisional diagnosis of a short cord wound round the neck, and sent the case to Prof. English in Singapore, asking for a "Caesarian" to be done to ensure a live birth. Thus he did, and confirmed the diagnosis at operation, and produced a live child. Had this case been allowed to go into labour as a vertex I am certain that the child would have been stillborn and the cause again would have been "cord round the neck."

I should like, however, to read further opinions from men better qualified than I to express them, and I hope they will find time to give us the benefit of their views—I am, etc.

Edinburgh

I. G. CAMERON

Predisposing Factors in Carcinoma of the Cervix Uteri

SIR,—I think that your correspondent Dr Nettleton (Feb. 2, p. 182) must have misunderstood Mr. Carnac Rivett. It is well known that carcinoma of the cervix does occur in nulliparous women. The late Dr. Horden stated in his book that of the cases admitted to the Marie Curie Hospital 134—i.e., 10.4%—were in nulliparous women. G. Ward gives the figure of 12%: the figure at Mount Vernon Hospital is 8%. Your correspondent will find some interesting observations by Dr. Percy Stocks on this subject in the British Empire Cancer Campaign Annual Report for 1941. Of 800 cases of cancer of the cervix, 11.3% occurred in nulliparous women. These figures were obtained from the statistical survey carried out by the Clinical Cancer Research Committee.

Personally I consider that the trauma due to confinement is very unlikely to be a major factor in the aetiology of this disease—I am, etc.

LEEDS W

MALCOLM DONALDSON

Self-medication in Midwifery

SIR,—The methods for the relief of pain in labour which have appeared recently in this *Journal* depend for their success on the presence of doctor or nurse. For several years it has been my routine practice to leave with the patient at the antenatal examination four capsules of nembutal gr 1½ (97 mg). The patient is instructed to take all the capsules as soon as the pains occur at ten-minute intervals. There has never been the slightest sign of overdosage in mother or child. In fact it is usually necessary to supplement the nembutal with some other medication, for which my personal preference is hyoscine. Probably this method is widely used already. It has the great advantage of reassuring the patient, who knows she is not entirely dependent on outside sources for the relief of pain—I am, etc.,

Norfolk

J. N. GALE

Tuberculosis in Childhood

SIR,—The controversy which has arisen on this subject (Feb. 2, p. 180) is unfortunate. Surely the tragedies of juvenile tuberculosis should not be the battleground of two diametrically opposed opinions. Whatever the real incidence of infection with the tubercle bacillus in infancy and childhood may be, the fact remains that in regard to the individual case no one can say with any certainty what will ensue. We know something of the life history of the infection, and we know that Nature is, in many cases, kind and curative, but it would be most unfortunate if the profession and the public should gain the impression that tuberculous infection in children is of no real significance. Even if there have been "for a number of years" fewer than 2,000 cases of tuberculous meningitis, this cannot in the minds of physicians, be regarded without concern. I would perhaps be much more pertinent to try to inquire more precisely why some cases generalize and produce this fatal outcome rather than accept it fatalistically. Also, do we know how many babies and young children die with unsuspected tuberculous bronchopneumonia or military tuberculosis? What should some of us strive to ensure a tubercle-free milk supply?

if, on the other hand, we say that the more common aerogenous infection does not really matter? I am sure paediatricians do not wish to overweight the importance of this, but they cannot close their eyes to something which can be bettered. Surely the answer is not complacently to suggest that "such children appear to be like guinea-pigs in whom the disease follows an inevitable course," but to pool effort, resources, and interest, in expounding by gentle persuasive tactics, without undue alarm, the preventive principles so admirably stressed in Prof. Moncrieff's lecture.

Statistics may give a sense of relief, but to the consulting physician and family physician they may not operate so convincingly. One must grant the deepest sympathy to the phthisiologists in their overwhelming tasks, but a good winning team calls for a stubborn defensive line as well as lively thrustful forwards.—I am, etc.,

Birmingham.

A. V. NEALE.

SIR,—My plea was for the routine tuberculin testing of children and for the separation of the positive reactors under the age of 2 years from cases of open tuberculosis.

We are all agreed that primary tuberculosis in *childhood* is usually benign, but unfortunately in *infancy* such is not the case. Routine testing of infants would surely bring to light many unsuspected cases of adult phthisis in home contacts, and it would also help materially to diminish the number of deaths from tuberculous meningitis.

Dr. Hall is wrong in assuming that I advocate spending time, energy, and money on cases showing only a positive Mantoux; I do no such thing. He is also wrong in saying that first infection is almost always innocuous. In infancy it is fraught with grave danger, and the sooner this is generally appreciated the better.

Dr. Orpwood asks how it is that individual paediatricians see scores of infants dying from tuberculous meningitis. It is, alas, because there are such scores of infants who die from it (nearly a hundred score every year, according to his figures). In the last twenty years I myself have certainly seen scores, and I make no claim to any special experience of this condition not shared by other paediatricians.—I am, etc.,

Warwick.

WILFRID F. GAISFORD.

Effect of Blast on the Human Ear

SIR,—I have read with interest the article by Major F. B. Korkis on the effects of blast on the human ear (Feb. 9, p. 198). My experience in Italy has been much the same as his. In 1944, out of 3,296 new cases examined 344 (10.4%) were patients suffering from the effects of blast. Of these, 101 had a concussion deafness with normal drums; 50 showed drum congestion and haemorrhage; 115 revealed traumatic perforation, unilateral or bilateral; and the remaining 78 suffered from traumatic otitis media. All were treated to recovery, and only seven cases required mastoidectomy.

Major Korkis was indeed fortunate in having a full set of tuning forks and an audiometer with which to test his patients. The British otologist, unless he carried his own instruments, was provided with only two forks, 256 and 512 d.v.s. Indeed, it was only after the collapse in North Africa that I was issued with a 4,096 d.v.s. fork and thus was able, with some accuracy, to test for concussion deafness. A patient who has been in action and who, with a positive Rinne, cannot hear a 4,096 tuning fork is suffering from concussion deafness.

Two of the conclusions reached by Major Korkis are of more idealistic than practical value. I do not think it possible to review every six months the ears of those exposed to blast. I was attached for over two years to the hospital which served the Royal Artillery Training Depot and can assure Major Korkis that the population of the depot was constantly changing and was always numbered in the thousands. To have attempted such an investigation would have been impossible. Furthermore, on British classification of medical categories it was not possible to ensure that a man would be kept off the guns. One could not qualify a medical category in the C.M.F., and could only make recommendations to the medical officer of his unit. Records Office, who did the postings, relied solely on the actual category. Nor, from the man-power situation, could one in

all honesty make the men C1 (base duties only), as no replacements were possible and the men were physically fit and anxious to return to their old units.

The other conclusion of Major Korkis with which I cannot agree is the suggestion that all men under the age of 40 should have a routine audiometry. This is impossible on two scores. In the first place, there are no Army audiometers in this country. Secondly, the Government is at present releasing 100,000 Service personnel weekly. Who is to undertake this routine audiometry? There are thirteen British Army otologists in the U.K. at present, so each would have to do nearly 8,000 audiograms every week. Or does Major Korkis intend the civilian otologists to help? In that case, on the assumption that there are 300 otologists in the country, each would have to carry out over 300 routine investigations in addition to his normal week's work.—I am, etc.,

J. F. BIRRELL,
Lt.-Col., R.A.M.C.;
Adviser in Otology to U.K.

London, S.W.1.

Stethoscope versus X Rays

SIR,—As one who has interpreted between 20,000 and 30,000 chest skiagrams, mainly of patients previously examined by myself clinically, I should be the last to dispute the undoubted fact that in the vast majority of instances x rays give a more accurate picture of the localization and probable nature of any lesion present than do the clinical findings. However, there are cases where abnormal clinical signs can be found prior to the appearance of any shadow on the film, and the abandonment of the use of the four senses in favour of one only would in these cases be disastrous for the patients concerned and damaging to the reputation of our profession.

I am sure that most clinicians with extensive experience in the diagnosis of chest disease must have come across the patient who is referred for an opinion because of toxic symptoms, evening temperature, lassitude, weight loss, and occasional dry cough, where, on clinical examination, the findings are increased muscle tone over one upper zone with resulting diminution in movement and weakening of the respiratory murmur, and where the film, taken with an efficient and up-to-date x-ray apparatus, fails to reveal any abnormal shadow. If one's clinical acumen brings about a realization that the patient is ill he is kept under observation, when a further film in a few weeks' time will reveal an early tuberculous lesion at the site of the abnormal signs. If not, and the patient is regarded as non-tuberculous, he returns sooner or later with his disease in a more or less advanced stage. Such cases are admittedly rare, but I can myself remember at least half a dozen in the course of fifteen years' work. The only explanation I can offer for the failure of the x-ray to demonstrate the condition is that the disease is so early that sufficient exudate has not developed to create a demonstrable shadow. This explanation is supported by the fact that cases of generalized miliary disease frequently fail to show any lung abnormality on x-ray examination in the early stages of the illness.

More important even than early tuberculosis and much more frequently missed on x-ray examination is the early neoplasm, before the tumour has passed beyond the confines of the bronchus or brought about sufficient occlusion of it to produce a degree of collapse which can be noted on a skiagram. The patient is usually referred because of one or more of the symptoms—dyspnoea, pain, and haemoptysis; and physical signs in the way of slight localized impairment of movement and diminution and alteration in the tone of the breath sounds with prolongation of expiration should dictate bronchoscopy, despite negative x-ray findings. More than one operable tumour has been brought to light in my experience where physical signs alone gave any indication of its presence.

In chest examination, therefore, we must still continue to use all our senses, except that of taste, and the employment of all projections of them which can help us, be they x rays, stethoscopes, or bronchoscopes, must continue to be taught and well taught. Here I would put in a plea for using the early case for teaching purposes, so that the finer shades in physical signs may come to be learned as well as the gross manifestations of well-established disease conditions.—I am, etc.,

Leicester.

A. SCOTT,
Tuberculosis Medical Officer.

mon usage and would not be easy to memorize. For example, nobody prescribes 16 mg. morphine (1/4 gr.) on the Continent, but either 0.01 g. or 0.02 g. (or, if you like, 10 and 20 mg.). Again, in your issue of Jan. 12 (p. 74) you give the prescription of an alkaline draught: sod. chlor. and sod. bicarb. āā gr. 15 (1 g.) in 2 oz. (56 c.cm.) of warm water (because the British practitioner is used in prescribing in table- and tea-spoonful doses). It must be hard to memorize just 56 c.cm. The usual way in the metric system is to prescribe amounts of, say, 250 or 300 c.cm. and not 224 or 336 c.cm. (8 oz. or 12 oz.), etc. The man educated in the metric system either prescribes—in the case of powders—a single dose and remarks: T.D. No. X (so many doses, send ten) or—in the case of liquids—he multiplies the single dose, e.g., with 25 and prescribes: sod. chlor. and sod. bicarb. āā 25 g., aquam ad 600 c.cm.; signa: 4 table-spoons t.d.s.; or he will probably prescribe sod. chlor. and sod. bicarb. āā 25 g. aquam ad 300 c.cm.; signa: 2 table-spoons t.d.s. in water. I am aware that 24 table-spoons are not exactly 300 c.cm., but 1 oz. is not exactly 28 c.cm. and also 1/4 gr. is not exactly 16 mg. Unless the familiar or usual prescription in the metric system is put parenthetically to the apothecaries' one, the metric system cannot be made popular with the British practitioner or student.

Further, I would suggest that the term ml., which is not in general usage on the Continent, should be dropped, and c.cm. used exclusively instead. This must of necessity confuse the medical man abroad, which fact does not help to achieve the goal originally aimed for.—I am, etc.,

Cambridge.

ALBERT W. BAUER.

The G.P. and Hospital Practice

SIR,—Many hospitals are now being released from military service and restored to civilian use. Now is the time when, in their reorganization, far-seeing hospital authorities could ensure that co-operation of practitioners with hospitals about which we read so much and so far have little opportunity of seeing put into effect. It is a fact at the moment that the general practitioner is completely excluded from the wards in most of these hospitals; and while I appreciate the difficulties that might arise in administration, with 20 doctors responsible for their own beds, I think this could be overcome in the same way that it was overcome in America by the Permanente Foundation in San Francisco (Garfield, S., *J. Amer. med. Ass.*, Oct. 7, 1944, p. 337).

My suggestion is that the consultants of these hospitals should invite local practitioners to do a ward round with them once or twice a week. Thus the practitioner would have the opportunity of maintaining contact with both his patient and with the latest medical teaching. The consultant would still be in charge, from the point of view of administration, and I would also suggest, with respect, might learn a little, too, from his colleagues. The complete divorce which now exists between patient and general practitioner when once the former enters hospital can thus be overcome with mutual benefit. I would recommend hospital authorities not only to study this question but to bring about a speedy solution in actual practice.—I am, etc.,

Urmston, Lancs.

BERNARD SANDLER.

Diagnostic Acumen of the G.P.

SIR,—Is it not possible to alter the tone of this discussion, which, if memory serves, began with diagnosis of cancer of the breast? Should early cancer be referred to, the problem is admittedly not easy; indeed, it is frequently solved by a biopsy or, alternatively, the removal of a non-cancerous breast by the distinguished specialist.

The errors of the G.P. have been pilloried, and it would be easy to produce a list of mistakes by very eminent surgeons and gynaecologists. I could supply a few, even, on occasion, made against the advice of the attending practitioner. *Cui bono?* Surely the moral is that we all approach our work with some sense of responsibility and proportion, and that we remember that consultation with, not merely listening to the *obiter dicta* of, trained and skilled specialists will often be in the best interests of all.

May I suggest to Mr. Deitch (Feb. 2, p. 183) that failure to give weight to rising blood pressure and oedema does not in these days argue a very competent practitioner, even if one reads in Munro Kerr's recent *Obstetrics and Gynaecology* on toxæmia: "Even to-day the subject is teeming with opinions and theories."

The day may come when everyone will be referred to the appropriate specialist by a sorting clerk, who could in no sense of the term be called a general practitioner. Till then should we not realize that there is no closed monopoly of intelligence and that mutual recrimination or one-sided slanging does not make for the dignity of our profession or the advance of our art?—I am, etc.,

Southport.

W. A. MACKAY.

SIR,—Every G.P. of reasonable competence has a right to fulminate against ill-considered and libellous indictments such as the misstatement that "the general practitioner . . . is a careless and poorly equipped accoucheur, a positive danger to any lying-in woman, and should on no account attend a mid-wifery case" (Jan. 12, Feb. 2, etc.). This may apply to some G.P.s, but certainly not to general practitioners as a whole.

What G.P. of tolerance born of experience would make the counter-charge that no lying-in woman should ever be attended in an institution because cases are on record where sepsis has been spread round a ward to other lying-in women from an infected case? Or because mothers have been sent home from nursing homes with breast abscess, or sent home with the wrong baby owing to errors in labelling newborn infants in mass-production centres?

Mr. H. I. Deitch (Feb. 2, p. 183) quotes the occasional tragedy seen in hospitals. He appears to forget from his calm sequestered heights that the hospital obstetrician sees more of abnormal than of the normal confinements ably performed throughout the length and breadth of the realm, including rural areas and the Outer Hebrides, and suggests that it is stubborn not to realize that obstetrics is a special art to be performed only by those with special knowledge and experience. Are obstetric specialists born experienced? He quotes a case where forceps were applied outside the os—a heinous offence, all will agree. May one ask who taught the offender, examined him, and passed him fit to practise on a trusting public?—Obstetric specialists of repute. Are we justified in stating, therefore, that no obstetrician should be allowed to teach or examine in obstetrics? We should be no more justified than are the few obstetricians who cite the errors of "black sheep."

Suppose that we took the cranks at their word. Are there enough obstetric beds to accommodate all normal as well as abnormal confinements? No! Would the great men attend the normal cases themselves, or would the labour-ward sisters do the work and act as G.P.s, calling for assistance if a case presumed normal on examination proved difficult in labour? Why should expectant mothers who are physically normal be turned into physiologically and psychologically abnormal cases through fear engendered by the views of unbalanced obstetrical extremists? With Mr. Bevan making a frontal attack on the whole medical edifice it seems sad that some of the exalted chimney-pots should revile the foundation-stones of the obstetrical wing and tell them that they are a positive danger.—I am, etc.,

Norfolk.

E. PUDDY.

SIR,—From their lofty heights our specialists and consultants are rather too fond of castigating the inefficient G.P., and demanding that this and that branch of medical work shall be taken from him, because of his gross errors. Do they never reflect that they only see the occasional mistake, and that the mass of good work done passes by them unnoticed? And do they never say, "There, but for the grace of God, go I"? Some years ago a very eminent paediatrician saw a patient of mine and diagnosed "suppressed whooping-cough." The child eventually turned out to have an abscess in the hip-joint. More recently I sent a woman to hospital to have a colporrhaphy, and she was returned to me with her appendix neatly removed. The fact is that all doctors are human and we all make mistakes. Let us try to correct our mistakes by all means, but let us sling a little less mutual mud in the process.—I am, etc.,

Ashted, Surrey.

W. EDWARDS.

Motive in Medical Demobilization

SIR—Sir Ernest Graham Little's letter (Feb 2, p 23), in which he suggests that the motive for the recent large demobilization of doctors is the desire of the Government to flood the medical market and to force us into a State service will be deeply resented by many of those who are lucky enough to be demobilized under this scheme. A less biased opinion might have come to the more obvious conclusion that, if the Government had this ulterior motive in view, it would have been to its advantage to hold up such a large demobilization until the summer, when it would have been extremely difficult to absorb so many men into medical activities. But just the reverse seems to have happened, for it is well known that for some months the Government has been pressing for the speedier release of medical men. This was no sudden decision, as Sir Ernest suggests, and if transport and other service difficulties could have been overcome the present mass demobilization would have taken place earlier in the winter. However, better late than never, most of us will find plenty of work awaiting us and we shall leave it to Sir Ernest to rumble that whatever the Government does is wrong.

The needs of civilian medicine have been stressed often enough in recent months. Surely it is more reasonable to assume that the Government decision was made in the interests of civilian patients and overworked civilian doctors than to consider it a piece of political chicanery. Why look for a dirty motive when there is an honest one staring you in the face?—I am, etc.,

Eastbourne

H G ESTCOURT

A Fundamental Principle

SIR—The letters in the *Journal* of Feb 2 (p 185), under the heading "A Fundamental Principle," were there to be widely circulated in the daily press, could only convince the State or community (I use the terms in the sense Dr Eastwood understands them) that the medical profession is, in so far as the writers of these letters are representative of it, entirely selfish and unconcerned for the welfare of humanity as a whole. It is unfortunately only too obvious that so long as there is a shortage of doctors there will be a tendency—natural, I admit, however deplorable—for the poorer, dirtier, and therefore more needy areas to suffer from lack of adequate medical care. This tendency is inevitable, human nature being what it is and the situation can be met only by a planned medical service whereby an adequate number of doctors are directed to the needy areas. Had the profession as a whole in its discussion of the State medical service question showed some real concern for the welfare of the people, as opposed to that of the doctors one might have hoped for a natural or spontaneous cure of this great medico-social malady. It is our own fault that the Government is about to take the cure out of our hands, and we cannot blame it.

I should be the last to suggest that direction should be unlimited, but surely direction of young doctors, say under 30, with some temporary discomfort and loss of freedom, is a small sacrifice to pay, albeit a vicarious one for the betterment of the health of our large industrial communities. Dr Eastwood suggests that the State or community is about to exploit us for their own benefit just as "slaves are exploited." Surely this "noble" profession of ours, with all its culture, learning and wide experience of life, could never become "enslaved" merely because its work was ordered or its members directed.

I venture to suggest that in accepting a full time salaried State medical service even though it may bring some restrictions on our professional or personal liberty, we shall be emancipated rather than enslaved. In the past many of us have been literally in bondage with our practices mortgaged and with day-in-day-out competition often against unscrupulous "colleagues" whose financial position is more satisfactory than their medical ethics or their knowledge of medicine. I would submit that for the young doctor direction for a year or two to an "undesirable" industrial area would prove much less soul-destroying than the present, often unfair, competition that is inevitable under the profit-motive system.

hope there may be enough leaven in it to "leaven the whole lump," and I trust you will show impartiality in publishing this letter in the *Journal*—I am, etc.,

Glasgow

JOHN H WILSON

Principles IV and V

SIR—I cannot believe that those who crafted the seven principles intended Principles IV and V to be taken seriously. Principle V is read first and then IV and are as follows:

"V. Every registered medical practitioner should be encouraged as much as possible to participate in the public service."

"IV. Doctors should, like other workers, be free to choose their form, place, and type of work they prefer without Government or other direction."

This would seem to mean that every doctor would have the right to demand an appointment in the public service in whatever type of work he preferred and in any place he chose. Should all the doctors in Sheffield wish for example, to work in Bournemouth—a not unreasonable desire from some points of view—the Minister of Health would be bound to accede to that end if Principles IV and V are to be observed—I am, etc.,

Sheffield

JOHN PENNIFORT

Medical Future of the Colonies

SIR—Many of those who have served in tropical Africa are in full sympathy with the desire of Colonials to take an increasing share in the public services of those Colonies. But when your correspondents ("A Colonial," Jan. 26, p 147, and Dr Eastman, Feb 9, p 219) claim equal conditions of employment for Colonials and Europeans they ignore important issues.

The salary scales leave provision, etc., for Europeans have been drawn up with due regard to the fact that these officers serve in a climate highly inimical to them and far distant from their homes. Their emoluments may properly be considered a compound of a basic rate augmented to compensate for these drawbacks. In the case of the British Army, officers paid £1,000 a year are doubled while serving in West Africa. Colonial officers can scarcely expect to be compensated for disabilities from which in fact they do not suffer.

And looking forward to the day when these Colonials will manage their own affairs a grave disservice would be done them by leaving a legacy of officials remunerated on a scale having no relationship to the economic status of the community for whose benefit—in democratic countries at least—their services are required—I am, etc.,

B. Easton

J B DAVEN

The Disabled Person

SIR—Dr J S Laurie (Feb 2, p 183) refers to difficulties in the issue of certificates under the Disabled Persons (Employment) Act, 1944. While as he says every case must be treated on its merits there are certain points which make it quite easy to decide whether a certificate should be granted in any particular instance.

First, there is the statutory definition of disabled person. "The expression 'disabled person' means a person who, on account of injury, disease or congenital deformity, is substantially handicapped in obtaining or keeping employment, or in undertaking work on his own account of a kind which affords that injury, disease or deformity would be suited to his age, experience and qualifications; and the expression 'disablement' in relation to any person shall be construed accordingly. The expression 'disease' shall be construed as including a physical or mental condition arising from imperfect development of any organ." The meaning of "substantially handicapped" is made quite clear by the Minister. "The criterion of any applicant is the effect of the disability on his prospects of employment in comparison with those of a person of similar age, experience, and qualifications who is not so disabled as who is employed in or is an applicant for the same or a similar kind of employment." The Minister has also stated that borderline cases a reasonable and generous view should be taken.

The Minister Listens

SIR,—Like countless others I have been waiting for many weeks for some hint as to how the negotiations were proceeding between the Minister and the Negotiating Committee. The answer comes in your leading article (Feb. 16, p. 240) and is that there have been none. The Minister listens but will not discuss. The information is illuminating if expected. Dr. Dain and his colleagues must realize that they are dealing with a Minister who will stop at nothing to get his scheme through and in working order so that his name will be immortalized by people "going on Bevan" instead of "going on Lloyd George." Why must the Negotiating Committee always behave like the gentlemen they are instead of fighting the Minister with his own weapons? Why must they allow themselves to be gagged until the Bill is before Parliament? It is quite time that the general profession were given a strong lead and advised that in each area arrangements must be made forthwith to carry on practice *under our own control* in the event of an unacceptable Act of Parliament being thrust upon us.—I am, etc.,

Middlesbrough.

G. H. LOWE.

SIR,—Did the final paragraph in your excellent leading article entitled "The Minister Listens" convey a hint that in certain circumstances the medical profession might be advised to refuse service under the proposed new scheme of national health? If so, many of us who have abandoned hope may take heart again.

Unity in discussion and negotiation will apparently avail little or nothing, but in the last resort unity of action can prevail. A great and generous profession naturally shrinks from the idea of a "strike" which might imperil the health and lives of its fellow-men; equally so an educated and law-abiding profession would not presume to thwart or obstruct a lawfully elected Government. But to refuse a service which the profession with its special knowledge of humanity believes to be injurious alike to its own intellectual freedom and the public it serves would be neither illegal nor unconstitutional. Once the dotted line has been signed upon, however, further resistance will be illegal and useless. This is the last and only chance. Let us prepare for action before it is too late. Cultivated, free, and independent intellects must not be shackled in this land which has endured so much for freedom.

It is a sad sign of the times that even at this stage the writer prefers to sign

"NOT WITHOUT HOPE."

A Burning Topic

SIR,—It is not to be supposed that Dr. W. J. Gardner (Feb. 9, p. 220) intended his letter to be taken literally, any more, perhaps, than the correspondents he denounced did; but he is mistaken in his sweeping assertion that printing their letters can only cause irritation among your readers.

He is guilty, too, of a familiar form of false logic extensively used by correspondents in the lay press of demanding (in general terms) that A should be abolished in order to make room for B, when he has only a personal preference to offer as an argument, and A and B are not mutually exclusive. By all means let Dr. Gardner ventilate his complaint; but why must it be at the expense of harmless fellow-correspondents? A request for fair play should not itself reveal prejudice, and a letter demanding toleration should itself be tolerant. I do not seek to underestimate the difficulties of medical practice to-day; but I do not consider any reader of the *Journal* can consider himself starved of exhortation, controversy, or complaint. Is there to be no lighter touch, no relief, no diastole?

Five years or so of university life should make not only a doctor but also an educated man—perhaps even a cultured man. This aspect of the doctor's training is not easy to cultivate under present-day conditions; perhaps many of us have unduly neglected our small beginnings in this field; perhaps this generation, willy-nilly, cannot hope to attain the standards of culture and scholarship which graced the lives of many of our teachers and predecessors; but this does not justify brushing aside the work of others—unnecessarily and irrelevantly—as a mere irritation.

Personally, I am grateful to Lieut.-Col. Richards, Brig. Osmond, and Major Thomas for their erudition, so charmingly expressed; and to Major Thomas in particular for the savour

of his wit. It may be weak and foolish, but I fancy some of your readers, like myself, prefer to read Major Thomas writing of Priapus than Dr. Gardner writing of Dr. Gardner.—I am, etc.,

Lincoln.

ALLAN H. BRIGGS.

Myringotomy and Paracentesis

SIR,—The letter from my friend, Dr. J. K. Milligan (Jan. 19, p. 109), calls for some comment. He alludes to myringotomy as "cutting the drum." It should, of course, be the drum-head or membrane; the drum is a cavity, the tympanum. The membrane corresponds to the parchment cover of the ordinary musical drum.

Having "little Latin and less Greek" I have sought the help of my classical friend, Mr. J. F. Burns, in discussing the classical names. He tells me that "myringa," although it sounds like a Greek word, is unknown to Greek scholars, and the *Oxford Dictionary* says it is a modern Latin word. We may, I think, leave this point with the definition of "myringotomy" as "incising the tympanic membrane."

The name "paracentesis" presents more difficulties as it has acquired an additional meaning in later years. It is used for sucking out fluid from the chest and from the abdomen. Mr. Burns tells me that "spasma" is the word used by Aristotle for suction, but in medical Greek it is used for convulsion and therefore might be confusing if used in our desired meaning. The word "paracentesis" is firmly fixed in medical phraseology to-day. By analogy we can give it the additional meaning of sucking out when applied to an operation on the tympanum.

I conclude with an appeal that the word "paracentesis" should not be used as an alternative to "myringotomy," but should denote drawing off fluid from the tympanum.—I am, etc.,

Gulldford.

T. B. JOHNSON.

Medical Photography

SIR,—I would like to thank Mr. Maurice Lee (Sept. 22, 1945, p. 407) and Dr. S. Watson Smith (Oct. 20, p. 548) for their sympathetic reaction to my suggested scheme for an Institute of Medical Photography, and would ask others if it is in the interest of medical photography to condemn so hastily such a scheme as absurd and utopian. The value of some recognized training centre became obvious to me when, in charge of the photographic department of an important hospital, people often asked how and where they could be trained in medical photography. After extensive inquiries I could find no such place, and do not think the lectures and discussions given and arranged by scientific societies, valuable though they be, will train a photographer; also, many doctors have asked me where they could get such specialized work done for them. This seems to me an opportune moment in which to put forward such a scheme for consideration. If I did not make myself clear or put first things first I am sorry, and ask again if the medical profession and various societies will seriously consider such a scheme before the initiative slips into the hands of a commercial enterprise, or would they prefer it that way?

There are a number of people and books ready to tell us what any photographer knows: which camera and how to use it, the lights, the material, etc., but I have not yet found one person who can successfully demonstrate to me how best to photograph a lesion tucked away under the tongue in a sore and tender mouth—something entirely different from that required by a dental specialist—or how to take photographs, over a period of time which will be measurably comparable, of a patient in various stages of ill-health whose figure and lesion have both changed quite considerably in shape and size.—I am, etc.,

London, W.1.

HILDA ROBERTSON.

Memories of Clifford Allbutt

SIR,—In the summary of Sir Walter Langdon-Brown's paper on Sir Clifford Allbutt (Feb. 2, p. 174) a passing reference is made to the report that George Eliot took him as the prototype of Dr. Lydgate in *Middlemarch*. In one of the letters transcribed in *Cross's Life of George Eliot* she refers to her visit to Leeds (about 1875) when she was the guest of the Allbutts. She mentioned how greatly struck she was with the wide culture and charm of Clifford Allbutt. She was at the time working out

Middlemarch, and it is clear that the early career of Lydgate is closely paralleled by that of Allbutt. Both had studied in Paris—Allbutt under Trousseau, Lydgate under Broussais and Bichat, both had 'felt the growth of an intellectual passion' (*Middlemarch*, Chap. X) and had a special interest in fevers, and both had settled in a provincial town. Whenever the subject was mentioned Sir Clifford Allbutt preserved a Sphinx-like silence. Some forty years ago he had been invited to give away the prizes at the speech day of his old school—St Peter's York. The chairman, the dean, had asked me for particulars as to Allbutt's career in order to introduce him to his audience. I wrote *inter alia* that his first publications had been a series of articles on Greek medicine in the *Medico-Chirurgical Review*, and finished with the words 'He is supposed to be the prototype of George Eliot's Dr Lydgate in *Middlemarch*'. At the meeting the chairman forgot his cue and, producing my letter from his pocket, read its contents. I watched Allbutt's face carefully and noted that he made not the slightest sign of assent or dissent, nor was he approachable on the subject. Incidentally he once told me that he had attended only one confinement in his life. Dr Samuel Gee beat him in this by having attended three.

As one of those who listened to Allbutt's inaugural lecture at Cambridge in 1892 I can add my own personal testimony to that of Sir Walter Langdon Brown as to the lasting impression and intellectual awakening which it inspired in another of his audience—I am etc.,

Wes o Cumberland

G A AUDEN

Obituary

GEORGE W BRAY, M.B., CH.M., M.R.C.P.

Dr G W Bray, a leading specialist in the study and treatment of allergic disorders, died at his home in Hampstead on Feb. 12. He had been incapacitated by a severe illness last year, but it was hoped that this would not recur and that a further lease of active and fruitful work was in store for him.

George William Bray studied medicine at Sydney University, graduated M.B., Ch.M. in 1925, and then left to take up the post of Government medical officer at Nauru, an atoll in the Central Pacific which is a mandated territory administered by the Commonwealth of Australia. In 1926 he came to England and was appointed house physician and then resident medical officer at the East London Hospital for Children. His interest in allergic diseases in childhood was brought to the notice of the Hailey Stewart Trustees who nominated him asthma research scholar at the Hospital for Sick Children, Great Ormond Street. Much of the work done during his five year tenure of that scholarship was embodied in a monograph *Recent Advances in Allergy*, first published in 1931 with a foreword by Sir Arthur Hurst, who paid tribute to the author's flair for research combined with hard toil and clear thinking. The book went into a second edition in 1934 and a third in 1937, each of them carefully revised and brought up to date. Bray also wrote papers on hay fever and hay asthma and contributed the section on asthma to the *British Encyclopaedia of Medical Practice*, under the editorship of Sir Humphry Rolleston. By that time he had been appointed assistant physician to the Princess Elizabeth of York Hospital for Children and was engaged as clinical assistant to the asthma clinic at Guy's Hospital. Continuing his work in general paediatrics he was also appointed physician in charge of the children's department of the Prince of Wales's Hospital at Tottenham as well as physician for allergy there, and consulting allergist to the Children's Hospital at Hampstead. He had been admitted a member of the Royal College of Physicians in London in 1933 and was a member of the British Paediatric Association.

The articles by George Bray published in this *Journal* included a paper on 'The Hereditary Factor in Asthma and Other Allergies: the outcome of work done with a grant from the Asthma Research Council, an address on 'The Treatment of Allergic Diseases in General Practice,' read before the Leicester Medical Society, and an article on asthma written in 1935 for our series on Treatment in General Practice. We were

also indebted to him for a number of reviews of books on allergy and its clinical manifestations.

L. J. W. writes

Bray was one of the original members of the Asthma Research Club, which was formed when increased attention was devoted to asthma in this country from 1930 onwards. Largely as a result of the activities of the Asthma Research Council Bray had come from Australia, where he had worked in a different field. He was one of the first to recognize the importance of native foods in preventing avitaminosis in primitive peoples, in particular the native beer which was cloudy with yeast cells. He pointed out the harm which was done by would-be reformers in depriving children of this valuable food. He was, in fact, primarily a paediatrician, and his interest in allergy grew out of the problems he was faced with in treating bronchitis and papular urticaria in childhood. He developed in this country what might fairly be called the American approach to the subject—that is to say, the careful testing of allergens and the use of specific desensitization. It became rather a joke in the Asthma Research Club that one could always predict what would happen to an asthmatic if he went to an allergist or the specialists in the disease, and with Bray it was a full-scale and comprehensive range of skin tests. Hurst, who was the leader of the asthma research group, disliked the allergic hypothesis of asthma almost as much as the psychogenic and Bray had to struggle to get his aspect of the subject as much space as it deserved on the map. Nevertheless he succeeded. He had a wide knowledge of the allergic diseases and his book, *Recent Advances in Allergy*, was one of the best in a distinguished series of monographs. Coming from overseas with no advantages or connexion, he fought his way to a large London consulting practice by pure merit. He was a typical Australian in appearance and accent, vigorous, cheerful and unpretentious. He obviously found great happiness in his family and in the English countryside and coast. He was a lover of good cars, an unusually speedy driver in London traffic, and his staid and sardonic comments on the expert motorists he overtook on a journey home after a tiring clinic. One could usually count on meeting him at the luncheon room in the Royal Society of Medicine and his premature death has left a gap both in the and in the affections of a multitude of colleagues and patients.

R. C. WINGFIELD, M.B., F.R.C.P.

We regret to announce the death on Feb. 5 at Cambridge of Dr R. C. Wingfield, late medical superintendent of the Brompton Hospital Sanatorium at Frimley, whose long experience in the treatment of pulmonary tuberculosis in adults enabled him to write with authority several books and many papers and reports.

Rodolph Charles Wingfield, younger son of the Rev. Canon Charles Wingfield, of Welwyn, Herts, and Tiverton Castle, Devon, was born at Welwyn on Feb. 20, 1886 and after school days at Haileybury entered Trinity College, Oxford, as a student of medicine. He graduated B.A. and went on to St. Thomas's Hospital for his clinical course, qualifying as M.B., B.Ch. Oxon. in 1911. He then served in turn at St. Thomas's as house-physician, demonstrator of morbid anatomy, and assistant pathologist, won the Louis Jenner research scholarship, and was appointed medical officer in charge of the tuberculosis department. He took the M.R.C.P. in 1914 and was elected F.R.C.P. in 1928. The appointment to Frimley proved most congenial and he held it for a long period. His first book, *Modern Methods in Diagnosis and Treatment of Pulmonary Tuberculosis*, was written there and appeared in 1924, it was followed five years later by a *Textbook of Pulmonary Tuberculosis for Students*, a work valuable not only to medical practitioners but also to many people concerned in the prevention of tuberculosis which gave a sane estimate of what could and could not be done for sufferers from that disease and an appreciation of the true function of the sanatorium. Another and much smaller book by Wingfield, *Pulmonary Tuberculosis in Practice: A Modern Conception* (1937) contained teachings which should help to secure both early diagnosis and the correct handling of the vast number of people suffering from phthisis in its different clinical forms. This was in the author's words, 'an attempt to bridge the gap between the practitioner and the

specialist." The excellent reasoning and sound common sense were, however, marred by a complex and confusing terminology. It appealed more to tuberculosis officers and medical officers in sanatoria than to harassed general practitioners.

A memorial service was held on Feb. 10 in the Chapel of Brompton Hospital Sanatorium, where he had worked with inspiring energy and devotion for 25 years until failing health compelled him to resign his post in 1945. Wingfield's honesty and steadfastness and his administrative skill won the deep regard of colleagues and nursing staff at Frimley; they knew that the welfare of the patient as an individual came first in his thoughts and actions.

Dr. JOHN ALEXANDER HOWARD, who practised for many years at Beulah Hill, Upper Norwood, S.E., died on Dec. 27. He was one of the outstanding students of his time at Guy's Hospital, winning first-class honours in chemistry at the preliminary science examination at the University of London, first-class honours and medal in organic chemistry at the intermediate M.B., and first-class honours in medicine and in forensic medicine at the final examination. He also won an entrance scholarship in science at Guy's in 1889, and his essay on uraemia, which won him the Treasurer's Prize in 1893, was published in the *Guy's Hospital Gazette*. Dr. Howard took the English Conjoint diplomas and the M.B.Lond. in 1893 and the M.D. a year later, after serving as house-physician and obstetric resident at Guy's. He was surgeon to the Norwood Cottage Hospital for many years, and had been radiologist to the Croydon War Hospitals. He joined the British Medical Association fifty years ago.

Dr. THOMAS RICHARD WEBSTER ATKINS, surgeon on the s.s. *Cameronia*, one of the Anchor Line ships, died in Glasgow on Jan. 10 after a long illness at sea. He studied medicine in Edinburgh and Dublin and qualified L.R.C.P., L.R.C.S.Ed., and L.R.F.P.S.Glas. in 1898. He had seen active service in the South African War, and during the war of 1914-18 he was a captain in the R.A.M.C.(T.F.). He served for a long period in the trenches, and was wounded. After some years with the Cunard White Star Line Dr. Atkins joined the Anchor Line in 1938 and was with that company all through the war of 1939-45. He was on board when his ship was hit in December, 1942, and in the New Year's Honours List of 1944 he received the O.B.E. for his war work. He joined the British Medical Association in 1919.

Dr. WALTER GUYON RICHARDS, who died on Jan. 25, was chairman in 1922 of the Lewes and East Grinstead Division of the British Medical Association, which he had joined in 1902. Born at Winchester on July 10, 1869, son of Frederick William Richards, F.R.C.S., he was educated at Lancing, at Christ's College, Cambridge, and at St. Bartholomew's Hospital. He qualified in 1893 and took the Cambridge M.B. in 1897. For some considerable time he was an officer in the Indian Medical Service, and retired with the rank of major. During part of the war of 1914-18 he was in charge of the orthopaedic and electrical department of the Kitchener Hospital for Indian Troops at Brighton. He practised for some years in Holdenhurst Road, Bournemouth, and more recently made his home in Highgate.

We record with regret the death on Jan. 27 of Mr. JAMES WILMOT ADAMS, M.B., B.Ch., F.R.C.S., for many years a surgeon in the Colonial Service. Educated at Tonbridge School, he went on to Caius College, Cambridge, and to St. Bartholomew's Hospital and qualified in 1908, having obtained honours in the Natural Sciences Tripos of 1906. He joined the Colonial Service and worked first at Malacca, then at Penang, and finally at Singapore. He served his full time and then (before the late war) returned to this country and settled at Great Gransden, Bedfordshire. His health had been impaired by residence in the East, and he died very suddenly of coronary thrombosis. He married in 1913 Irene, youngest daughter of the late James Appleyard, M.D., J.P., of Longford, Tasmania, and had two children, who, with his wife, survive him. He will be remembered at his medical school as "Bill Adams," famous on the football field.

Dr. WALTER GEORGE MACDONALD, who gave notable service to many families by founding the Glasgow and West of Scotland Prisoners of War Relatives' Association in 1941, died on Jan. 28 at his home in Dalziel Drive, Glasgow. He had studied medicine at Glasgow University, and graduated M.A., M.B., Ch.B. in 1905. After holding the posts of house-physician and house-surgeon at the Victoria Infirmary, Glasgow, he was for a time honorary medical officer of the Penrith Cottage Hospital.

Dr. Macdonald served with a temporary commission in the R.A.M.C. throughout the 1914-18 war and was awarded the Military Cross. He joined the B.M.A. in 1908 and became a member of the Pathological Society. An enthusiastic card-player, he was the first president of the Scottish Bridge Union when it was founded in 1932.

Dr. ROBERT BALFOUR GRAHAM, who died at North Links, Leven, Fife, on Jan. 28, had a distinguished career and remained a member of the B.M.A. for 60 years, holding the post of secretary of the Section of State Medicine and Medical Jurisprudence at the Aberdeen Annual Meeting in 1914; he had also been president and hon. secretary of the Fife Branch. Born at Linthorne Manse in Roxburghshire on Aug. 25, 1859, son of the Rev. M. H. N. Graham, he entered the Medical School of Edinburgh University in 1880, qualified in 1884, obtained the F.R.C.S.Ed. diploma by examination in 1888, and the D.P.H. in 1894. Dr. Graham went to Leven 60 years ago; he was appointed M.O.H. for the borough in 1904, and examiner in public health for the Royal College of Surgeons of Edinburgh in 1911. He was an active worker in the St. John Ambulance Association from the year 1890 when he began as an examiner, and was later appointed lecturer and honorary life member. In the war of 1914-18 he served as senior medical officer at a Command Depot with the rank of lieutenant-col., R.A.M.C.(T.), and had also been county director of the Scottish Territorial Red Cross Brigade. Keenly interested in ex-Service men's affairs he was president of the Leven Branch of the British Legion and also of the Fife and Kinross Area Council, and for some time vice-president of the National Executive of the British Legion in Scotland. He received the M.B.E. and the Volunteer Decoration, and was a J.P. for Fifeshire and a past-president of the Fife Medical Association.

Dr. FRANCES E. TURLE SAINT (*née* Turle Evans), who died in retirement at Herne Bay on Jan. 30, came of a family who had been doctors for four generations. She was the youngest daughter of Dr. Evan Evans, R.N., and was born in the City of London in 1867. She was educated at the Maria Grey School, the London School of Medicine for Women, and the Royal Free Hospital, whence she qualified L.R.C.P.&S.Ed., L.R.F.P.S.G. in 1897. As Dr. Turle Evans she was particularly interested in obstetrics and worked at the Clapham Maternity Hospital (now the Annie McCall Hospital) and its Battersea Branch until 1901, when she started private practice in Harlesden, London, N.W. There she worked hard and very successfully until her marriage in 1908 to the Rev. F. Guy Saint, Rector of Wapping, and late Rector of Great Tey, Essex. She did no regular medical work there, but continued to be an examiner for the Central Midwives Board, and in a quiet way was of immense medical help in both the town and country parishes. In 1932, on the death of her husband, Dr. Turle Saint retired to Herne Bay, and even there she continued to help and advise a young newly qualified nephew—of the fifth generation. Her death is mourned by a very large circle of friends and patients.

Dr. ARTHUR CECIL HOVENDEN of East Sheen, S.W., who died on Jan. 31, aged 76, was one of the best-known figures in the Sheen area. He was a Guy's student, and soon after taking the Conjoint diplomas graduated M.B., B.S.Lond., with honours in medicine, in 1894; six years later, after acting for a time as clinical assistant at Great Ormond Street Hospital for Children, he began to practise in partnership at Sheen, becoming senior partner in 1912. Dr. Hovenden joined the British Medical Association in 1904. In his younger days one of his greatest pleasures was a canter or a gallop in Richmond Park before breakfast. His other interest, apart from medicine, was model engineering and the study of railway literature, and he was a member of the Stephenson Locomotive Society.

The death of OGLE WOODS at the age of 70 brings to a close a long and gallant struggle against a severe and crippling disability. While a student at St. Thomas's Hospital he contracted a tuberculous kidney, for which a nephrectomy was performed. After doing various hospital appointments Woods settled in general practice at Bridgend, but some years later he was compelled to abandon this as tuberculosis of the knee developed eventually necessitating an amputation. No longer capable of coping with his extensive general practice he turned to surgery and with that end in view accepted the post of R.S.O. at Swansea General Hospital during the years of the first world war; in due course he secured his F.R.C.S.Ed. and subsequently received the appointments of supernumerary surgeon and also orthopaedic surgeon at that hospital, later to become a full surgeon. Woods possessed a lovable disposition with outstanding honesty of purpose, sound common sense, and great courage in surmounting his physical infirmities. These did not impa

his keen sense of humour, and often his colleagues would enjoy the sound of his laughter in the intervals of work in the theatre. He took an active part in hospital politics and was fearless and downright in expressing his views in the board room. His doggedness was mitigated by his eminent fair mindedness, and was valued and liked even by his most persistent opponents. By his death his hospital has lost an outstandingly valuable counsellor. Woods did not allow his infirmities to deprive him of one open air pastime, as a fisherman he excelled, being an expert entomologist making his own flies and learned in the ways of trout. In spite of his artificial leg he would overcome the difficulties and rough conditions of Welsh trout streams during his scanty leisure. Recent times added to his professional labours but in spite of advancing years, pain and disablement his undaunted spirit carried him on perhaps to shorten his days though that would never deter him. Swansea has lost a very notable man. He will not be forgotten.

H W G

Universities and Colleges

UNIVERSITY OF OXFORD

In a Congregation held on Feb. 12 the name of R. H. S. Thompson, D.M., Fellow of University College, duly nominated by the Board of the Faculty of Medicine as Dean of the Medical School from Feb. 1 to Oct. 1, 1946 (vice K. J. Franklin, D.M., F.R.C.P., Fellow of Oriel College, resigned) was submitted to the House and approved.

UNIVERSITY OF CAMBRIDGE

Postgraduate Courses for Ex-Service Medical Officers

It is proposed to hold 14-day refresher courses in general medicine for medical officers released from H.M. Forces at the South-end-on-Sea General Hospital commencing April 1 and at Addenbrooke's Hospital Cambridge in July. There will also be a 14-day course in social and industrial medicine at Luton in May. Assistance will be given in procuring accommodation for the South-end course on application to the secretary, South-end-on-Sea General Hospital. General practitioners may attend these courses should vacancies occur. Further particulars and forms of entry may be obtained from Dr. Firth, Trinity Hall, Cambridge.

At a Congregation held on Feb. 9 the following medical degrees were conferred:

M.D.—A. C. Cunliffe, J. W. Lawe, M.B. B.Chir.—F. T. J. Hobday, *M. W. P. Ward, *P. K. Ledger, *J. H. Gough, *J. O. P. Edwards, *J. B. Metcalfe, *P. H. Hewitt, J. E. Blundell, A. C. Elithorn, M.B.—C. M. Heath.

* By proxy.

UNIVERSITY OF LONDON

UNIVERSITY COLLEGE

The Professor of Anatomy, Mr. J. Z. Young, F.R.S., will give his inaugural lecture on Thursday, Feb. 28 at 5.15 p.m., in the Anatomy Lecture Theatre, with the Provost in the chair. Subject: "Patterns of Substance and Activity in the Nervous System."

UNIVERSITY OF SHEFFIELD

At a meeting of the University Council, held on Feb. 8, Charles Herbert Stuart-Harris, M.D., F.R.C.P., late colonel, A.M.S., was appointed to the full time Chair of Medicine in the University.

The Council received the resignations of Prof. Wilson Smith (professor of bacteriology), Dr. Robert Platt (lecturer in medicine, on his appointment to the Chair of Medicine in the University of Manchester), Mr. W. J. W. Sharrard (temporary demonstrator in anatomy), and Prof. A. E. Barnes (of his academic duties), and thanked them for their services to the University.

UNIVERSITY OF EDINBURGH

In 1944 Sir Robert McVittie Grant made a gift to the University of Edinburgh for the foundation of a professorship of dermatology, and the University Court has now appointed Dr. G. H. Percival to this chair, which is named after the donor. The Edinburgh Medical School was a pioneer in this country in providing systematic teaching in diseases of the skin, and the new professorship is the only one of its kind established so far in Britain. The skin department of the Edinburgh Royal Infirmary was opened in 1894 and was replaced by new and much larger premises in 1936. Beyond this accommodation the municipal authorities of the city have paid much attention to the provision of beds and the organization of treatment for dermatological cases. Dr. Percival graduated in medicine in 1923, and in 1931 proceeded M.D. and was elected F.R.C.P.E.; five years later he was appointed a physician to the skin department

of the Royal Infirmary. He has been responsible for the later editions of Sir Norman Walker's *Introduction to Dermatology*.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At an ordinary meeting of the Council held on Feb. 14 with Sir Alfred Webb Johnson, President, in the chair, D. E. Ashworth, Underwood, was appointed Thomas Vicary, Lecturer for 1946.

The Hallett Prize was awarded to Mr. Ramchand Nigam of the University of Lucknow.

Sir Henric Ogilvie and Mr. L. E. C. Norbury were reappointed as representative members of the Council on the Imperial Cancer Research Fund and Mr. Eardley Holland was re-elected as the representative of the College on the Central Inquiries Board.

Mr. Hedley White, Mr. J. B. Oldham, Mr. M. F. Nicholl, and Mr. Harold C. Edwards were re-elected members and Mr. Julian Taylor was elected a member of the Court of Examiners.

Diplomas of Membership and Diplomas in Public Health were granted jointly with the Royal College of Physicians of London to the candidates whose names were published in the report of the meeting of the Royal College of Physicians of London in the *Journal of Feb. 16* (p. 260).

The main library of the College was not seriously damaged when other parts of the building were bombed, and the books have now been returned to the shelves. Several tons of books had been evacuated to Downton Castle, Ludlow, Shropshire, Worcester, and the National Library of Wales. Rearrangement of the library is now proceeding and the Reading Room is open once more to students from all parts of the world.

Professional lectures on applied physiology and pathology will be given on Mondays, Wednesdays and Thursdays throughout March (Friday, March 8 in place of Thursday, March 7). The lectures on pathology will be given by Prof. R. A. Willis. The lectures on applied physiology include Profs. R. J. S. McDowall, Samson Wright, B. A. McSwaney, F. R. Wilson, O. G. Edholm, H. P. Gilding and W. R. Spurrell. Further particulars will be issued later.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

The trustees of the Dr. James Watson Prize Fund invite applications from Fellows of the Royal Faculty to give the James Watson lecture for the year 1946-7. The subject is unrestricted but should deal with an aspect of medicine or surgery to which the lecturer has devoted special study. The lecturer's name must have been on the *Medical Register* for a period not exceeding 15 years, value of lectureship £30. Applications, indicating the proposed subject, should be made in writing to the Secretary of the Royal Faculty, 242, St. Vincent Street, Glasgow, by March 15.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At the monthly business meeting of the President and Fellows of the Royal College of Physicians of Ireland, held on Feb. 1, M. L. Abrahamson, J. B. Ryder, and F. S. Stewart were admitted Licentates and Members of the College.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a meeting of the Council, held in the College House on Jan. 26, with the President, Mr. Eardley Holland, in the chair, the following candidates were elected to the Membership of the College: Constance L. Bynnon, E. W. C. Buckell, W. Calvert, R. G. Cross, S. N. Gardé, Perla Greeves, Emilie E. Guthmann, W. P. Hirsch, W. Kearney, A. H. C. Walker, Margaret Weddell, May D. Weserman.

CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the final examinations, have been granted the diploma of L.R.C.P.Ed., L.R.C.S.Ed., L.R.F.P.&S. Glas.

J. B. Bate, G. Brill, J. E. B. Dodd, E. B. Cowan, R. M. Dykes, A. F. M. El-Norany, G. W. Farrington, J. L. Fice, Janet H. A. Finlay, A. Foreman, Hanna M. M. Gupta, W. Henderson, Mary P. Hughes, F. J. G. Kissella, A. K. Kutschewka, Muriel M. Macfarlane, E. MacSwaney, Almena M. Marab, T. A. Morton, R. A. A. Ross, E. D. S. Sar, J. S. P. Wilson.

L. Seewald, a graduate of a recognized foreign university, was also admitted a licentiate.

The Services

The President of the U.S.A. has bestowed the Legion of Merit, Degree of Commander, on Surg. Rear Admiral C. P. G. Wakeley, C.B., for distinguished services to the United States Medical Service.

Surg. Lieut. D. R. Rigg, R.N.V.R., has been awarded the Czechoslovak Military Medal of Merit, First Class, for service to the Czechoslovak Section of Warship Hospital.

Medical Notes in Parliament

Leprosy in India

Asked on Jan. 28 whether he could give any statistics of the prevalence of leprosy in India Mr. ARTHUR HENDERSON replied that the figure given in the 1931 census (the last in which such a figure was included) was 150,000. Local surveys suggested that the real total of cases was about one million, of which only about one-quarter were at any one time infectious, some being very slight cases indeed. Existing data gave no reliable indication whether the disease was increasing or decreasing.

Venereal Disease in B.A.O.R.

Replying on Jan. 29 to Sir Waldron Smithers, Mr. LAWSON observed that it was difficult to estimate to what extent the present level of venereal disease in the B.A.O.R. was attributable to the removal of the ban on fraternization. All those concerned were fully aware of the importance of reducing the incidence of venereal disease to the minimum. All practicable steps towards this end had been and were being taken by the Army medical services.

Malaria Research Institute in Africa

On Jan. 30 Mr. CREECH JONES informed Sqdn. Ldr. Donner that a considerable amount of control and research work on various aspects of the malaria problem had been and was being done in both East and West Africa, but there was no specific institute on the lines of the Malaria Institute of India. The establishment of such an institute was one aspect of the whole problem of the future organization of medical research for the Colonies. It was being considered by the Colonial Medical Research Committee, which was set up last year under the chairmanship of Sir Edward Mellanby by the Secretary for the Colonies and the Medical Research Council.

Medical Specialists in the Services

Air Cdre. HARVEY inquired on Feb. 5 what steps were being taken to provide specialists for the medical services of the Navy, Army, and R.A.F. to replace Service specialists retained beyond their release groups.

Mr. KEY said efforts were being made through the Central Medical War Committee to recruit practitioners up to the age of 40 who were qualified to serve as specialists in the Forces. The number remaining available in the E.M.S. and civil practice was much more limited than was commonly supposed, but the committee, in consultation with its local committees, was constantly reviewing the staffs of hospitals to decide which men could be spared or replaced. Mr. KEY added that Mr. Bevan had communicated with hospitals concerning the use of demobilized officers for such replacements. Short-service commissions for 18 months were being offered to both practitioners so recruited and specialists over the age of 40 who volunteered. The Medical Personnel (Priority) Committee had decided that it would be unprofitable to reopen the cases of specialists who in the past had been found medically unfit.

Aliens in the R.A.M.C.

Mr. LAWSON on Feb. 5 told Col. Harry Morris that the War Office had accepted upwards of 500 non-British doctors for service as medical officers in the R.A.M.C. during the war. The end of the war and the rapid run down in all theatres resulted in a reduction of the number of posts in which these practitioners could suitably be employed. In consequence no further appointments were being made, except in the case of those in the specialist category. Non-British practitioners already serving who had been recommended were, however, permitted to extend their service until general demobilization or for so long as their services were required.

Release of Doctors from R.A.F.

In answer on Feb. 6 to Air Cdre. Harvey, Mr. JOHN STRACHEY announced that medical officers in the R.A.F. in Group 27 would be released in February. General duty medical officers in the Army were being released up to Group 38 by the end of February, and their colleagues in the Naval medical services were being released up to Group 40. These releases all resulted from a Government decision that there should be two medical officers per 1,000 men in each of the three Services. The release of R.A.F. medical officers was at present up to the general average for the R.A.F. The Air Ministry could not go faster than this because the wartime proportion of medical officers in the Air Force had been much lower than in the Army

or the Navy. He hoped for a further intake of doctors for the R.A.F. this year so that the present disparities in release could be reduced.

Nutrition in Newfoundland

The report on nutrition in Newfoundland made by a committee of experts from the United Kingdom, Canada, and the United States in 1944 and published in 1945 has been the subject of detailed study by the Newfoundland Commission of Government. A further report is expected shortly from Dr. Cuthbertson, now director of the Rowett Research Institute, who visited the island last August. The Newfoundland Government has taken steps, including the fortifying of flour and margarine, to overcome the lack of balance in the normal diet of sections of the Newfoundland people.

Atomic Energy

Mr. ATTLEE on Feb. 6 told Mr. Blackburn that little progress had as yet been made in the development of atomic energy for peacetime purposes. He hoped that the co-operation which had existed between this country and the United States in this field during the war would be continued in the future.

Treatment for Homosexuality

Mr. EDE does not think that progress will be facilitated by the appointment at the present stage of a committee to examine the use of curative or psychological treatment of persons guilty of homosexual offences. Not all persons sentenced to imprisonment for these offences are suitable subjects for psychological treatment. He agreed that the treatment should be available in all cases where there is a reasonable prospect that it will have beneficial results.

Paper for Textbooks

Mr. BEVAN said on Feb. 7 that there was difficulty in obtaining midwifery as well as other textbooks owing to the shortage of paper and printing labour. He had discussed the matter with the President of the Board of Trade, who had arranged for considerably increased supplies of paper to be made available to publishers, and for 750 printing operatives to be released from the Forces under Class B in order to ease the labour shortage.

World Food Shortage: Britain's Share

The world food shortage was debated by the House of Commons on Feb. 14. Sir BEN SMITH said the situation had been completely changed by the exceptionally heavy demand arising from the liberation of Europe, coinciding with adverse weather and poor crops in many areas of the world. Against world import requirements of more than 17,000,000 tons of wheat in the first six months of 1946, less than 12,000,000 tons would be available. Many millions of people in Europe and the Far East would face starvation. In Europe 125,000,000 people would have to subsist on less than 2,000 calories a day. In some areas large numbers would receive as little as 1,000 calories a day. There were many possibilities of further deterioration. This country might have to raise the wheat extraction rate still higher or use coarse grains as diluents in bread. He hoped it would be possible to avoid that. In rice the quantity available for export from all sources during 1946 was, at most, 3,000,000 tons, whereas the world requirements were 6,000,000 tons. Britain would not get more than 300,000 tons of ground nuts, against 600,000 tons allocated by the Combined Food Board. That represented 130,000 tons less oil. Of whale oil Britain was unlikely to get more than 100,000 tons, against 135,000 tons expected. The world sugar position was precarious, and world requirements were increasing. It was not now possible to increase the bacon ration. Cheese and starch caused him anxiety. There were favourable prospects for fruit. Oranges, lemons, and grapefruit had been made available in increasing quantities. He intended to augment British supplies of vegetables and fruit by imports. There were more shell eggs, and he had never intended to discontinue the issue of dried egg permanently. Milk supplies were better this winter than last.

In replying to the debate Mr. DALTON indicated that he did not propose to reduce the imports of tobacco or films from America.

Release Leave in Cases of Venereal Disease.—In reply on Jan. 29 to Mr. Walker, Mr. LAWSON said that men were not allowed to go home on release leave while suffering from venereal disease in a communicable form. In cases where a man had received sufficient treatment in the Army to render the disease non-communicable he was allowed to go on release leave. He was provided with a card which showed the treatment he had had and contained the address of the nearest civilian treatment centre to which he should report for advice, treatment, or observation. He was also encouraged to notify the medical officer of health of his home district of the fact that he had been furnished with such a card.

Osteopaths in a National Health Service—Mr J. L. WILLIAMS inquired on Jan 25 what would be the position of non-registered practitioners of osteopathy, in regard to practice, under the new National Health Service. Mr BEVAN said he thought he ought not to anticipate the proposals for the new service as a whole, which he hoped before long to submit to the House.

Service Patients waiting Admission to Sanatoria—Mr LAWSON told Major Leese Bourke on Jan 29 that the number of military patients in the United Kingdom waiting admission to civil sanatoria was 796. The average waiting period was 7 to 8 weeks. While waiting these patients were retained in military or E.M.S. hospitals, where they were given suitable treatment. This matter was already under consideration as a matter of urgency with the Minister of Health.

Grants for Medical Training—Miss WILKINSON stated on Jan 31 that up to Jan 24 under the Further Education and Training Scheme, 130 awards had been made for training in medicine. The grants provided for maintenance and the cost of fees. All applications from men and women who appeared to be eligible under the scheme would be very sympathetically considered.

Training Nurses for the Colonies—Mr GEORGE HALL has commended to the consideration of Colonial Governments those recommendations of the report of the Committee on the Training of Nurses for the Colonies which relate to the development of the nursing and midwifery services in their territories and the local training of staff for those services. He has asked for reports to be furnished towards the end of this year on the progress made. He has accepted the recommendation that a nurse adviser should be appointed to the staff of the Colonial Office.

Notes in Brief

Mr Bevan told Sir Henry Morris-Jones on Jan 22 that there had been some complaints about the relative insolubility of some samples of British penicillin, but there had also been complaints about some American penicillin. Supplies of British penicillin had now greatly improved in quality and in some cases were being asked for in preference to American.

Mr John HIND stated on Jan 24 that permission had not been withheld for the dispatch to the British zone in Germany of a complete mobile hospital unit organized by the Paderewski Memorial Hospital in Edinburgh. Unfortunately the organizers of the unit were unable to find the Polish staff necessary for its operation. The equipment was being assembled by UNRRA for use in Poland.

There is no restriction on the supply of penicillin to the Colonies. Their full requirements can now be ordered through the usual channels.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* acute pneumonia, measles, diphtheria and dysentery were more prevalent, the increases were, respectively, 344, 260, 68, and 49. The only diseases with a lower incidence were scarlet fever with 69 fewer cases, and whooping-cough 64.

The number of cases of acute pneumonia increased throughout the country, the only exception being Lancashire, where the notifications decreased by 49. Large increases in measles affected two areas—Suffolk 117, and London 121; 40% of the total notifications of measles were recorded in these two counties. The largest increases in diphtheria were Lancashire 23, Yorks West Riding 13, and London 11. The notifications of whooping-cough declined for the first time this year; the largest of the local fluctuations were an increase in London of 48, and decreases in Lancashire of 28, and Middlesex 20.

Dysentery notifications were the largest since last June. A further 130 cases were reported from the outbreak in Leicestershire. The other large centres of infection were Yorks West Riding 45 (Wharfedale R.D. 16, Leeds C.B. 10), Lancashire 44, Warwickshire 29 (Birmingham C.B. 26), Northamptonshire 15, London 13, Surrey 13, Northumberland 10.

In *Scotland* rises were recorded in acute primary pneumonia 41, and scarlet fever 15, and falls in measles 23, and diphtheria 19. The notifications of diphtheria (108) are only 63% of the number at the beginning of January, giving the lowest total since mid-August.

In *Ireland* the notifications of diphtheria, after falling slowly for a month, rose from 53 to 75. The cases are widespread and involve forty-one areas. In Dublin C.B. increases were recorded for whooping-cough 16, measles 8, and diarrhoea and enteritis 5.

Week Ending February 9

The notifications of infectious diseases in *England and Wales* during the week included* scarlet fever 1 405, whooping-cough 1 253, diphtheria 477, measles 1 211, acute pneumonia 1 832, cerebrospinal fever 98, poliomyelitis 11, dysentery 337, typhoid 6, paratyphoid 8. Deaths from influenza in the great towns numbered 304.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Feb 2

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for— (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland

Figures of Births and Deaths, and of Infant Mortality, are given for— (a) The 126 great towns (b) The 13 principal towns in Eire (c) The 13 principal towns in Northern Ireland

A dash — denotes no cases, a blank space denotes disease not notifiable or no return available

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	71	6	40	1	2	76	7	25	9	—
Diphtheria Deaths	496	32	103	7	16	415	18	112	83	10
Dysentery Deaths	407	13	56	—	—	376	42	104	—	—
Encephalitis lethargica, acute Deaths	2	—	—	1	—	1	—	—	—	—
Erysipelas Deaths	—	—	5	8	2	—	1	56	6	2
Infective enteritis or diarrhoea under 2 years Deaths	39	3	4	23	1	66	4	8	16	11
Measles* Deaths	1,167	221	93	112	4	1,609	573	475	24	19
Ophthalmia neonatorum	54	5	16	1	—	67	3	19	1	—
Paratyphoid fever Deaths	2	—	—	—	—	2	—	—	—	—
Pneumonia, influenza Deaths (from influenza)	1,794	128	124	35	14	1,366	90	14	23	11
Pneumonia, primary Deaths	297	48	40	10	8	89	8	3	—	2
Poliomyelitis, acute Deaths	2	1	—	—	—	1	—	—	—	—
Poliomyelitis, acute Deaths	13	1	1	—	—	5	—	—	—	1
Puerperal fever Deaths	—	2	22	—	—	—	1	20	—	—
Puerperal pyrexia† Deaths	160	11	15	1	2	130	8	12	—	—
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths	1,351	135	225	22	33	1,401	37	163	21	61
Smallpox Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever Deaths	7	—	—	3	—	4	1	1	4	—
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* Deaths	1,265	118	93	25	4	1,502	65	110	41	17
Deaths (0-1 year) Infant mortality rate (per 1,000 live births)	47	68	70	45	17	609	56	61	68	34
Deaths (excluding still births) Annual death rate (per 1,000 persons living)	7,211	1,231	931	281	202	8,032	1,105	979	389	217
Live births Annual rate per 1,000 persons living	7,344	1,070	865	316	281	6,597	722	822	414	230
Stillbirths Rate per 1,000 total births (including stillborn)	214	28	32	—	—	199	14	32	—	—

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county) and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

Medical News

Members of the B.M.A. are reminded that the Association possesses a small collection of volumes presented to it by the Worcester Medical Society and named after the founder of the Association, Sir Charles Hastings. It is of historical interest and has recently been catalogued. It may be seen by any member on application to the librarian.

At the meeting of the Royal Statistical Society on Wednesday next, Feb. 27, at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., Prof. Major Greenwood, F.R.S., will read his paper on "The Statistical Study of Infectious Diseases."

At a meeting of the Medico-Legal Society to be held at Manson House, 26, Portland Place, W., on Thursday, Feb. 28, at 8.15 p.m., Dr. Letitia Fairfield will read a paper on "The Supernatural in the Law Courts, with Special Reference to the Witchcraft Act, 1735." Members may introduce guests to the meeting.

At a meeting of the Association of Austrian Doctors in Great Britain to be held on Feb. 28 at 7.30 p.m., at 69, Greencroft Gardens, N.W.3 (near Finchley Road Station), Lieut.-Col. James Marshall will speak on modern treatment of venereal diseases. Guests will be welcome.

A whole-day conference of the Nutrition Society will be held at the London School of Hygiene and Tropical Medicine (Keppel Street, W.C.) on Saturday, March 2, beginning at 11 a.m. The general subject for discussion is "Nutrition in Colonial Territories" and the following papers are to be communicated: Dr. B. S. Platt, The Problem and Principles Underlying its Solution, followed by Ministry of Information film "To-day and To-morrow"; Dr. H. S. Stannus, Malnutrition in Colonial Territories; Dr. N. C. Wright, Relation of Animal Husbandry to Human Nutritional Needs; and Dr. Audrey I. Richards, Sociological Factors. The discussion will be opened by Mr. A. J. Wakefield and Prof. R. Firth. Non-members are only admitted to meetings of the society by the introduction of a member, the meetings are private, and no unauthorized account may appear in the press. Further details of the society may be obtained from the honorary secretary, Dr. Leslie J. Harris, Nutritional Laboratory, Milton Road, Cambridge.

The annual dinner and general meeting of the London Irish Medical Golfing Society will take place on Thursday, March 7, at the Charing Cross Hotel, Strand, W.C.

The annual general meeting of the Society of Public Analysts and Other Analytical Chemists is to be held at 5.15 p.m. on Friday, March 8, at the Chemical Society's Rooms, Burlington House, Piccadilly, W. Immediately after the transaction of business Dr. J. H. Quastel, F.R.S., will give a lecture on "Biochemistry of Soil." The Council would welcome the presence of members' wives and friends at the address, which will begin about 6 p.m.

The Ministry of Health announces that a demonstration by ex-Service physical training instructors will be given on Friday, March 8, in the rehabilitation department of the Pinderfields Emergency Hospital, Wakefield. It is to be watched by the Lord-Privy Seal (Mr. Arthur Greenwood) and representatives of Government Departments, local authorities, and hospitals. The instructors who are giving this demonstration are undergoing a six-months course organized by the Ministries of Health and Labour. During the war a number of physical training instructors from the Services were attached to emergency hospitals to help in the rehabilitation of patients. Their work was so successful that the Ministry of Health is anxious to retain their services now that they are being released from the Forces. About 150 of these instructors have been selected for this special course, in order to qualify them as remedial gymnasts. They will then be available for posts in hospital rehabilitation departments, special rehabilitation centres, industrial health centres, etc.

The January/February number of *Industrial Welfare and Personnel Management*, published by the Industrial Welfare Society, 14, Hobart Place, Westminster, S.W.1, includes an article by Dr. T. M. Ling describing the work of Roffey Park Rehabilitation Centre, where indeterminate cases of ill-health arising from industry are treated; also a note by Dr. G. H. Gange, giving particulars of the annual cost of the medical department of the Glacier Metal Co., Ltd.

The following members of the honorary medical staff of the National Hospital, Queen Square, who were on active service, have now taken up their duties again: Brig. G. Riddoch, Air Vice-Marshal Sir C. P. Symonds, Surg. Capt. Macdonald Critchley, and Air Cdre. D. Brinton.

In the Cathcart Division of Glasgow by-election Mr. J. Henderson (Cons.) was returned with 13,696 votes; Mr. A. B. Mackay (Soc.) polled 9,689; and Dr. W. O. G. Taylor (Scottish Nationalist) 2,700.

Dr. Frederick Dillon has been appointed physician to the Department of Psychological Medicine at University College Hospital.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Atiology Westcent*, London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Inheritance of Retinitis Pigmentosa

Q.—A woman of 26 was found to have retinitis pigmentosa about four years ago. There is no history of the condition having been present in any of her forbears. The fundus shows the changes typical of the condition, though the vessels are, as yet, little affected. While she has been under observation the peripheral field had progressively shrunk until now it is down to about 20 to 30° all round, with an isolated patch of vision temporarily in each eye. (1) If she marries and has children what are their chances of being similarly affected? (2) How long is she likely to retain sufficient vision to continue the practice of her profession?

A.—From the genetic point of view this patient is exactly comparable with the one mentioned in "Any Questions?" in the *Journal* of Nov. 24, 1945 (p. 752). Dominant inheritance is rare and is ruled out because the disease was not present in her forbears. Sex-linked inheritance is also rare and is ruled out by her sex. Apart from the possibility mentioned below this patient doubtless owes her condition, as do the great majority of sufferers, from retinitis pigmentosa, to a recessive gene. Unless she proposes to marry a blood relative the chance that her husband will be a carrier is remote, and only if he is a carrier can affected offspring appear. Thus the odds against any child being affected are some hundreds to one, and there is no genetic reason why she should not marry and have children. It is true that her children would be carriers and that in some future generation the abnormal gene might again meet its like. But this is no reason for refraining from marriage. In all probability most of us carry at least one such undesirable recessive, the only difference being that she knows it and we do not. The question does not state whether any brothers or sisters are affected. If not it is possible that the case is sporadic and may not be hereditary at all. This possibility strengthens the already very strong case for marriage and children if she desires them.

The ophthalmological prognosis is a much more difficult question. The disease is very variable in its course. Good features in this instance are the normality of the retinal vessels and the absence, presumably, of atrophy of the disks. The recent shrinking of the fields is, of course, an unfavourable indication. Retinitis pigmentosa is not necessarily a relentlessly progressive disease; it may become relatively stationary at any time. And it need not end in blindness; many sufferers retain a useful amount of vision through a long life. This patient should be advised to carry on and hope for the best.

Causation of Facial Tic

Q.—An educated young woman of about 30 had schizophrenia three years ago, cured by drug treatment. For the last two years she has been well, but a facial tic, which she has had since childhood, appears to have become worse, especially when she is in company or excited, or when absorbed in reading or in listening to music. At such times her mouth twitches violently, and in a way that is disfiguring. Would it be safe to speak to her about this, with the suggestion that she should try to control it. Might drawing attention to this defect have untoward effects? If so, is any other line of action indicated?

A.—Although this is obviously not a mere reflex spasm, it is often found that there is some slight local irritation—e.g., an unerupted molar, or chronic middle-ear discomfort—so that when the patient is emotionally "worked up," as in the instances given, the energy tends to discharge itself in the focus of irritation, and that in an exaggerated manner. This tic, however, may be a neurosis from childhood, which may be precipitated by emotional problems; a talk with her about any present-day worries might help. The most common psychological cause is a frustrated or suppressed assertiveness. But these problems may be of too deep a nature to discover except by analysis. In either case we can see no harm in mentioning the matter to her in a matter-of-fact way. If the first explanation

is correct it may help her to control and "canalize" her energy for proper use. If the second, it would be an introduction to a discussion of the possible worries underlying it. But perhaps the simplest, and possibly correct, diagnosis is that she had a previous slight displacement of a vertebra from a fall (which sometimes even an x-ray investigation cannot detect), and that this was accentuated by the drug treatment, especially if that were of the convulsive type. A manipulative surgeon might put it right.

Diagnosis of Syphilitic Kidney

Q.—An elderly male patient with gross oedema, impaired renal function, and a positive W.R. and Kahn, admits to no previous disease. How can one differentiate between a second-stage nephritis (or a nephrosis) and a "syphilitic kidney"? What are the treatment and the pathology of the latter?

A.—Syphilis of the kidney is rare, and impaired renal function coupled with a positive W.R. and Kahn does not necessarily indicate a syphilitic nephritis. The best method of differentiating a second-stage nephritis from a syphilitic kidney is the therapeutic test. A syphilitic nephritis should be treated with neosarsphenamine, in small doses at first, increased later. Bismuth may be employed as well, but with care. It is possible that penicillin might be effective, but no record of its use in such a case is known. Syphilitic nephritis may be early or late and may be classified as follows: *Early*—(1) acute glomerular, showing little albumin and numerous red blood cells in the urine; (2) acute tubular, the urine containing very large amounts of albumin with granular, hyaline, and fatty casts. *Late*—(1) chronic glomerular nephritis; (2) chronic interstitial nephritis—both these with a small contracted kidney; (3) chronic parenchymatous nephritis, with a large pale kidney. It cannot be stressed too strongly that a positive W.R. and Kahn do not necessarily indicate the presence of syphilis, particularly in the Tropics.

Penicillin in Bronchiectasis

Q.—Is penicillin of any value in the treatment of old bronchiectasis in a patient unsuitable for operation?

A.—The sputum produced by the type of case mentioned usually contains a very varied flora, including *H. influenzae* and *F. fusiformis* as well as *Str. viridans*, non-haemolytic streptococci, and pneumococci. Many of these organisms will be found to be penicillin-sensitive, but a concentration up to 2 units per ml., will usually be necessary to inhibit all of them. The concentration in the sputum after the intramuscular injection of penicillin never reaches the necessary level, and therefore is of little use. Local treatment must necessarily be undertaken and is most conveniently given by an inhaler. A solution of penicillin of 10,000 units per ml. is used and the patient inhales during the day for five minutes each hour. The length of time of inhalation should be increased until the sputum contains a concentration of about 5 units per ml. of penicillin; it may then be sterile. Alternatively, penicillin solution, 10,000 units per ml., may be injected into the trachea by the same technique as for a bronchogram; 5 ml. of solution should be used each day for ten days.

Irradiated Blood

Q.—Has any work been done on the irradiation of transfusion blood in the treatment of rheumatism and allied conditions?

A.—Irradiated blood has been used for a great variety of diseases, including arthritis. The usual procedure is to expose the citrated blood to ultra-violet irradiation; special apparatus has been devised for the purpose. It is probably little more than an elaborate form of protein shock. The literature is summarized in *The Blood Bank and the Technique and Therapeutics of Transfusions*, by R. A. Kilduffe and M. de Bakey (London, 1942, pp. 133, 134).

Rh Antigens

Q.—In an article on irregular haemagglutinins after transfusion, Callender and Paykoç (Jan. 26, p. 119) mention the six Rh antigens included in Fisher's scheme. What is this scheme, how many Rh antigens are now recognized, and what are they? What is the significance of the letters CDe, cDe, and cde used after Rh₁, Rh₂, and rh, respectively?

A.—When Fisher's theory was proposed in 1944 it provided rhyme and reason for the rather bewildering Rh antigen-antibody reactions then known. It also made certain predictions which are gradually being verified. According to this theory three adjacent genes are responsible for the Rh blood-group antigens, not one gene as had been previously supposed. Each of these genes has at least two alternative forms, called C or c, D or d, and E or e. Each chromosome must carry three genes, which may be CDE or CDe or cDE, etc. As an individual has two of each of the 24 different human chromosomes he will have two of the Rh chromosomes, and each may carry any combination of the three alternative pairs. For example, a person may have received CDe from one parent and cde from the other. This particular combination—CDe/cde—is common in Britain and the U.S.A. The six Rh genes produce six

corresponding antigens on the red cell, each capable of inducing a corresponding antibody. (This must be qualified by saying that d at present represents only the absence of D. A year ago e denoted only the absence of E, but the discovery of an anti-e serum, predicated some time before by Fisher, makes it possible to recognize e as an antigen.) Not counting d, there are six Rh antigens—D, C, c, E, e, and C* (C* is a third alternative to C or c, only recently discovered)—which can be identified by positive tests. There is every reason to suppose that d will eventually become recognizable as a positive character.

Rh₁ is the original name of the "gene" which, according to Fisher, actually consists of a short strip of chromosome involving three genes—C, D, and e. Similarly Rh₂=cDE; rh=cde; Rh₃=cDe; Rh₄=Cde; Rh₅=cde; Rh₆=CDE; and Rh₇=CDe (Rh₇ has not yet been isolated). These earlier names are often convenient—for example, the genotype CDe/cDE is usually called Rh₁Rh₂, or R.R₂. The combinations involving C* have not been given Rh names. Successful detailed predication, such as that achieved by Fisher, must be rare in biology. A letter about the theory appeared in *Nature* for Jan. 12, 1946 (p. 43).

Blood Urea and Blood Uric Acid

Q.—Is the blood uric acid raised in azotaemic nephritis? To what extent is the blood urea increased in cases of a gouty diathesis with a raised blood uric acid? How should one estimate renal function in a case of gout?

A.—The blood uric acid is raised in azotaemic nephritis when renal failure causes retention in the blood of other potential urinary constituents, such as urea. The normal blood uric acid level of 1.5 to 3.5 mg. per 100 ml. may rise to 20 or more, an extreme level being about 30 mg. per 100 ml. (Fishberg, A. M., *Hypertension and Nephritis*, 1939, p. 40). In gout the blood urea is raised only in renal failure, whereas the blood uric acid may be raised when renal function is otherwise normal.

Renal function can be estimated in gout in the following way. If the twenty-four-hour urinary volume is 600 ml. or more and the kidneys can concentrate any single specimen of urine to a specific gravity of 1020 or over, the concentration being encouraged if necessary by a twelve-hour fast, then there is no significant general diminution of renal function no matter what the level of the blood uric acid. Only if the concentrating ability of the kidneys is defective, or the urinary volume is deficient, according to these criteria, is it necessary to estimate the blood urea to learn if retention of potential urinary constituents is occurring.

"General Debility"

Q.—How can so-called "general debility" in the ordinary working-class patient be tackled so as to get the quickest recovery?

A.—The family doctor best serves his working-class clientele by patiently attempting to discover the cause of this "general debility." Common disorders, such as anaemia, tuberculosis, new growth, cardiovascular or renal disease, involuntarily depression—all productive of general debility as a presenting symptom—must be excluded or, if discovered, treated. The doctor must decide what investigations are necessary and justifiable. Minor physical disorders, such as varicose veins, painful feet, prolapse, haemorrhoids, and skin disorders, discovered in the general examination should be treated, since they may have importance as contributors to debility. These things having been accomplished, it is probable that the causes of debility in 10 to 20% of working-class patients will have been revealed. The remaining large majority can be classified thus:

(a) "Poor Frails."—By constitution or by lifelong habit. Encouragement, tonics, and sedatives for decent sleep are the appropriate remedies.

(b) *Psychological Disorders*.—Mainly anxiety states, hysterics (usually chronic, and eradicated only by the expert, if then), depressions, and obsessional states. Mild anxiety states may be treated by listening and by advice; and may be relieved, if the anxiety is about health, as commonly happens, by examination and investigation. Severe depressions should be referred to the expert. Obsessional disorders are usually missed in diagnosis—they lie so near to the average personality of the English and the Scots—and they commonly produce fatigue. Mild cases may be given a holiday with benefit, and persuaded to better courses.

(c) *Environmentally Induced Debility*.—The causes are legion. They include domestic stress, tensions at work, sex troubles, bad habits of feeding and hygiene, inadequate recreation, and so forth. Thoughtful and emphatic advice will sometimes work a miracle in this group.

(d) *Tired Folk*.—Especially the devoted mothers getting to middle age. These are badly short of rest and appreciation—large amounts of both should be provided.

In all four groups it is notable how good a therapeutic result is obtained by the exhibition not of nux vomica but of the doctor's ready interest.

Sulphonamide Prophylaxis of Pneumonia

Q.—Sulphonamides and penicillin are useless against the virus of influenza, but would there be any point in using, say, the former prophylactically against secondary infections? Would it, for example, have any effect on the mortality from pneumonia?

A.—We know of no statistical evidence that the frequency of pneumonia complicating influenza is reduced by prophylactic sulphonamide treatment, although this result is certainly to be expected. There has been no epidemic in recent years in which pneumonia appeared often enough for such proof to be feasible. In an epidemic, the higher the incidence of pneumonia the more clearly would treatment aimed at its prevention be indicated. For fairly mild and usually uncomplicated influenza—the kind we are seeing now—the routine administration of sulphonamides is not indicated. In *The Medical Use of Sulphonamides* (M.R.C. War Memo. No. 10, 2nd ed.) the verdict on this controversial question, applying also to bacterial infections complicating measles and whooping-cough, is: "Experience favours the giving of the drug at the first signs of secondary fever, rather than as a routine prophylactic in every case."

INCOME TAX**Demobilization and Income Tax**

The system under which income tax is deducted from officers' pay is briefly that a central office, that of the income-tax assessor for the Service Department concerned, is responsible for deciding what allowances and reliefs an officer is entitled to and instructing the paying officer accordingly. Bearing in mind the fact that the three Services have been scattered all over the globe and are liable to transfer from one theatre of war to another, it is inevitable that serious difficulty must often arise in the task of seeing that the correct amount of tax has been deducted from pay by the time the last payments have been made. Press comment suggests that in some cases serious hardship may be caused by too drastic attempts to recover after demobilization arrears of tax caused by inadequate actions during service.

The legal position is that the Service pay is assessable by the departmental authority and not by the local Income Tax Commissioners, but the assessments may be made after the termination of the service. In such circumstances, however, there appears to be no essential reason why hardship should be caused; the assessor for the Department concerned can arrange for formal notice of the amount due to be given to the demobilized officer, and collection can presumably proceed with proper regard to the officer's financial circumstances. Judging from references in the press the suggestion is that hardship is apt to arise where the authorities exercise their right, under the Regulations governing the "Pay-as-you-Earn" system, to recover the amount under-deducted by manipulating the "code" applicable to the subsequent civil earnings of employment. It may be of interest to see how this works in practice so far as available information suggests.

Reference was made above to "the correct amount of tax" to be deducted from pay, but in fact there is strictly no specific sum which alone is "correct." A taxpayer is entitled to certain allowances for the financial year, but there is no obligation on the authorities requiring them to spread the total of those allowances equally over the 365 days of the year, and that fact gives a certain elasticity to the assessor's calculations. Suppose, for instance, that an officer's pay ceases two months after the opening of the financial year—e.g., on May 5—and that during those two months he drew £80 in taxable pay and suffered no deduction therefrom. The departmental assessor can, if he chooses, regard that £80 as set off against £80 of the allowances due to the officer, thereby justifying the non-deduction of tax from the pay. In such a case there will be no "arrears," but it follows that tax on the civil earnings will be proportionately higher than it would have been if the £80 had not been absorbed by the two months' pay. That is no doubt a simple and unlikely case, but it illustrates how insufficient deductions during service may react on the deductions to be made from subsequent earnings of civil employment. The converse can, of course, occur; excessive deductions during service should in such cases either be rectified by a refund made direct or produce lower deductions from civil earnings than would otherwise be made.

If a demobilized officer has reason to think that the action, or inaction, of the Department concerned is imposing unreasonable hardship on him or that he has suffered excessive deductions for which redress has not been arranged by one means or another, he would be well advised to request the departmental assessor for a full statement of his tax position, so that he may be satisfied that that matter has been correctly and finally closed.

First Purchase of Car

R. C. has to purchase a car to start work as an "assistant with a view to partnership." Can he claim any deduction?

* Only the 20% initial allowance under the Income Tax Act, 1945, plus (while he acts as an assistant, or in any case after April 5, 1947) the depreciation allowance of 25% on written-down value.

LETTERS, NOTES, ETC.**Disseminated Sclerosis: A Request**

Dr. DOUGLAS McALPINE (Department for Nervous Diseases, Middlesex Hospital) writes: At this hospital a special inquiry into the past history of patients suffering from disseminated sclerosis is being made in the hope that some light may be thrown on the aetiology of this disease. Cases of less than five years' duration are particularly required. The co-operation of general practitioners in the London area would be appreciated. Cases will be seen during a special out-patient session on Friday afternoons by appointment only (Ring MUSEum 8333, Ext. 310).

Coccygodynia or Proctalgia?

Dr. F. M. ROSE (Preston) writes: Dr. T. Astley Cooper (Feb. 2, p. 192) describes a case of what is obviously proctalgia fugax. I cannot find that a reference is made to this condition in Price's *Medicine*, but there is a short note in the *Encyclopaedia of Medicine*, volume X, page 519. The cause of the pain felt over the coccyx is spasm of the levatores ani. I was unacquainted with the condition until I developed it myself, possibly 15 years ago. The pain is probably more in the lower sacral than in the coccygeal area, is usually nocturnal, and is associated with some degree of constipation. Typically it begins as a dull ache which may cause a confused dream, and eventually the victim wakes. He lies for a few minutes hoping that it will pass, but is always forced to go to the lavatory and may pass a small scybalous mass. At this stage the pain grows in intensity and is generally associated with crampy pain over the sigmoid. After some minutes flatus and perhaps a small amount of faecal matter of normal consistency is passed and the pain gradually passes off, leaving the now relieved sufferer very pale and shaken. The condition is not very common, and I can recollect only two or three cases of patients and one of a colleague. One factor in the causation may be the taking of saline aperients on retiring.

Dr. W. B. HOWELL (Brenchley) writes: The condition noted by Dr. T. Astley Cooper suggests that which has been described by several authorities, including the late Sir Arthur Hurst, in recent years. It has been given the name "paroxysmal proctalgia" or "proctalgia fugax." Having experienced several such attacks personally since a severe attack of bacillary dysentery (Flexner) in India four years ago, I imagine that the pain is really a localized ring of spasm in the rectum. I agree that the pain, although vague in distribution to start with, eventually becomes localized in the region of the coccyx; it quickly reaches an agonizing intensity, occasionally accompanied by profuse sweating and breathlessness, and quickly subsides with the passage of a small amount of flatus. This latter phenomenon, I think, supports the rectal spasm as the origin of the pain. Sigmoidoscopy after an attack revealed nothing in my own case but the rather glazed appearance of the rectal mucosa which, I understand, is a common finding after bacillary dysentery. Several writers have noted varying precipitating causes for the condition, such as excessive smoking, threadworms, coitus interruptus, masturbation, etc. Personally, I have noticed that all my attacks have come on after a period of overwork and anxiety, and always at night. Various remedies have been suggested, such as rapid inflation of the rectum with air or water from a Higginson syringe, 3-minim (0.18 c.cm.) chloroform vaporoles, or amyl nitrite capsules. One patient has obtained instantaneous relief by swallowing glucose. Another has found that abstaining from tobacco cures the condition. If an attack follows coitus interruptus or masturbation the cure is obvious. It is important to exclude local disease in the pelvic colon, rectum, and anal canal, so that full reassurance can be given. Without this no other treatment is likely to be successful, as the pain is so unlike any other sensation that one is certain, when first experienced, that this must be the pain of a cancer. I have found that small nightly doses of phenobarbitone or butobarbitone, especially during periods of anxiety, do much to ward off the attacks.

Journals for Hong Kong

Dr. P. S. SELWYN-CLARKE, Director of Medical Services, Hong Kong, writes from the White House, Albany Street, London, N.W.1: I am greatly indebted to you for having published my appeal for medical journals for Hong Kong in your issue of Feb. 9. The response has been so very generous that an adequate number have already come to hand. Until it is possible for me to make individual acknowledgment of these gifts, may I thank the donors very warmly through your columns on behalf of my colleagues in Hong Kong.

Correction

Prof. R. A. PETERS, M.D., F.R.S., writes to point out two slips in the leading article on "BAL" published on Feb. 16. On page 241, line 20 of the first column, it should be "no monothiol or dithio compound." A dithiol compound is not the same as a dithio compound. Secondly, in the same column, line 14, the reference should be "Peters, Sinclair, and Thompson," instead of "Peters, Stocken, and Thompson."

LONDON SATURDAY MARCH 2 1946

THE DIAGNOSIS OF AMOEBIASIS

BY

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Amoebiasis is one of the major problems confronting the Medical Services in the Far East. The incidence is surprisingly high, the diagnosis often difficult and elusive, the treatment unsatisfactory, and the relapse rate disappointing (Payne, 1945). In addition to those whose symptoms are sufficiently incapacitating to lead to admission to hospital, there are probably a greater number of individuals who, after infection, become cyst-passers unaware of their condition and of their gradual deterioration in health and fitness. On final demobilization difficulties will arise in temperate climates not only among those returning from the East but among others who will be infected by them.

The disease is so protean in its manifestations that it is important not only to confirm the clinical diagnosis but, if possible, to eliminate the suspicion of amoebic infection in other conditions which may simulate amoebiasis. Moreover the identification of cyst-passers is of the greatest assistance in preventing its spread. After four years' service in the East one cannot but arrive at the conclusion that the seriousness of amoebiasis has not been fully appreciated in the United Kingdom, nor have the majority of residents in the East been sufficiently alive to the risk of infection to which they may be constantly exposed. It is well known that over 90% of the indigenous population suffer from worm infestation, and the examination of 600 cooks, ward boys, and others handling food in establishments near this hospital showed that 12% were passers of the cysts of the *Entamoeba histolytica*. The danger of infection to which Europeans are exposed is thus considerable. It is possible in the majority of cases to be ignorant of the infection and, even if it be suspected to experience but little interference with normal life. That health has been below normal is volunteered by all cyst-passers—even though they may have been entirely symptom-free—after the completion of treatment. The danger lies not so much in the more dramatic accidents of hepatitis, haemorrhage, or perforation as in the general lowering of health and efficiency.

It is suspected that amoebiasis is a much more common condition among Europeans than is generally realized, and that the failure to appreciate its incidence is due largely to the lack of symptoms distressing enough to cause the patient to seek advice, and partly to the tendency to arrive at a premature negative diagnosis on the results of too few investigations.

Material

These conclusions have been drawn from a series of 300 cases seen in Ceylon in which the *Entamoeba histolytica* has been identified in its vegetative or cystic form. During these investigations some 40,000 stool examinations have been made.

The incidence of amoebiasis in intestinal complaints is surprising, as it forms 46% of the total cases admitted to this hospital.

Cases Admitted with Bowel Disorders

	Per cent
Enteritis	46
Bacillary dysentery	
Proved	7
Clinical	1
Amoebiasis	46

Though the incidence may appear to be high, it can be explained in part by the fact that the majority of cases admitted to this

hospital are referred from other establishments, and thus the acute cases of gastro-enteritis which normally recover within a week or so are not seen the greater proportion consisting of ambulatory cases of old-standing diarrhoea and abdominal pain.

The number of examinations required to arrive at a diagnosis differs from case to case.

Number of Stools	Percentage of Cases Diagnosed
1	30
2	12
3	8
4	2
5	2
6	3
7	3
8	3
9	3
10	6
11	3
12	3
Over 12	11

Two large groups occur. One-half are diagnosed on the first 3 examinations and half of the remainder after 8 or 12. The diagnosis of the few remaining usually requires between 16 and 20 examinations. The first group represents cases which show obvious blood and mucus with diarrhoea (25%), and three quarters of the cyst-passers (25%), the second group those with vague abdominal symptoms, whose clinical relapses and admission to hospital are followed by an exacerbation of the pathological process. If the examination of stools is limited to three specimens (Manson Bahr, 1943) a considerable proportion will remain undiagnosed. Even 10 specimens (Svensson and Lerner, 1938) cannot be considered to be adequate. Each case should be judged on its merits, though for routine purposes nine tenths of those in which the *Entamoeba histolytica* may be found will be diagnosed if 12 specimens are examined. Caution similarly should be exercised in assessing the results of treatment.

Attacks of bacillary dysentery and acute enteritis have often brought to light an underlying amoebiasis. It is therefore of as much importance to be able to eliminate the possibility of an amoebic infection as it is to establish the diagnosis. In all cases complaining of diarrhoea, whether the exudate suggests an amoebic, a bacillary, or a mixed origin examinations have been carried out throughout treatment and convalescence in order to eliminate latent amoebiasis and to determine whether any reliable diagnostic criteria could be established. It has been found that in cases of acute bacillary dysentery (Sonne and Flexner) which recover clinically the excretion of red blood cells and leucocytes does not persist for more than two weeks after the onset of the original attack. (An insufficient number of Shiga infections have been encountered to afford any conclusion.) No reliable characteristics have been found to differentiate macrophages from pre-cystic forms of the *Entamoeba histolytica* in unstained films. As the infection progresses, however, it becomes evident that cases fall into two groups: those which subsequently excrete less degenerate and later vegetative *Entamoebae* and which, with their remission, pass pre-cystic forms, and those in which the pathological features disappear gradually, with the entire absence of cysts. It is on this last feature—the disappearance of the red cell—

leucocytes, and macrophages, and the non-appearance of cysts—that underlying amoebiasis may be eliminated.

It has been possible to follow for over a year the progress of some 30 patients, in addition to others exposed to exactly the same risk of infection. An opportunity has thus been provided to compare the findings over a long period with the subsequent clinical history. It is found that no contact whose stools do not contain red blood cells and leucocytes for 10 or 15 specimens shows further pathological features; nor do clinical symptoms develop. Those cases in whose stools red blood cells and leucocytes have appeared after having been absent, perhaps, on three or four examinations have been considered as potential hosts of the *Entamoeba histolytica*, for after purging or on more prolonged examination this infection becomes evident. Twenty-five cases with no clinical symptoms have been diagnosed in this manner.

Identification of the *Entamoeba histolytica*

The pathological diagnosis of intestinal amoebiasis may be considered from two aspects: (1) the recognition of the *Entamoeba histolytica* and its differentiation from other protozoa; (2) the measures which provide the best opportunity for its recognition.

Little need be added to the accepted features; for if the three criteria of size, the ingestion of red blood cells, and purposive movement with the explosive extrusion of pseudopodia are observed, the possibility of confusion with other intestinal protozoa is remote. Although it may be tempting to predict the subsequent development of one of these features which may be absent for the moment, it has been found in this series of cases that to hazard a diagnosis on sluggishly moving or immobile pre-cystic forms is unnecessary; for sooner or later, usually in the three or four subsequent specimens, a definite diagnosis can be made.

Methods for Rendering Discovery Easier

The recognition of cysts has proved to be more difficult than is usually assumed, as the majority have ill-defined characteristics. In direct smears the recognition of chromatoid bodies is no easy matter, and in those stained by Weigert's haematoxylin after fixation in Schaudinn's fluid considerable care should be exercised in the elimination of artifacts. Organisms adhering to the surface of the cyst and plications of the wall from enfolding during fixation may closely resemble the internal structures. To overcome this difficulty a modification of Faust's method of concentrating cysts (Faust *et al.*, 1939) has been used, employing copper sulphate.

A piece of faeces about 4 cm in diameter is macerated with distilled water in a urine glass and allowed to sediment and filter overnight through six layers of surgical gauze. The supernatant fluid is poured off and the faecal mud is mixed with a saturated solution of copper sulphate and centrifuged at high speed for ten minutes. Films are made from the upper surface.

The advantage of this method lies not so much in bringing to light cysts which would not have been seen in direct smears as in that the washed cysts can be seen clearly, for the only bodies which appear with them after concentration are helminth ova and occasional vegetable cells. No confusion of intracellular detail with artifacts can thus arise. The copper sulphate stains the majority of vegetable cells blue and precipitates protein matter. This method of concentration reveals cysts in twice the number discovered by the examination of direct films.

It has been accepted in the past that chance plays a large part in the diagnosis of intestinal amoebiasis. This, however, is not borne out by the findings in this series. The stools are passed and examined under optimum conditions, the bed-pan being dispatched immediately after use and the contents not transferred to a smaller receptacle. The blood and the mucus which may be adherent to the outer surface of the stool are thus retained in this position, and in those cases in which a pultaceous stool is excreted the mucus passed at the end of defaecation is easy to recognize. The delivery of a specimen in a second container, though possibly convenient to a ward, interferes with the easy selection of material for examination. It has been our practice to make four separate slides from each stool, in order to reduce the possibility of error due to random sampling. The appearance of pathological features can be

hastened by a purgative. A saline cathartic is preferable, as oily laxatives leave droplets which obscure the microscopical field. It is important to avoid this measure in the quiescent stage before the undisturbed state of the colon has been ascertained, as it is sufficiently irritant to produce red blood cells and leucocytes.

Each case shows a regular evolution. There is a gradual change in a relapse from normal stools with a very occasional leucocyte to the appearance of red blood cells and leucocytes in greater profusion. Cysts then develop. Later mucus, with more leucocytes and pre-cystic forms, is found, with frank blood. This stage is followed by the appearance of vegetative forms, or the condition subsides in the reverse order after a variable interval. This tide is more or less symmetrical, and if, after the pre-cystic and immobile forms have been found, cysts begin to reappear, the vegetative forms are not to be expected, and a further exacerbation must be awaited or a diagnosis made on the identification of the cysts. This cycle is longer in duration and more gradual in its progress in cases associated with vague abdominal symptoms and is more precipitate in those with diarrhoea. Several volunteers whose course could be followed closely confirmed this conclusion. A graphic representation recording the features of consistency, the presence of macroscopic blood and mucus, and the finding of red blood cells, leucocytes, vegetative, pre-cystic, and cystic forms of the *Entamoeba histolytica* made this contrast between the acute and chronic cases evident. So far as is possible every stool has been examined, but in the acute cases those passed at night have been discarded. In the chronic cases, however, as cysts and not vegetative forms are to be expected, these stools are retained for examination the next day.

The regularity of this rhythm suggests that it represents the pathological activity of one lesion—or, alternatively, that the diseased colon undergoes its relapses and remissions as a whole—rather than the existence of separate lesions with uncorrelated cycles. This is confirmed by the general increase in activity accelerated by an attack of gastro-enteritis or by the use of a purgative.

There is a close correlation between the pathological findings and the site of the disease as assessed on clinical and radiological evidence. In rectal disease—when the chief complaints are diarrhoea, tenesmus, and the passage of frank blood and mucus—red blood cells, leucocytes, and vegetative pre-cystic forms are found, but cysts rarely appear. The vegetative forms, though perhaps immobile when examined at first, may become quite active after half an hour on a warm stage, even after the mucus has been previously immersed in broth at room temperature for the purpose of culture. This suggests that, though care should be taken to ensure that examination is made immediately after evacuation, the interval between the shedding of the amoeba from the ulcer and its discharge per anum is of importance. This factor may be reduced by encouraging the patient not to delay in defaecation or by purgation.

When the caecum and ascending colon are involved, with the production of vague pain and constitutional symptoms, there are no active forms; but cysts, leucocytes, and red blood cells are found more or less uniformly distributed throughout the faeces. Perhaps the reason for this is not so much the differing type of lesion as that in their passage down the colon the more active forms degenerate into cells which may not be recognizable as having been derived from protozoa. The "showering" of cysts does not seem to occur when four specimens are examined from each stool.

Adjuncts to Diagnosis

The value of sigmoidoscopy as an adjunct to diagnosis would seem to depend on the experience of the investigator. In the more obvious cases, in which pathological confirmation of an almost certain clinical diagnosis is required, the findings on sigmoidoscopy are usually definite. A preliminary stool examination to eliminate bacillary dysentery and perhaps to identify the *Entamoeba histolytica* might well be followed by sigmoidoscopy or proctoscopy for the easier collection of mucus. In the obscure cases, in which doubt arises in the pathological findings and in which the elimination of amoebiasis may be of importance, the lesions may be high up or minute. Furthermore, in this series of cases few of those presenting

caecal tumours had ulcers in the rectum or the pelvic colon. This experience is in contrast with that of Payne (1945). Sigmoidoscopy would appear to be of great value in effecting a diagnosis in the dysenteric case in the shortest time but to have limitations in latent cases.

Conclusions and Summary

The prevalent attitude to amoebiasis is concerned with the difficulties of treatment, the liability to infection being regarded as an unavoidable risk. As a feasible and practicable laboratory diagnosis can be made it is felt that attention should be directed to the prevention of its spread by the removal of cyst-passers from the handling of food, the diagnosis of latent cases in permanent residents in the Tropics, and the elimination of unsuspected infection among members of the Services on repatriation.

The pathological findings of 300 cases of amoebiasis in which the *E. histolytica* has been identified are described. The difficulties of laboratory diagnosis are discussed. Routine examinations, to reduce the incidence of the disease, are suggested.

I am indebted to the Medical Director-General of the Navy for permission to publish this paper; to Surg. Capt. T. N. D'Arcy, R.N., and Surg. Capt. F. E. Fitzmaurice, R.N., medical officers in charge of a R.N. auxiliary hospital; to Surg. Lieut.-Cmdr. J. Ronald R.N.A.R., and Surg. Lieut.-Cmdr. E. M. Buzzard, R.N.V.R., medical officers; and to Petty Officer G. W. Wood for technical assistance. I wish to thank Prof. S. L. Baker for his helpful advice and criticism.

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ACROPARAESTHESIA IN THE LOWER LIMBS UNEXPLAINED PAINS IN THE LEGS AT NIGHT

BY

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For simplicity I have used the word "pains" in the subtitle of this note, but the sensation which is experienced in the cases I refer to is not actually pain but a peculiar tingling discomfort which when intense, becomes painful. I believe the sensation is the same as in the condition called acroparaesthesia, which commonly occurs in the arms at night and is of far more frequent incidence in women than in men. Among the early descriptions of it were those of Putnam in 1880 and of Ormerod in 1883, and following the lead of the former, it is still usual to regard it as a vasomotor neurosis; but Behrman (1945) in his recent paper regarded it as due to slight pressure on the brachial plexus at the thoracic inlet, and, while insisting that it was not necessarily nocturnal, attributed its frequent occurrence at night to the influence of the recumbent posture and the hypotonia of sleep in bringing about such pressure. Walshe (1945) has taken a similar view. Acroparaesthesia in the lower limbs has been mentioned by some of those who have written on the subject, but in recent times its occurrence seems to have been insufficiently recognized. All the sufferers from it whom I have encountered have been in men, but one patient said that his mother had suffered from "pains" in the legs which he thought were similar to his own.

The following cases provide good examples of this condition

Case I

An architect aged 68 complained that he had pains in his legs at night, which he had been subject to for more than forty years. They had gradually grown worse as he got older, and now they kept him awake a great deal. The pains used to come on after he had gone to sleep and wakened him up, but recently they had occurred about half an hour after he had got into bed. Formerly he used to move his legs to a cooler part of the bed or put them out from under the blankets, but in recent times these measures have been insufficient, and he has had to get out of bed and walk about the room for a little. He may have to do this several times in one night. If he gets out of bed in this way while the pain is present he may feel "groggy about the ankles," and in the mornings he sometimes feels similarly "groggy." When he came to see me he

said he was getting practically no sleep till three or four o'clock in the morning.

The sensation in his legs began as a tingling in the calves, and gradually, as it became worse, it became more like pain. He called it "neuropathy." The discomfort was always below the knee. In answer to my inquiry he said he had some burning sensation in his feet, but evidently this was not an important feature in his condition. The "pains" were limited to the night, except that very occasionally in winter, when sitting in front of the fire, he had felt some tingling in his calves. Even when he had to stay in bed because of illness the pains were limited to the night, and they had been very troublesome when he had pneumonia, and also after he had had his prostate removed nine or ten years ago. He did not think that his position in bed made any difference to the occurrence of the pains. As an architect he was in the habit of standing all day at his work, but he did not believe that exercise during the day had any influence on the nocturnal pains, because the latter had occurred as usual when he was kept in bed by illness. He was inclined to think that mental strain had more effect in aggravating them than physical exercise. He said he was not a rheumatic person and had no pains elsewhere.

The patient was a thin man of medium height and generally of light build. I found no abnormal physical signs in any part of his nervous system or elsewhere in his body. In particular the knee-jerks and ankle-jerks were normal and the plantar reflexes "flexor." He had no loss of appreciation of light touch, pain, temperature, position of his toes, or vibration. The muscles of his legs were all of normal size and were not tender. He walked normally, and Romberg's sign was negative. His blood pressure was 140/90 mm Hg and his arteries felt normal for his age. There was good pulsation in the dorsalis pedis artery in each foot, and his toes showed no cyanosis or pallor. He had no varicose veins. His heart was normal. His spine seemed normal and he stood in a normal posture. There were no signs of arthritis in his knees or hips, or elsewhere. In his abdomen I found no abnormality. His Wassermann reaction had previously been done, and was negative.

He had had various kinds of physiotherapy to his legs and different types of medical treatment without any benefit resulting. He had also been treated with vitamins B₁ and B₁₂ over a long period, and had been given phenobarbitone at bedtime to make him sleep.

I advised that he should cease standing at his work and prescribed a course of barium 10 gr (65 g) with phenobarbitone 1 gr (65 mg) to be taken at bedtime, and these measures brought about a complete improvement. After ten days he gave up the phenobarbitone and he has continued to have restful nights.

Case II

A doctor of my acquaintance, now aged about 50, has suffered from numbness and pains in his legs at night off and on for about fifteen years. The sensation is an uncomfortable tingling, but it is more or less painful and is associated with some tenderness in his calves. At first the discomfort occurred only after playing tennis, and in recent years it has usually been associated with other forms of physical exercise such as gardening or driving his car long distances. He has long intervals of freedom from his symptoms, and at other times the pain or discomfort may be troublesome every night for weeks. It has gradually become more frequent, its intensity is very variable, but during the war, when he was working very hard and driving about a great deal, there was a period during which it was worse than he had ever experienced before. The discomfort wakens him up about half an hour after he has gone to sleep, and it may awaken him two or three times in a night. If it is not severe he merely puts his legs in a cooler part of the bed, but ordinarily he puts them out from under the bedclothes, and sometimes he lies on his face and holds his feet up in the air and moves them at the ankles so as to exercise his calf muscles. In recent times he has had a mild burning sensation in his feet associated with the "pains," but this burning sensation also occurs independently of them. So far as he has been able to determine, the posture in which he sleeps does not make any difference to the incidence or severity of the symptoms, which occur every night for a time and then remit for weeks or months. He has not observed any influence of psychological factors on the pains, and has been through periods of mental stress without suffering from them. In contrast to the previous patient, he was free from these pains during a period of illness. He never has any active discomfort in the daytime, but when the pains are troublesome he says that he can feel a little tingling in his calves during the day "if he thinks about it," and there may even be a little deep tenderness in his calves.

His ankle-jerks and knee-jerks are quite normal. There has been no wasting of his calf muscles or other musculature, and no loss of sensation or change in the appearance of the skin. The arteries of his feet seem normal and there is no indication of impaired circulation, but when the burning sensation is present some redness is seen along the outer borders of his feet and outer parts of the soles. He has no varicose veins.

He is a tall thin man. Though generally healthy he is somewhat rheumatic, has had nodules on his fingers since his student days, and is liable to occasional pains in his shoulders and hip-joints. His blood pressure is normal. When the pains are troublesome this patient takes 10 gr. of aspirin at bedtime, with invariable relief.

Case III

In another patient whom I saw recently paraesthesiae affected all four limbs; they were not related to exercise and they occurred during the day as well as during the night. He was a butler, aged 57, and had been liable to these abnormal sensations for three years at least. They occurred when he got warm, and affected his hands and forearms and his feet and calves. They were worse if he sat long in one position, unless he was in the cold. During the day he relieved them by avoiding warmth so far as he could and by muscular movements. During the night he "kept looking for a cold spot" for his feet in the bed, or put his feet out from under the bedclothes, and in the summer he was accustomed to lie on top of the bedclothes.

Except that he had some varicose veins I found no abnormal physical signs. His pulse was not abolished at either wrist by putting his shoulders back and taking a deep breath. He had had prolonged treatment with vitamin B without effect on his symptoms.

Other Cases

During the war, while acting as neurologist to the Eastern Command (Home Forces), I saw several cases of this kind in soldiers. I recall two instances in officers, whose symptoms began while they were serving in the Army. They were both men in the middle forties, whose military duties had required them to undergo more strenuous physical exercise than they had been accustomed to in civil life. Both of them attributed the occurrence of the pains to marching, and one said quite definitely that if he did no marching he had no pains. Both had been greatly relieved during periods of sick leave. One had been treated with applications of radiant heat to the legs during the day, but it seemed to me probable that rest was the more important factor in bringing about the improvement. Both of these patients were of stouter build than either of those in the first two cases, and one would undoubtedly be classified as stout. I do not recall details in regard to their liability to rheumatic symptoms or whether they had any varicose veins.

Comments

I do not propose to discuss the differential diagnosis of this condition, which is in general not difficult. It is obvious that it is necessary to make sure that there are no signs of any organic disease of the nervous or vascular system and to exclude pains due to arthritis and sciatica.

The tingling is usually described as being in the muscles, and is relieved by muscular activity, but the burning sensation in the feet, if present, is superficial and is relieved by putting the foot against something cold. Ekholm (1945a, 1945b) considers that there are two varieties—pain and paraesthesia. My own experience does not bear this out. Paraesthesia if sufficiently intense may become painful, and the same subject may suffer at one time from tingling and at another from a painful sensation.

These paraesthesiae or "pains" occurring in the legs at night raise several interesting questions: Are they of the same nature as the acroparaesthesia which is frequent in the upper limbs? Have they an organic cause? What, if any, is the influence of physical exercise in bringing them about, and, if it does, by what mechanism is this delayed effect of exercise produced? Why do they occur during sleep?

There can be little doubt that the sensation is the same as that of acroparaesthesia in the upper limbs, and, in fact, I see no reason why these cases should not be included under the heading of acroparaesthesia, which is one applicable to all the extremities. Schultz (1893), who first used the word "acroparaesthesia," intended it to have this wider application. Not only is the quality of the sensation the same, but both in the upper and in the lower limbs the sensation occurs above all in sleep; if at all severe it awakens the sufferer, and it is relieved by the same means—viz., putting the affected parts out into the cold, holding them up, and exercising them. Furthermore, in very many cases the apparent effect of physical exercise taken during the day in bringing about this peculiar discomfort at night is similar in both instances. Sleep and physical exercise are the most constant associates of acroparaesthesia in the upper limbs, as they are of these paraesthesiae in the lower.

matic conditions (arthritis, fibrositis, Heberden's nodes) are also frequently associated (Parkes Weber, 1945), and similar conditions have been present in some of these cases of "pains" in the lower limbs. Behrman (1945) has stressed the association of the former with pregnancy, but I have not yet observed this association with the discomfort in the legs.

All the cases of acroparaesthesia in the lower limbs that I have seen so far have been in men, and yet acroparaesthesia in general is much more common in women. This contrast can hardly be due to differences of habits and varieties of work between the two sexes. It may conceivably be accounted for by differences of posture and structure in the body, but, if so, no adequate explanation on this basis has yet been put forward. Both Behrman (1945) and Walshe (1945) have attributed the discomfort in the upper limbs in women to a minimal degree of pressure on the structures at the thoracic inlet, but in the cases referred to here I have been unable to discover any mechanical factor to which the paraesthesiae in the lower limbs could be attributed. Posture in bed seems to make little difference, and I have not observed any constant peculiarities of bodily configuration in the individuals concerned. I understand that this variety of discomfort was not uncommon among the officers of our Army in the Middle East, and there was a tendency there to attribute it to sleeping on hard beds. The intermittent character of the symptoms in patients who sleep constantly under the same conditions seems to render a constantly present mechanical cause unlikely, and when paraesthesiae occur in all four limbs it is particularly difficult to suggest any physical mechanism that would account for them.

Similar paraesthesiae in the legs have been one of the most frequent features of the early stages of organic nervous diseases due to dietary deficiencies among prisoners of war, and they occur also in subacute combined degeneration of the spinal cord, polyneuritis, and other organic nervous diseases. Paraesthesiae are also a feature of some cases of vascular occlusion, and they occur in cases of "immersion feet" where there is a combined nervous and vascular effect. But even after forty years of paraesthesiae at night my patient in Case I showed no sign of organic nervous or vascular disease that I could discover, nor have there been such signs in any of my other patients. There is consequently little justification for supposing that in these cases the symptoms represent a minimal degree of some serious organic disease.

The association of these paraesthesiae with exercise seems in many instances to be fairly close; but if they depend in any way upon exercise, why do they occur after such a long interval, and what is the influence of sleep in precipitating their onset? To these questions I am unable to offer any satisfactory answers. With muscular stiffness and other occasional delayed effects of exercise, such as cramps, they do not seem to have any connexion.

The association with sleep is equally puzzling. Acroparaesthesia is one of those conditions which are brought on by sleep and yet terminate sleep or interrupt it. Its dependence on sleep in so many cases seems to be due more to an association with warmth and vasodilatation than with the recumbent posture; but none of these influences is ordinarily effective in the absence of sleep, though in Case III warmth was an adequate exciting cause whether the patient was asleep or awake. It is possible that immobility during sleep is also an important factor. If at all severe the paraesthesiae awaken the sufferer, but if mild they may not do so, and he only becomes conscious of them on waking at about the usual time in the morning.

I have found aspirin (10 gr. (0.65 g.) given at night and/or in the early morning) most serviceable for relieving these paraesthesiae. This is peculiar, because aspirin itself causes vasodilatation and a sensation of warmth and by making him sleep more soundly may increase the patient's immobility; but even if the practice is "homoeopathic" it is justified by the results.

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THE PROBLEMS OF DIPHTHERIA*

BY

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Diphtheria is of venerable antiquity, but its history really begins with its delineation in 1855 by Bretonneau and Trousseau, who incidentally had previously introduced tracheotomy for laryngeal diphtheria. In 1883 Klebs identified and Loeffler confirmed the causal role of the diphtheria bacillus, and five years later Roux and Yersin demonstrated the exotoxin, which Von Behring used in 1890 to produce an antitoxic serum from guinea-pigs. In 1894 the excellent results with Roux's horse antitoxin in the treatment of diphtheria in Paris brought about the adoption of serotherapy in London, where the customary dosage of 2,000 to 4,000 units of antitoxin subcutaneously produced a fall in the case mortality of diphtheria from 23% in 1894 to roughly 8% in 1905. The principle of passive immunization through a small dose of antitoxic serum was soon established.

Attempts at the active immunization of human beings by injection of toxin finally led to the use of a mixture of toxin and antitoxin for this purpose by Von Behring in 1913, in which year Schick published his famous skin test with diluted toxin. We now know that the presumably susceptible positive reactor has a blood antitoxin content below 0.01 unit per ml., and that antitoxin concentration is above this in the negative reactor.

Some Recent Advances

The use of toxin for prophylaxis has been associated with various disasters, but it has seldom been so used in Britain, where it was shown that injections of toxoid (i.e., toxin altered by interaction with formalin) could confer immunity without toxic effects, although with the risk of local reaction in the sensitive. Further improvements led to our present safe use of alum-precipitated toxoid for children and toxoid-antitoxin floccules for adults.

Although isolated cases of hypertoxic or malignant faucial diphtheria were not unknown, it was reported from Germany in 1927 (Deicher and Agulnik) that an epidemic of severe diphtheria had arisen, that many cases resisted antitoxin treatment, and that there was a suspicion that the antitoxin had failed. Three years later unusually virulent diphtheria in Hull and Leeds was studied by McLeod and his colleagues (1933) who were able to distinguish in 505 clinical cases three distinct strains of diphtheria bacilli, differing in cultural properties. One of these associated with severer cases attended by high mortality (13% and a high incidence of complications (albuminuria 52%, paralysis 20.5%), was named the "gravis" strain and was actually found in 380 of the cases studied. Another strain, found in 102 milder cases of the disease, none of which were fatal, was named the "mitis" strain. Yet another strain, found in 23 cases almost as severe as the first group, had cultural characters midway between the two types named and was therefore called the "intermedius" strain. It now seems that these are five strains and that bacteria having the gravis or intermedius characters are nearly always virulent, while some mitis strains are quite harmless. All virulent strains, however, owe this quality to an identical exotoxin, and most bacteriologists agree that virulent diphtheria bacilli do not lose this property nor do avirulent organisms acquire it.

Originally, diphtheria antitoxin was simply the pooled sera of immunized horses with a concentration of about 500 units per ml. It caused serum reactions in about 40% of patients. In 1925 "concentrated diphtheria antitoxin" was produced, by the removal of useless protein with ammonium sulphate, in strengths of 2,000 units per ml., with a reduction of reactions to 20%. Further digestion of serum protein with enzymes made possible the "refined diphtheria antitoxin" that is used to-day with about 1% of reactions. All along, the standard toxin used in horses to produce antitoxin has been from the Park Williams No. 8 strain, now classified as of intermedius type.

The experiences quoted have thrown some doubt on the efficiency of this strain to evoke an antitoxin suitable for gravis infections and caused some hesitation as to the wisdom of these improvements.

Diphtheria Mortality and Epidemiology

In spite of the fact that in diphtheria the lesion is easily visible, in spite of the unusually accurate and speedy laboratory aid to diagnosis, and in spite of specific antitoxin, an appalling mortality has continued throughout this century, and only three years ago were some signs of improvement observed. As late as 1940 there were 2,465 deaths from diphtheria in England and Wales (Registrar-General's *Stat. Rev.*, 1940). Of small account in infantile mortality the disease caused one-twelfth of the deaths in pre-school children and one-seventh of the deaths in school-children. Until recently this mortality was to be explained only by the lack of timely treatment with antitoxin, and the most common reasons cited for this were the failure of parents to involve medical aid and of practitioners to suspect the disease and administer antitoxin. Neither reason is fully apposite, as we shall presently see.

The official immunization effort began in 1941 and has been well worth while, but in 1944 there were 23,152 cases and 934 deaths. In that year case mortality was 8.4% in pre-school children and 4.7% in younger school-children.

Notification and isolation of diphtheria have been followed for many years, but the disease has scarcely altered in incidence. Contact and carrier immunity to the toxin, act as the reservoir of infection, and survey of the community always show a small percentage of individuals carrying virulent organisms in the throat or nose. When domestic contacts of the disease are studied for the organism, the percentage found to harbour diphtheria bacilli is considerable. Over 10 years, in my own area, 11 and 4 have been the extremes.

The modern view of diphtheria, therefore, is a picture of an epidemic of uninfected carriers proceeding simultaneously with the incidence of clinical cases. Using the Schick test on the population at large, it can be shown that positive Schick reactors diminish from nearly 100% at one year to 10-20% at the end of a decade, and the same has been found true in closed communities. This Schick conversion was actually observed by Dulce and colleagues (1944) in the raw entrants to Greenwich Hospital School during a period of diphtheria prevalence and it is explained as the result of minimal infections with resultant absorption of minute doses of toxin. Diphtheria patients are the susceptible individuals in whom doses of virulent diphtheria bacilli have obtained a foothold.

Spread of diphtheria infection so as to cause the disease or the carrier state must be directly by droplet "spray" or contact and indirectly by infected articles, such as feeding utensils or occasionally milk. Nowadays no one accepts the traditional theories which at one time incriminated defects of drainage or low annual rainfall nor is there any reason to connect the disease with local accumulations of filth. Infection by diphtheria bacilli in a really immune subject is productive of no clinical result, save at the worst the carrier state. In a susceptible person such an implantation nearly always causes a local lesion of which the appearance and pathological sequelae will vary according to the invasiveness of the organisms and their toxigenicity, as modified by the site of invasion and the resistance of the individual and his tissues to the bacilli and to the toxin.

The bacilli appear to favour, in order of preference, the fauces, larynx, nose, genitals, wounds, and eye as sites for entry; but the toxin would appear to be most readily absorbed from the nasopharynx, pharynx, and tonsils, in that order, very little absorption taking place from the skin or anterior nares. The affected area develops a layer of fibinous exudate called "false membrane," on and below which the bacilli multiply. The larger the area of false membrane the more toxin is elaborated. Some other morbid process—e.g., enlarged tonsils and adenoids—may predispose to actual infection, and long after the toxic phase has been combated may allow the bacilli to thrive locally.

The toxin causes local necrosis and oedema and degenerative changes in the tissues, especially the heart muscle, kidney, liver, suprarenal medulla, and peripheral nerves. The natural

*An abridged version of an address to the North of England Branch of the British Medical Association, at the Royal Victoria Infirmary, Newcastle, Oct. 18, 1945.

constitutional reaction to toxin in non-lethal doses is the formation of antitoxin and its circulation in the blood, but this is a very slow process in the susceptible person. If there is some basic antitoxin—i.e., if an antitoxin-producing mechanism already exists—the rate of production of antitoxin will be found accelerated, and this ability to mobilize antitoxin is the best defence against clinical sequels to infection. Natural antitoxic immunity has been shown to increase with age, but it can be set up and stimulated by injections of toxoid, which is the rationale of the immunization process, of the success of which the usual criterion is the conversion of a Schick-positive reaction to a negative.

Carriers are normally Schick-negative, which means that they are protected by natural antitoxin. Convalescent patients have considerable quantities of horse and natural antitoxin in the blood, yet they continue to carry the organisms for varying periods. These facts argue the existence of antibacterial as well as antitoxic immunity.

Clinical Forms of Diphtheria

Faucial diphtheria may be subdivided into tonsillar, pharyngeal, and nasopharyngeal varieties, and it has been usual to describe the disease as beginning on the tonsils and spreading to the palate, uvula, pharyngeal wall, and nasopharynx on succeeding days. Thus a mild tonsillar diphtheria used to be considered a first- or second-day lesion, while nasopharyngeal diphtheria was commonly believed to be of late development and usually accompanied by marked fetor oris, swelling, and distortion of the fauces, with glandular enlargement at the angle of the jaw.

In 1936 severe diphtheria started in Gateshead, its first victim being a general practitioner. It is still prevalent, and many hypertoxic clinical cases have been encountered. I would describe a typical case as follows:

On the first day there is the gradual appearance of some exudate on the tonsil, with translucent oedema of the pillars of the fauces and the palate (an appearance like quinsy but for the absence of three of the classic signs of inflammation). On the second day oedema is more extreme and there is a continuous thin gelatinous film with an advancing edge. At this stage there arises oedema of the associated neck glands, spreading to the periglandular tissues. With treatment the spread of membrane will be arrested—not at once, but in one to three days—and it will show a definite edge and thickening so as to resemble the icing on a cake. Later still it may peel off in one large piece or, as the oedema gradually subsides, shrivel and disintegrate, but the lesion continues to manifest exudate for some days. These changes have often been observed to occur after the administration of antitoxin in doses of 80,000 to 100,000 units intravenously or intramuscularly as early as the second day, and have even been followed by a fatal issue despite this.

In the beginning, gravis infections accounted for half of the Gateshead cases, but since 1941 they have been associated with 80%. I must make it clear that many gravis infections were clinically mild, but also that the severe cases were associated with gravis organisms.

The special features of gravis diphtheria I would summarize as follows: (a) invasiveness and toxicity of the bacteria; (b) resistance to early antitoxin treatment; (c) tendency to produce clinical diphtheria in subjects ordinarily considered to be immune—i.e., inoculated persons, Schick-negative reactors, and persons who have already survived an attack of diphtheria; (d) rare association with laryngeal disease: in Gateshead we have had no tracheotomies in the last three years in 900 cases, while in the earlier years they numbered 1% of cases.

The fatalities of faucial diphtheria are mainly to be found in the severe nasopharyngeal varieties, in which, in addition to faucial membrane, nasal discharge or obstruction and a gagging of the voice occur.

A variety of nasopharyngeal diphtheria, fortunately uncommon, may follow the unusual invasion of the nasopharynx, giving rise to an early nasal obstruction and a later spread of membrane downwards and forwards to the pharynx and tonsils, so as to produce the anomaly of early membrane on the tonsil with marked fetor and toxæmia of several days. Of great importance in faucial diphtheria are the comparative painlessness and relative mildness of early symptoms, best described as degrees of malaise. We should therefore never omit the examination of the throat in an ailing child.

The recognized teaching in suspected faucial diphtheria used to be the immediate administration of a safeguarding dose of 2,000 units of antitoxin and the taking of a swab for bacteriological diagnosis. Even with a warning as to the not infrequent failure of swab diagnosis, this teaching is simply not good enough. The proper procedure is to reserve the expectant attitude for the doubtful tonsillar condition. If the membrane and exudate extend to the soft palate or uvula, if there is any painless swelling of tonsils or fauces or neck glands, if there is fetor, if there is nasal or laryngeal involvement, the case should be sent immediately into hospital as clinical diphtheria, with or without a large dose of antitoxin according to the speed of transport facilities.

In diphtheria of the larynx, occurring primarily or as a secondary spread from faucial disease, strangulation is threatened from the beginning. The earliest sign is the typical cough, succeeded shortly by the suppression of the voice to a whisper and the appearance of inspiratory and expiratory stridor. Every case presenting these three signs should be in hospital and have the benefit of a therapeutic dose of antitoxin while the bacteriology is being explored. A certain number of suspected "croup" will turn out to be non-diphtheritic, and these cases should forthwith be immunized.

Anterior nasal diphtheria is so mild that it is usually found in the examination of contacts. It is to be suspected in excoriations of either or both nostrils with a serous or mucopurulent discharge from the nose, within which membrane may be visible. So common are diphtheroids in the nose that bacteriological diagnosis must always be confirmed by a virulence test. Vulvovaginal diphtheria has, in my experience, coexisted with faucial or nasal infection or disease, and is characterized by membrane on the labia or within the vagina. A feature of both anterior nasal and vulvovaginal diphtheria is the appearance on the skin surrounding the lesion of septic spots, which after serotherapy will be found to retrogress in keeping with the main lesion. Other forms of diphtheria—conjunctival, which threatens vision, cutaneous, and wound—are rare in this country, and their diagnosis necessitates a confirmatory virulence test. Mixed types of diphtheria may coexist in the same patient, and the outlook then depends entirely on the degree of faucial involvement or of laryngeal obstruction, for these are the varieties attended by fatality.

Serious Complications of Diphtheria

The threat to life in faucial diphtheria is limited to the severer forms with abundance of membrane. Thus in 200 cases of nasopharyngeal disease in Gateshead in 1941-4 there were 56 deaths, compared with 884 cases of tonsillar diphtheria with 2 deaths from the disease. Another high fatality rate encountered was 4 deaths among 16 mixed faucial and laryngeal cases.

Death in diphtheria most commonly takes the form of a cardiotoxic syndrome peculiar to the disease. With patients who have not had specific treatment, and may even have been ambulatory, death may be sudden, as was the case in five children found dead at home in Gateshead during the last nine years. More commonly, in hospital, with the patient under treatment by absolute rest in the "head down" position and receiving every nursing attention, the syndrome is of gradual development and may be delayed as long as two weeks. A typical sequence of events is that the toxic patient develops some albuminuria, some tachycardia, accompanied by a softness of the pulse and a waxy appearance of the skin or slight cyanosis. He vomits, and the pulse—sometimes fast, sometimes slow—will show an easily perceived irregularity of rhythm and force. Vomiting is repeated whenever anything is given by the mouth, and there develops thirst with restlessness and mental dulling. The urine becomes scanty and often shows the presence of blood, while there may be widespread skin haemorrhages as in one-fifth of our fatal Gateshead cases. Once vomiting is repeated death is inevitable, and there is no treatment known to me that will save life, although the final issue may be delayed for as long as a week. Other cardiac disturbances, such as extrasystoles and bradycardia, may also be encountered, but in these cases the prognosis is good with rest, so long as the patient does not vomit. The danger of death in laryngeal diphtheria is from asphyxia, and this danger is not entirely removed by tracheotomy, because of the formation of membrane below the incision and the risk of pneumonia.

Although the acute stage may be safely surmounted it is still possible for paralysis to occur, varying in incidence and extent directly with the severity of the acute stage, from a mere muffling of the voice in the mild cases to the development in the more severe of complete paralysis of the pharyngeal and laryngeal muscles and a resultant nasal regurgitation of fluids, inability to swallow, and accumulation of mucus. The paralysis may progress to affect the laryngeal muscles, the diaphragm, and the muscles of the limbs. Very often the muscles of the face are involved and sometimes, indeed, paralysis of accommodation may be the only symptom. In these cases knee-jerks are usually absent. Theories as to causation favour an ascending neuritis from the lesion to the medullary nuclei with a central degeneration of grey matter spreading therefrom upwards and downwards.

Danger to life in paralytic cases chiefly arises from a second form of heart failure which may be sudden but is due to myocarditis and associated degenerative nervous lesions. Gross irregularities of the heart are usual, but there may be no vomiting.

In diphtheria one cannot forecast paralysis in any case nor take steps to combat it. Many patients may emerge through the early toxic stage of severe nasopharyngeal disease to make a rapid and perfect recovery, while other cases of moderate severity, well dosed with antitoxin may show fairly severe paralysis. Nevertheless, the more severe the disease and the sooner the patient the more frequent the paralysis which is most common at about four weeks, but may be as late as the sixth week. It is not uncommon for patients who have undergone hospital treatment for mild diphtheria to be presented shortly after discharge to the family doctor with muffled speech or difficulty in swallowing, and occasionally these are the first intimation that the patient has survived an attack of the disease. For paralysis, only rest, nursing, and vis medicatrix naturae are of avail, but a little strychnine may help.

Treatment

The specific treatment of diphtheria remains, as in the days of Roux, the injection of horse antitoxin or its active fraction. With the use of refined diphtheria antitoxin the danger of fatal anaphylaxis may be dismissed entirely, providing the routine practice is followed of injecting 0.1 ml. of antitoxin subcutaneously and waiting twenty minutes. In the asthmatic or hay fever subject a skin-sensitivity test with the same dose should be substituted. In the absence of any reaction it is fairly safe to administer antitoxin either intravenously or intramuscularly, but adrenaline should be instantly available. Dosage of therapeutic antitoxin continues to be controversial, but it has been established that 1,000 units will confer passive immunity for a period of ten days. In treatment, the small doses of the pioneers by the subcutaneous route were beginning to be replaced just before the last war by doses of up to 30,000 units intramuscularly in severe and late cases, yet such an authority as Ker (Banks 1934) held that the administration of antitoxin in excess of 6,000 units was wasted. In 1928 Goodall had arrived at a similar conclusion about antitoxin in excess of 30,000 units. In 1922 Von Bie advocated a dosage of over 200,000 units in late cases and in 1928 Banks was advocating doses of his order intravenously.

What is the purpose of antitoxin in treatment? Goodall (1928) answered that the object was primarily to neutralize toxin already formed or in process of formation and, secondly, to prevent extension of false membrane. By such a rule, adequacy of dosage could be checked against the local lesion by inspection.

Previous to 1930 the administration of the accepted scheme of dosage, which varied from 16,000 units for the tonsillar case to 30,000 units for the nasopharyngeal, did usually stop the further extension of false membrane, but in severe cases associated with gravis organisms the tendency of membrane to spread after curative antitoxin is marked as are the fatality of the disease and the high incidence of complications.

With the advent of this type of diphtheria the objectives of antitoxin treatment must be restated. To neutralize all toxin already in circulation or being produced at the lesion requires only a comparatively small dose of antitoxin. Ehrlich's original calculation led him to suggest a dosage of about 2,000 units for

this purpose. Certain it is that the injection of 10,000 units will ultimately produce in the average child an antitoxin concentration of somewhere about 1 unit per ml. of blood which is well above the Schick level. We must now view the further objective of antitoxin therapy as the attempt to dislocate toxin already in loose combination with the tissues by providing an excess of antitoxin, and to determine the adequate dose once must meantime rely on clinical opinion. The consensus of opinion is that doses of 60,000 units or upward are required for hypervirulent diphtheria of the kind described. My personal preference in such cases is for a minimum dosage of 80,000 to 100,000 units, but I must say that I am still not satisfied with the therapeutic effects. It is worth of note that an "avid" antitoxin serum—that is, one of unusual combining power—has given satisfaction to McSweeney (1941).

Where gravis diphtheria prevails I would advise the minimum dosage of antitoxin for the suspected tonsillar case to be 10,000 units, 20,000 to 40,000 units for the proved tonsillar or pharyngeal lesion and 80,000 units as a minimum where there is oedema of the fauces, a spreading membrane, or nasal or glandular involvement. In laryngeal diphtheria, so rarely associated with gravis organisms, 20,000 to 40,000 units should be enough and in all other forms—e.g., nasal diphtheria—10,000 units should be ample.

The theory of mixed infection has been responsible for alternative or additional methods of specific treatment for diphtheria but I have used and abandoned streptococcal antitoxin, *C. welchii* antitoxin, and the sulphoramides. Diphtheria bacilli are sensitive to penicillin, and at present we limit its use to severe cases. Its role in treatment would seem to be as an adjuvant for it arrests the formation of membrane and hastens its disintegration but it does not abort the toxic changes.

Diphtheria Prophylaxis

The absence or presence of gravis diphtheria explains the diverse experiences of diphtheria prophylaxis. In North-East England comparative incidence rates show a reduction to one-half or one-third only as a result of full inoculation. There is nevertheless an agreement that mortality is rare in the fully inoculated and in England and Wales deaths from diphtheria have dropped each year, from 2,641 in 1941 to 934 in 1944. Our case-note comparison has been 7 fully inoculated cases to 10 unvaccinated in 1943 and to every 15 in 1944.

What are these cases of diphtheria in the inoculated like? As set out in the accompanying Table, which compares three categories, the mitigation of the disease as a result of inoculation is small, and the only additional note that is called for is that tonsillar disease in the inoculated may give rise to difficulty of diagnosis due to a frequent resemblance to follicular tonsillitis as pointed out by Neubauer (1943).

Clinical Classification of Diphtheria at Gateshead 1941-4

	No. Inoculated	Fully Inoculated	Partly Inoculated
All cases	1	—	1
Tonsillar	613 (61 deaths*)	201	1
Pharyngeal	10 (2 deaths)	2	—
Nasopharyngeal	171 (52 deaths)	16 (1 death)	13 (7 deaths)
Primary glandular	11	—	1
False and other lesions	25 (4 deaths)	—	1
Total	945 (61 deaths)	245 (1 death)	131 (8 deaths)
Hypervirulent cases	—	—	—
Antitoxin cases	164 (17%)	16 (6%)	7 (5%)
Paralysis	50 (10%)	4 (1%)	2 (2%)

* One of these was due to infection in a child who had been vaccinated.

Should these cases of diphtheria in the fully inoculated be given antitoxin? I would answer "Yes," but usually a dose of about 10,000 units. Occasionally we have found that the information as to previous inoculation has not been verified, and therefore clinical rules for treatment should always be followed. Diphtheria in Schick-negative reactors is mild, as it is also in the form of a second attack, of which some 26 cases have been encountered in Gateshead.

We shall apparently not control the incidence of diphtheria by inoculation of toxoid if gravis strains of diphtheria bacilli are prevalent, although we should eliminate mortality. If this is so will gravis diphtheria oust all other strains as a result of

immunization? This one cannot answer finally, but it is an eventuality to be feared, with its great risk for the young un inoculated child.

Comparing methods of prophylaxis, the present dosage of 0.2 ml. and 0.5 ml. of A.P.T. emerges as the best procedure, followed closely by the use of three 1-ml. doses of T.A.F. The smaller doses of 0.1 ml. and 0.3 ml., and latterly 0.1 ml. and 0.5 ml., of A.P.T. seem somewhat inadequate, and the fatal fully inoculated Gateshead case actually received 0.1 ml. and 0.3 ml. of A.P.T. It is possible to establish active immunity by injection of toxoid while the subject is protected with the passive immunity of a small dose of antitoxin.

The duration of immunity apparently depends on the factor of individual variation, which can never be accurately assessed. Nevertheless once antitoxin has been established it may easily be stimulated anew, and the practical application of this is the recommendation to administer 0.5 ml. of A.P.T. to the previously immunized entrant school-child. As mortality from diphtheria really begins in the third year of life, prophylaxis should always be sought in the second year of life, preferably at the beginning.

Contacts and Carriers

Contact carriers present a problem of disposal. In Gateshead we have been content to exclude them from school and work and keep them under observation. Most are carriers for very short periods, but occasionally one encounters the more chronic type. For these individuals hospital treatment is a waste of beds. In some areas swabbing of contacts has been abandoned and the emphasis placed on prophylaxis, but there is one justification for the routine swabbing of contacts in the discovery of a number of early cases of the disease. It is difficult to keep people under observation for the carrier condition without doing something for them, and some local antiseptic treatment has been adopted, such as throat paints in tonsillar cases and nasal insufflations. Lately the Kromayer lamp has been used to irradiate tonsils. In the chronic carrier it is always wise to assess the organisms for virulence before proceeding to surgical measures, such as tonsillectomy, and it looks also as if penicillin should be tried when it becomes available.

Does immunization increase the carrier percentage? The answer is "No," although the immunized person tends to become a carrier if the bacilli gain a lodgment in his tissues.

Conclusion

It must be obvious that we have not yet succeeded in our warfare against diphtheria, although we have made remarkable progress. Our future attack must be along two lines. We have to make our immunization against diphtheria more effective, either by exploring and stimulating the antibacterial defences of the tissues or by perfecting the means of evoking full antitoxic immunity in the body. Our second line demands a more intimate knowledge of the tissue combination with diphtheria toxin, especially in relation to the heart muscle and the nervous system. It also demands a reassessment of the role of the specific antitoxin in relation to this interaction of tissue and toxin. Such an inquiry must keep in view possible differences between the natural disease in humans and that induced in laboratory animals.

With a fuller understanding of the problem than we now possess it may be possible to improve our serotherapy so as to abort the cardiotoxic and paralytic syndromes and perhaps even to treat them along specific lines. The fact that diphtheria very seldom leaves any permanent disability in those who survive, no matter how ill the patient, shows that the tissue damage inflicted by the diphtheria toxin is not necessarily final and irremediable.

The solution of our present difficulties must come from clinicians, pathologists, serologists, and bacteriologists working in the close liaison of the team.

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PREFRONTAL LEUCOTOMY IN TREATMENT OF POST-ENCEPHALITIC CONDUCT DISORDER

BY

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There can be few more difficult or tragic cases of juvenile delinquency than those conduct disorders arising from the ravages of epidemic encephalitis, and, although it is 20 years since the last major epidemic, many of the more severe cases continue to spend years of turbulent isolation in our mental hospitals, defying all attempts at re-education. The mental sequelae of encephalitis seem to have transformed these patients into veritable "little devils" with *apache* propensities characterized by uncontrollable and vicious impulses uninfluenced by ordinary disciplinary measures, and their abnormal conduct ranges from excessive naughtiness to gross criminal acts.

In a study of a group of 144 severe cases Gibbs (1930) found that, over a period of eight years of special training, only 8 cases could be discharged recovered, and he considered that the outcome for the majority of the remainder was very gloomy. He concluded that the fundamental cause of much of their abnormal behaviour was an emotional dysfunction, a state of tension or irritability of affect, driving them to periodic outbursts of impulsive conduct of characteristic simplicity, unpremeditated and unplanned. Such a state of affairs would appear to afford the clearest indication for prefrontal leucotomy, which has alleviated many emotional psychotic states by the surgical division of the fibre connexions between the thalamus and the prefrontal area of the brain, thereby reducing the emotional tension. In the words of Freeman and Watts (1944), "Once the emotional nucleus has been successfully abolished, the sting drawn, the reconstruction of the personality can be attempted."

The present paper records two adult cases of post-encephalitic Parkinsonism in which severe behaviour disturbances present from childhood have been removed by prefrontal leucotomy, leaving immature but socially acceptable personalities.

Case I

This patient, a man aged 28, had an insomnic type of encephalitis in 1924, when 7 years old. Previously a normal healthy boy, he became restless and hyperactive, turning somersaults, whistling, noisy at night, and disturbing the neighbours. After a period of 26 weeks in hospital he returned home with little change in his conduct, and he became a constant source of trouble to his parents during the next seven years. He was mischievous and impulsively violent, and he would suddenly hit out without warning. He stole from shops and school, and was on probation for two years. School attendance was spasmodic, and at 14 he started work but was too erratic to continue. Nothing could be done with him, and in 1931 he was certified and sent into the mental hospital.

For the next thirteen years his conduct was similar to that at home. He was irritable, impulsive, and violent, stating that he *couldn't stop himself*. If he happened to be near a window he would suddenly put his fist through it. He once pushed his head through a window. On another occasion he threw a knife at a patient. He would become angry at the least provocation.

A slight degree of Parkinsonism was apparent on admission, and has shown little change during the years in hospital. He has the typical facies and gait, and a slight degree of generalized rigidity, but is very active and otherwise healthy. His intelligence grading was dull and backward, with a mental age of 8 or 9 years on the progressive matrices test. He was the firstborn of four children in a working-class family, and no factor other than the encephalitis could account for his change of conduct.

Operation.—Bilateral prefrontal leucotomy was performed by Mr. J. Hardman, neurosurgeon, Sheffield Infirmary and Hospital, in January, 1944. Under local analgesia after omnopon and scopolamine, a burr-hole was placed 3 cm. behind the orbital margin and 6 cm. above the zygoma. A brain needle was introduced and carried through an arc upwards and downwards to section the subcortical fibres in the plane of the coronal suture just anterior to the tip of the lateral ventricle (McKissock, 1943).

The patient was quiet throughout the operation, and afterwards remained in a dull and stuporous state for two weeks, lying in bed with his eyes closed but easily roused for feeding and attention. He was incontinent of urine. During the next three months he made

rapid progress, and soon regained his former alertness. He is now cheerful and contented, eager to co-operate in the rehabilitation programme. Incontinence gradually lessened, but it has never disappeared entirely. His impulsive and violent conduct has been entirely abolished, and during the two years following the operation he has not once attacked anyone or broken a window. He is now of a quiet and cheerful temperament, and appreciates that he can sit by a window without fear of pushing his fist through it (only the scars on his hands serve to remind him of his former misdeeds). He has been on leave many times and returns to hospital without a fuss. His parents report that, although he no longer has violent outbursts, he is impetuous and not easily diverted from a course of action. He is selfish, and is indifferent to conventional good manners. He is careless in his attire, and will no doubt require a still longer period of habit training before he can take a place in a home environment.

He is handicapped by an intellectual as well as an educational defect due to retardation by the encephalitic process in childhood. A recent psychometric report by Mr E. V. G. Bradford gives him a mental age of 11 years, scored as follows: Shipley vocabulary, 12, Shipley abstraction test, 10, problems, 11, mechanical reading (Burt) 13, verbal repetition, 10, Kohs' blocks 10, cube construction 10. This shows a fairly even performance on a variety of tests, but there was a noticeable lack of sustained attention, and he was not easily satisfied with the results. Nevertheless, it is doubtful if he could have done as well before the operation, although his interest in reading has fallen off considerably since.

His Parkinsonism has remained unchanged, but he has had three epileptic attacks since the operation, and it is noted in the case records that a fit occurred in 1932. This suggests that he has an epileptoid disposition which has been activated by the operation. Unfortunately, electro-encephalography was not available.

Case II

This patient, a woman aged 31, had an attack of encephalitis lethargica in 1924 at the age of 10. The main feature of this attack was sleepiness during the daytime, and she remained in hospital for four weeks. The parents state that on the day of her return home she began fighting with other children, which was unusual for her as she was formerly of even temper. From then onwards she developed temper tantrums, screaming attacks and destructive impulses. She smashed windows and broke crockery, and her parents were continually embarrassed by complaints from neighbours regarding her assaultive tendencies. She said the other girls tormented her. She told lies, but did not steal or show any sexual tendencies. School attendance was intermittent, and from 14 years onwards she remained at home until 21, when she became unmanageable, and was admitted to the mental hospital under certificate in 1936. She was the elder of two children, and no social-environmental factors could be found likely to influence the development of her conduct disorder.

In the first eight years of her stay in hospital she had frequent emotional outbursts often lasting a week or more. She was then violent, aggressive and destructive. Quiet periods became less frequent, and she was always irritable, excusing herself by saying that other people got her 'ratty'. She would not concentrate on intelligence tests, and her score on the progressive matrices, sets A, B, and C, was only 15. Slight Parkinsonism was shown by the facial expression and the posture of the fingers of the left hand with occasional slight tremor. The pupils were irregular and failed to react to light. There was no noticeable muscular rigidity. This degree of Parkinsonism has not progressed much since admission. Menstruation was normal, but did not start until the age of 18. Electric convulsion therapy was attempted in 1944 with little effect, and she refused to complete a course of treatment.

Operation.—Bilateral prefrontal leucotomy was carried out by Mr J. Hardman in November, 1944, using the same technique as before, under local analgesia. She was a trifle apprehensive and emotional during the operation, but afterwards was noticeably calm and placid. On return to the ward there was little disturbance of consciousness, her attitude being one of watchfulness and expectancy. There was no incontinence of urine, and in a week she was up and about, somewhat irritable at first; but after a month she settled down calmly to the hospital routine, showing none of her former angry outbursts.

During the past 14 months she has remained in an even temper, willing and co-operative in simple daily tasks, contented, and apparently quite satisfied with life. Whereas before the operation she was never stable for long enough to permit even a day's leave from hospital, she has now been home on many occasions and returns quite willingly. Her mother reports that when at home she is somewhat impetuous and self-willed, keen to have her own way, and seems unable to concentrate for any length of time. She will, however, read a book for long periods.

A psychometric examination by Mr Bradford resulted in a mental age of 12 years, scored on the various tests as follows: Shipley

vocabulary, 14, Shipley abstraction test, 10, problems, 10, mechanical reading (Burt), 13, verbal repetition, 12, Kohs' blocks, 13, cube construction, 11. As with the first case, the patient showed wide haziness and a lack of sustained attention. Her score on the progressive matrices had increased from 15 to 20.

Comment

There can be no doubt that both patients have benefited by the operation, and enough time has now elapsed to justify an optimistic view of the stability of the results. Both are contented and happy, they had willingly consented to the operation, realizing that it was an attempt to help them to control their temper and violent outbursts. They have both made satisfactory adjustments within the sheltered life of the hospital, yet enjoy frequent visits to their families. Their parents are grateful, and the work of the nursing staff in regard to their supervision is now a pleasure. They are still irresponsible, however, as judged by normal social standards, but this is only to be expected, since leucotomy cannot give them personal attainments they never possessed. They have never been responsible citizens and their personalities were still undeveloped when they were stricken with epidemic encephalitis. Although not mentally defective, they are below the average in intelligence and education, and it is doubtful if they will ever achieve full responsibility. Their capacity to learn may always be limited, but after 20 years of gross maladaptation we are satisfied with a reasonable degree of mental stability and a possible chance of continued development of their personalities.

It is recognized that the best results from leucotomy are to be obtained in individuals who have had well-integrated personalities. These subjects are often able to resume their former occupations and ordinary test of intelligence have, in uncomplicated cases, failed to reveal any special defect which could be attributed to the operation. This is borne out by our two patients who show no appreciable degree of intellectual defect on all our tests given and their present social adjustment would be due to the virus than to the surgery.

Ten years have elapsed since Moriz (1926) conceived of leucotomy for the relief of abnormal mental states, and although success has been achieved in the alleviation of many cases of symptoms in otherwise incurable psychoses, the amount of evidence has accumulated to suggest that the essential part of the operation consists in the interruption of fibre connections between the hypothalamus, the thalamus, and the orbital areas of the prefrontal lobes, which in effect brings about a diminution in the emotional tension or irritability responsible for these symptoms. In this respect it is of interest to recall that William James (1901) maintained that the best proof of his theory of the emotions (that the immediate cause of the emotion is the physical effect on the nerves) lay in those pathological cases, found in every asylum, in which obstacles to emotion leads to unmovable fear, anger, melancholia, or contentment. He might have welcomed leucotomy in support of his theory, for it may well be that, by the surgical interruption of affective-conative pathways, autonomic reactions are so modified that coarser emotions like anger and fear lose much of their intensity. Evidence of this is suggested by the finding of Reiman (1945) that the leucotomized patient shows a diminished response to autonomic stimuli.

Prefrontal leucotomy has already proved beneficial in the epileptic conduct disorders (Ström-Olsen *et al.*, 1943), and it is well known that emotional irritability is a characteristic feature of most of the psychopathic behaviour symptomatic of organic brain disease. It is questionable, however, whether the operation would be of equal benefit in the aggressive constitution: psychopath, since the morbid disposition in these cases is due to an innate or developmental imbalance of instinctive trend. Emotional tension is unusual, and many cases respond to psychotherapy and re-education.

Summary

Bilateral prefrontal leucotomy has been performed on two cases of post-encephalitic conduct disorder of 20 years' duration as present since childhood.

Complete alleviation of the aggressive and impulsive trends was produced in both cases, and has been well maintained over a period of two years and fourteen months respectively.

I am indebted to Sir Arthur Hall for much encouragement and advice.

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PENICILLIN IN GONORRHOEA

THE SINGLE-INJECTION METHOD

BY

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One of my main problems in the treatment of venereal disease in the Port of the Clyde was to cure, or at least render non-infectious, merchant seamen as speedily as possible. Many of those men by necessity of war conditions were able to attend only on one visit or two at most. Continuation of treatment was therefore very problematical. Some men were permitted to stay ashore the requisite length of time, but most seamen were reluctant to take advantage of this. It therefore became necessary to find a rapid method of curing men with gonorrhoea, or rendering them non-infectious, and with this in view a routine treatment of one single intramuscular injection of 200,000 units of penicillin was given. Very acute infections received 300,000 units. Concurrent urethral irrigations were also given if the seaman could attend; if not, their use on board ship was advised.

The supply of penicillin for this purpose was made available to me only in the last few months of the war, and in only 30 cases has enough time elapsed after treatment for a reasoned opinion to be formed of the efficacy of the method. Nevertheless I venture to put forward this small series for two reasons. (1) With the hope that, in some clinic dealing with larger numbers and where patients can be under more continuous supervision, the single-injection method will be tried out on enough cases to provide accurate statistics. (2) The present method of estimating the potent concentration of penicillin in the blood is too coarse—at least, so far as the gonococcus is concerned. The quantity of penicillin required to inhibit growth on artificial media can only roughly approximate to that required to inhibit growth *in vivo*.

Most of the early work on the penicillin treatment of gonorrhoea has been done by American workers. Uniformly good results are claimed in new and old cases, failed sulphonamide cases, and in articular gonococcal infections. All writers stress the importance of maintaining an adequate level of penicillin in the blood. Schemes for repeated injections vary in detail but are identical in principle—intramuscular or intravenous injections repeated at intervals of two or three hours. This undoubtedly maintains a definitely demonstrable level of penicillin in the blood. The same result can, of course, be reached by continuous intramuscular or intravenous drip, but this is hardly justified in gonorrhoea, for which out-patient treatment is a major consideration.

The Literature Reviewed

References to the use of penicillin in gonorrhoea are already voluminous, especially in American literature, but I here refer mainly to recent British medical literature.

McLachlan (1945) recommends 150,000 Oxford units administered in 5 doses of 30,000 units three-hourly, and reports it curative in "nearly all" cases; the gonococci disappear in two to four hours, and the discharge rapidly becomes mucoid and is often absent after 12 to 24 hours. Any cases failing to respond clear up with 100,000 or 150,000 units on the following day.

Harrison (1945) says penicillin is now the first line of attack in gonorrhoeal infections. He recommends 5 doses of 30,000 units two-hourly. Lloyd Jones and Maitland (1945) believe that the serum concentration must be such that a serum dilution of one in eight gives "serum inhibition," and recommend 5 doses of 30,000 units two-hourly. Lloyd Jones, Maitland, and

Allen (*Lancet*, 1945), in a masterly report on penicillin for early syphilis, give very interesting figures of penicillin levels in blood and urine. After a single intravenous dose of 300,000 units, penicillin is demonstrable in the blood for 6 to 7 hours after and in the urine up to 17 hours. Given intramuscularly, the same dose is detectable in the blood 7 to 11½ hours after and in the urine 17 to 23 hours.

Recently an element of doubt has been creeping in as to the absolute necessity for this maintenance of demonstrable serum levels. Lloyd Jones and Maitland observe that penicillin must be present in the blood for more than eight hours, though the amount is presumably too minute to be detected by our present laboratory methods.

Suchet (1945) quotes American observers who have shown that blood penicillin levels undetectable by bacteriological examination can still be clinically efficient. Dyar, Scholtz, and Hammond (1945) conclude that a total dose of 50,000 to 70,000 units given in 5 doses yields a cure rate of 83% and 100,000 units give 91%.

Discussion

It may now be reasonably assumed that first choice of medication in the treatment of gonorrhoea should be penicillin. It is also reasonable to assume that a patient suffering from gonorrhoea would prefer to be an out-patient than a bed. That at once excludes the use of penicillin by continuous-drip methods. To continue the argument to its logical conclusion, the patient would prefer to attend as an out-patient once daily instead of two- or three-hourly for the injections. If this method can be proved to be equally efficient the medical profession also would undoubtedly prefer it. It would effect a great saving in time and trouble, and probably encourage patients to attend much earlier and more readily.

The cure of gonorrhoea by a single injection has been claimed by the American workers Romansky, Murphy, and Rittman, who use penicillin suspended in a beeswax-peanut-oil mixture; the rationale is that absorption is delayed, with consequently a more prolonged effect. Experiment showed this to be the case. The preparation of the beeswax-peanut-oil mixture is a troublesome procedure, but the results are good, and the method appears to offer the most promising line of study. Purely from a medical point of view, the overwhelming advantage of being able to cure gonorrhoea with one injection is obvious. From the social aspect its great advantages are rapid and complete cure with no prolonged and frequent clinic attendances to interfere with work or to invite publicity. No local ill effects from the injection of the beeswax-peanut-oil mixture are demonstrable clinically; histologically, in rabbits and hamsters minimum residual findings after several months were the only signs.

Urethral Irrigation

All writers are agreed that penicillin will cure gonorrhoea without concurrent urethral irrigation, and I can confirm this. Penicillin will readily lead to the death of the gonococcus, but it will probably have no direct effect on the inflamed mucosa. It is logical, in my view, to remove any products of inflammation by urethral irrigation with any bland fluid; saline would do, but time-honoured potassium permanganate is even better. It is quite conceivable that stricture would be much more prone to develop in a urethra which had not been mechanically cleansed of the products of inflammation.

The Single-injection Method Described

In this series the duration of symptoms before penicillin treatment was instituted varied from one day to six weeks. Ten of the cases had received sulphapyridine or sulphathiazole, but had failed to respond. On admission all the cases were clinically acute, with a copious purulent urethral discharge. In every instance the diagnosis was confirmed by microscopical examination. No cultures were made; and may I forestall any criticism on this point by saying that the number of non-gonococcal cases of urethritis whose smear shows Gram-negative diplococci morphologically indistinguishable from the gonococcus is very small indeed. Muir and Ritchie (1932) say the diagnosis on microscopical grounds alone is "practically conclusive."

The preparation used was sodium penicillin in powder form dissolved in 5 ml. of pyrogen-free sterile water, but ordinary

sterile boiled or distilled water was found to be equally effective as a vehicle. The injection was made intramuscularly into the buttock. All cases showed a rapid (2-12 hours, average 8 hours) change from a purulent to a mucoid discharge, and after 24 to 48 hours no discharge of any kind was present. Six hours after the injection gonococci were absent from the discharge in all but one case; this man was negative the next day. Some writers describe a transient increase in discharge followed by a steady diminution, but my experience has been a steady lessening from the time of the injection.

The return to normal was maintained and no case showed recurrence. The average duration of attendance was 33 days, and the average number of smears (after prostatic massage) was five; all were negative microscopically, and clinically the patients remained well.

Toxic Effects

I have observed no toxic effects whatever, but several writers mention pain or discomfort of varying severity at the site of injection. This undoubtedly varies with the brand of penicillin and with the technique of injection; some preparations of penicillin seem to be much more prone to cause discomfort than others. Other reactions which are described are: venous thrombosis; I always use the intramuscular route, and this problem does not arise; an urticarial attack after the injection in a patient with an asthmatic history, but no reaction from a different brand of penicillin; an alarming collapse after 500,000 units intravenously in another; and occasionally pyrexia, headache, shivering, and nausea.

Disadvantages

The single-injection method has several demerits: (1) The danger of producing a penicillin-fast strain of the gonococcus; all the cases described were apparently cured, but this possibility must be borne in mind. (2) The default rate is much higher than with sulphonamide treatment, and it is hoped that the use of concurrent urethral irrigation will encourage men to continue with clinic attendance. (3) The very real danger of masking an early syphilis; the necessity for regular serological tests for the following twelve months must be strongly impressed on the patient.

Conclusions

The single-injection method of 200,000 units of sodium penicillin injected intramuscularly promises a rapid, simple, and trouble-free method of curing gonorrhoea; its effectiveness can only be decided upon after its use in a large number of cases under continuous supervision.

It follows that, to kill the gonococcus, (a) a demonstrable amount of penicillin in the blood need not be maintained for as long a time as has hitherto been believed, or (b) that level is needlessly high.

My thanks are due to Dr. Alexander Johnstone, medical officer of health, Greenock, for permission to publish this paper, and to the Department of Health for Scotland for making available to me a supply of penicillin.

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The Servers of the Blind League started its work after the war of 1914-18 with social clubs for the blind in different parts of the country and a Braille correspondence circle. Since then it has increased its activities with the Ellen Terry National Homes for Blind Defective Children at Reigate, a home for the aged blind at Arneton House, Woking, and the Robert Spurrer Home at Ascot. This organization is now appealing for funds for a nursing home (to be opened this year) with wards for bed-ridden blind patients and a special wing for private patients, and for a new home for the aged blind. For the latter the League has in view a house in Sussex, which has the accommodation necessary to provide single and double bed-sitting rooms, as it is felt that "a room of one's own" is the desire of all old people, even the blind. This new home will also cater for blind people with limited incomes. Donations should be sent to the organizing secretary, Servers of the Blind League, 28, Manchester Street, London, W.1.

Medical Memoranda

Ulceration of a Foreign Body through the Small Intestine

The following is the report of an interesting cause of the "acute abdomen."

CASE REPORT

A married woman aged 62 was seen in the casualty department of Harrow Hospital on Aug. 31, 1945. She complained of severe lower abdominal pain for the past five hours, and also attacks of a similar nature, but lasting for only half an hour, on several occasions during the previous four days. There was no history of any gastrointestinal upset or renal symptoms. Examination showed that she was a healthy but very obese woman; temperature 97.8°; pulse 64; B.P. 150/80. The tongue was clean, but there were dulness to percussion, tenderness, and guarding over the whole of the lower abdomen. Pelvic examination was rendered inconclusive by the marked obesity. However, a provisional diagnosis of a twisted ovarian cyst was made, and the patient was admitted to the hospital for laparotomy.

The abdomen was opened through a midline subumbilical incision. The pelvic organs were examined and found to be normal. It was noted that the whole of the small intestine was slightly injected, this reaction being most pronounced in the terminal 15 in. (38 cm.) of the ileum. The whole of the small intestine was carefully examined and a thin piece of wood 2 in. (5 cm.) long, shaped like a tooth of a comb was seen to be ulcerating through the mesenteric border of the ileum 8 in. (20 cm.) from the ileo-caecal junction. Both ends of the foreign body were lying in the peritoneal cavity, the middle section being embedded in the wall of the ileum. Surrounding the "perforation" was an area of fibrinous peritonitis. The foreign body was removed by simple traction and the raw area oversutured with peritoneum. Five grammes of sulphonamide powder was put into the peritoneal cavity and the abdomen closed in layers.

Post-operative convalescence was entirely uneventful, and the patient was discharged eighteen days later.

DISCUSSION

This case is reported with the object of emphasizing the very real importance of making a careful examination of the entire gut during the course of an exploratory laparotomy. It may be added that, even after most careful questioning, the patient could at no time recall having swallowed anything in the nature of the foreign body which had been recovered from the abdomen.

I wish to thank Mr. D. K. Mulvany and the chairman of the medical staff for permission to publish this case.

K. E. E. READ, M.B., B.Chir.,
Senior House-Surgeon, Harrow Hospital.

Myiasis in the Auditory Meatus of a Newborn Infant

Although myiasis of the external auditory meatus has been reported as being not uncommon in the Tropics I can find no record of its occurrence in West Africa, and the following case appears to present features of sufficient rarity to warrant publication.

A 3para Hausa woman, aged 26 years, was delivered of the first infant of a twin pregnancy at 4.30 a.m. on Dec. 27, 1945, in "far bush." Thirty hours later she was safely delivered of the second twin in this hospital following internal version for a transverse lie. This second twin, on the fourth day of its life, was noticed to have a little fresh dried blood in its left auditory meatus. The following day the child appeared somewhat drowsy, and examination of its ear revealed a "worm" deep in the meatus. This was extracted without undue difficulty or damage to the worm, and was identified by Dr. Reid of the Research Laboratory, Accra, as the fully developed larva of the larviparous fly genus *Sarcophaga*—species uncertain but possibly *haemorrhoidalis* or *juvencula*.

It was evident from its development that the larva had been deposited on the day the child was born and probably within a few minutes of its birth. The child had been delivered in a mosquito-proof theatre and had at once been taken to a mosquito-proof nursery. Larviposition must have occurred on the short journey along an open verandah from the theatre to the nursery.

Stitt (*Tropical Diseases*, 5th ed.) writes: "A very common finding in the Tropics is that of fly larvae in the external auditory meatus where there is otitis media . . . many cases have been due to *Sarcophaga*"—that is, Stitt reports its occurrence where there has been otorrhoea. Its occurrence in a normal ear, as in this case, is believed to be very rare. The infant has suffered no permanent damage.

I am indebted to the D.M.S., Gold Coast, for permission to record this case.

Maternity Hospital,
Korle Bu, Accra.

P. C. COSGROVE, M.B., M.R.C.P.I.,
Medical Officer, Colonial Medical Service.

Reviews

ANAESTHESIA FOR THYROID OPERATIONS

Anaesthesia in Operations for Goitre. By Stanley Rowbotham, M.D., D.A. (Pp. 104; illustrated. 12s. 6d.) Oxford: Blackwell Scientific Publications.

This is a monograph devoted to only one of the many problems the solution of which the anaesthetist must have at his finger-tips. Dr. Rowbotham, who has obviously had much experience of goitre anaesthesia, accomplishes his task admirably. The text is clear and full of practical clinical details not to be found anywhere else. Emphasis is rightly laid on the conception that the anaesthetist must be not only a good technician in the operating theatre but a good doctor at the bedside, understanding more than a little of the patient's disease. A brief but lucid account is given of the surgical anatomy, symptomatology, and treatment of the various types of goitre in so far as they are of interest to the anaesthetist; only then does the author discuss anaesthetic technique. Every conceivable difficulty likely to be met by the anaesthetist is discussed. Those to whom an endotracheal tube is anathema will find a doughty opponent in Dr. Rowbotham, who worked with Cecil Joll at the Royal Free Hospital for many years. The experienced anaesthetist should pause before disregarding the advice given by him—to use an endotracheal tube for thyroid operations. The reader is told how the thyroid patient should be dealt with before operation and how to tackle the occasional acute emergency which sometimes occurs, even with the best-regulated operation team, after the operation is over.

The book is lavishly and, what is more important, helpfully illustrated with photographs and drawings. It is in fact up to the standard which medical readers now expect from Blackwell Scientific Publications. Now that this book is available, surgeons are entitled to expect from their anaesthetists a high standard of anaesthesia for goitre operations.

AMERICAN PAEDIATRICS

Mitchell-Nelson Textbook of Pediatrics. Edited by Waldo E. Nelson, M.D. Fourth edition, revised. (50s.) London: W. B. Saunders Company.

For its fourth edition the well-known "Griffiths and Mitchell" takes on a new editor and a new format. Prof. Waldo E. Nelson successfully manages a team of nearly fifty contributors, and the result is a double-column textbook of 1,350 pages, and 519 illustrations, many in colour. This is a first-class piece of work and a single-volume reference book of a high order. The editor is an old pupil of the late Dr. Graeme Mitchell, whose death at the early age of 52 was a tragic loss to paediatrics. Prof. Nelson starts off, therefore, with the advantage of knowing what the late editor had in mind for the development of the book. The reviewer cannot tell whether or not he has successfully carried out such plans, but the result is certainly a worthy product of the Temple University School of Medicine. The various monographs are well edited to secure a unity of presentation. References appear to be adequate and not too pedantically numerous. There is a good index. The quality of paper and of illustrations raises some envy in the reviewer, who has to use, daily, books of much inferior production, even if the subject-matter is beyond reproach. The new Mitchell-Nelson textbook is sure of as good a reception in this country as that of earlier editions. It gives an excellent account of American paediatric outlook and practice at the present time.

THE PARIS MEDICAL FACULTY

La Faculté de Médecine de Paris: Ses Origines, ses Richesses Artistiques. By Pierre Valléry-Radot. (Pp. 78; illustrated. No price given.) Paris: Masson et Cie. 1944.

Dr. Valléry-Radot, who is a well-known French author, has compiled this account of the Paris Medical Faculty, including descriptions of its admirable monuments and mediaeval apparatus. He has avoided the danger of making his work too erudite and long, or too archaeological and brief.

For 150 years up till the Revolution the Faculties of Medicine (1369–1792) and Surgery (1691–1775) were entirely separate, with their own teachers and students. In the first two chapters the author traces the history of both these faculties up to the time of their fusion, and in a well-documented way shows the struggle

ment and the people. Doctors had to contend against monk "fizicians" in monasteries and barbers who were unwilling to cede their rights to surgeons. In 1769, at the instigation of Louis XV, a new School of Anatomy was instituted. It was lavishly constructed, and served its purpose well for 25 years, when another college was opened—"L'École de Santé," memorable for being the end of the long-standing separation between physicians and surgeons and their interminable disputes. This school with its big lecture halls was devoted mainly to theoretical anatomy. Ten years later the College of Practical Anatomy was founded. In it students were taught "all the dissections and operations of surgery and were shown the advantages and inconveniences of operating." Despite all these improvements, which gave the Paris Medical Faculty two sets of buildings—theoretical on one side, and practical on the other—it was decided in 1936 to start the "Hôpital des Cliniques," embodying the latest features of modern medicine. Owing to war conditions this building is not yet finished. The penultimate chapter deals with the Dupuytren Museum and its immense collection of pathological anatomy specimens; it also houses the departments of anthropology, biology, and tropical medicine.

Paris is rich in medical artistic treasures and historic monuments. These have received much attention from the author, who includes many fine illustrations in his book. Dr. Valléry-Radot is keen on his subject and has elucidated many interesting facts from the bibliography, a list of which he gives at the end of the volume.

A CARDIAC ABNORMALITY

Pre-Excitation: A Cardiac "Pre-Excitation" Phenomenon. Patho-Anatomical, and Clinical Spread Phenomenon bearing upon the Problem of Pre-Excitation (Parkinson, and White) Electrocardiogram and Paroxysmal Tachycardia. By Richard F. Öhnell. (Pp. 167; illustrated. 15s.) London: Henry Kimpton.

Dr. Öhnell's monograph describes studies of the spread of the excitation wave in the heart bearing upon the problem of the Wolff-Parkinson-White electrocardiogram. This is a very technical matter which is at present familiar only to cardiologists. Nevertheless, since the curves were first described by the above-mentioned writers in 1930 some 120 papers on the subject have appeared.

The syndrome is marked by the following characteristics. The conduction time from auricle to ventricle (P-R interval) is abnormally short. The ventricular complex which follows is abnormally prolonged and of unusual form. It resembles that of bundle branch block in some respects. These abnormal curves are not always present in any one patient, and various causes can make them disappear or reappear. The most satisfactory explanation for the curves is that there is a second conducting path to the ventricles, in addition to the bundle of His. The authors have adduced some very convincing evidence that in one case of theirs they found at necropsy a small bundle running from the left auricle to the left ventricle. This might transmit the impulse as well as the bundle of His, so that the left ventricle recorded two impulses, one a little before the other, with the result that the actual excitation time of the ventricle appeared to be prolonged. A further association of this conduction phenomenon is the frequent occurrence of paroxysmal tachycardia. It seems possible that the impulse causing these attacks circulates through the conducting channel. Normal curves may replace the abnormal on changes in posture, after thyroidectomy, and after quinidine and atropine. The abnormality has no pathological importance and is found in normal, healthy hearts.

The monograph is full but is by no means easy reading, for its disjointed style, not always clear in expression, makes assimilation difficult. The chief importance of the syndrome would so far appear to be the recognition of it as harmless, and its differentiation from the prolongations of conduction which are of pathological significance.

Notes on Books

In the abstracts which appear month by month in the *Tropical Diseases Bulletin* and the *Bulletin of Hygiene* (and in the *Bulletin of War Medicine* during the war) the Bureau of Hygiene and Tropical Diseases records the current literature on subjects coming within its fields of interest. From time to time the Bureau has been asked for information on some particular branch of medical work to be collected in the form of a monograph for the greater convenience

of persons engaged on a special problem. Such a monograph has recently been compiled for the Tsetse Fly and Trypanosomiasis Committee appointed by the Secretary of State for the Colonies, and though designed to meet a particular need it may prove useful to a wider public. *A Survey of Recent Work on Trypanosomiasis and Tsetse Flies* is therefore now published as Bureau of Hygiene and Tropical Diseases: Review Monograph No. 1, and provides a brief statement of work done, and some of the opinions expressed, by those who have worked at the different problems concerned with trypanosomiasis since 1931. The compilers are Dr. Charles Wilcocks, Dr. J. F. Corson, and Mr. R. L. Sheppard. Copies may be had from the Bureau, Keppel Street, Gower Street, W.C.1, price 7s. 6d.

Dr. JOSE MARTORELLI has expanded his thesis for the Doctorate of Medicine into a monograph entitled *Fotografia Alergologica*, published by the firm El Ateneo in Buenos Aires. It is a carefully worked out contribution, largely botanical, to the study of hay-fever in the Argentine Republic. The main part of the volume is devoted to the allergenic character of the flora of the Department of Rio Cuarto. In all there are 169 figures, mainly reproductions of photographs. An appendix by the author and his senior colleague, Dr. Roberto F. Carron, discusses the frequency of positive tests for pollinosis at the allergy centre in the National University of Cordoba.

We have received from Henry Kimpton a third and revised edition of E. V. COWDRY'S *Textbook of Histology*. The author is professor of anatomy in the School of Medicine of the Washington University, and the subtitle of the book is "Functional Significance of Cells and Inter-cellular Substances." As before, his method of presentation centres about the blood vascular system as the principal integrator, and he describes structure and function together in their natural fluid environments. The price of the book in this country is 35s.

Preparations and Appliances

RADIO AID TO HYPNO-NARCOSIS

Dr. A. OWEN-FLOOD writes:

Hypno-narcosis using an inhalant such as nitrous oxide-air gives an all-round satisfactory method for psycho-analysis. There are, however, a few difficulties in its administration which not even the strictest attention to technique can overcome. These are as follows:

(1) It is essential to have a gas-tight mask if gas-air analgesia is to be efficient.

(2) It is impossible in hypno-narcosis to attain this if the patient is to talk under its influence. Unless the mask is lifted all that emerges from its depths is a muffled gabble of groans. With the

lifting and subsequent replacement a "swinging" type of analgesia is produced where the patient comes up into a more conscious level of hypnosis, makes a response which may not be a true guide to the state of the subconscious, and again sinks into deeper hypnosis.

(3) What the radio crooner dinned into our ears some months ago—"It is not what you say, but the way you say it"—may not be quite true in psycho-analysis, but the tone and method of expression are certainly useful evidence.

(4) The necessity for the analyst to take down all that is said, which is more an annoyance than a difficulty. Being no calligraphist myself, and remembering the poor reputation in that respect of most of my colleagues, a sure method of recording the actual words would be a boon, and would earn the blessing of our hard-working secretaries.

The apparatus illustrated will, I believe, eliminate all these difficulties. It consists essentially of a small microphone fitted inside a standard thyroid mask of rubber composition. The microphone is a small crystal type, sensitive to the merest



FIG. 1

whisper. It is coupled by leads to an audio-frequency amplifier and dynamic producer. This is a neat apparatus measuring 12 in. by 8½ in., and standing 9½ in. high. A more compact and lighter apparatus is possible. This one is in its rough experimental state. It consists of three pentode valves used in a resistance-coupled circuit made to have a rising characteristic

frequency, and is specially compensated to eliminate undesirable echo which results from close proximity of the mask to the patient's mouth and the confined space in which the microphone is fitted.

Inset in the cabinet is a loud-speaker. A plug is fitted for another speaker with which it is possible to transmit the voice to a distance, such as another room. This would allow details to be noted and recorded by a confidential secretary.

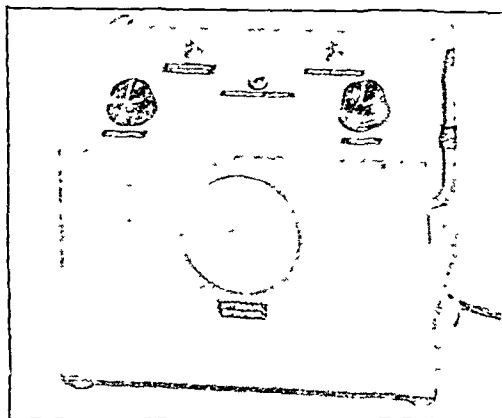


FIG. 2

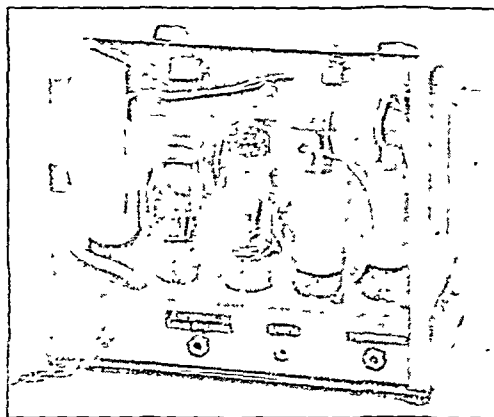


FIG. 3

The control panel consists of two switches which, pressed to the "on" position, light a small ruby button. This warning light shows that the apparatus is in circuit, and after a short pause for the preliminary "warming up" is ready for use. The speaker in the apparatus can be switched off and allow the remote speaker to function only, or the latter can be disconnected completely from the machine. There is also fitted a volume control, producing anything from a whisper to a roar, and a tone control, giving perfect voice reception.

The makers are now going into the question of fitting a handy recording device, details of which are not yet available. They are handicapped by the shortage of materials and labour.

To sum up: the apparatus allows a quiet state of level hypno-narcosis. The voice is heard clearly and distinctly and is capable of being amplified and transmitted to a distance. When conditions permit, a recording device can be fitted and records made of the voice. These can be played on an ordinary gramophone turn-table.

I wish to thank the directors of Messrs Stanley Cox Ltd., 11, Gerrard Street, W.1, who made the experimental model, and who are ready to supply a more efficient and portable article than the one illustrated, and Messrs. L. Lowery and R. L. H. Ewin, of the research department of the above firm, for their untiring work in the production of the sensitive instrument. I am grateful for the encouragement of Dr. Marion Greaves, West End Hospital for Nervous Diseases, for making the first trial, and reporting and suggesting improvements in the apparatus; and to Dr. C. H. Rogerson, Cassel Hospital, Stoke-on-Trent, who has promised to make a further trial for me.

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ARE THE PEOPLE MORE HEALTHY?

As a result of the propaganda during the past six years Britain has become more health-conscious, and the reactions of a Press with a limited supply of paper show that health now has a news value. The maintenance of as high a standard of well-being as possible among the civilian population was essential for the successful waging of war, and the many statements on improved or better general health among the public were accepted loyally and without undue criticism of their obvious propaganda nature. The assessment of health for comparative purposes during the war was difficult, because there was no standard available and accurate information was lacking. The death rate gives a broad indication of the nation's health, but mortality is not very sensitive to relatively small changes in environmental conditions, and even large adverse deviations in nutrition do not immediately affect the general death rate. Tuberculosis, however, reacts fairly quickly to adverse conditions, and it soon became apparent that, as in 1914-18, with the outbreak of war there had been a reversal of the favourable pre-war trend of tuberculosis mortality. One of the most disquieting features of the early war rise was the increased mortality of children from tuberculous meningitis. Infant and child mortality are sensitive to social, economic, and environmental conditions, and for comparative purposes these rates generally reflect the condition of the general population fairly accurately. Priority allowances of food for children naturally invalidated any attempt to reach conclusions concerning the adult population from the children's experience. And only an approximate and indirect estimation of the nation's health is given by the trend of the notifiable diseases.

In January, 1944, an attempt was therefore made to get a direct estimation of the sickness experience of the nation. The field workers of the organization known as the War-time Social Survey interviewed a random sample of the civilian population between the ages of 16 and 64 in all parts of the country. These surveys were repeated at intervals, and later the investigation was extended to cover ages over 65, although results for the latter age group have not yet been published. The number of persons interviewed in any one survey varied from 2,000 to 2,500. The information sought was of the illnesses experienced during the preceding three months. Generalizations from the sample to the

whole population may be affected by the smallness of the sample—only 1 in 20,000—the ability to remember the details of any sickness experienced during the preceding three months, and the fact that many of the complaints were self-diagnosed. As different areas were covered in each survey the continuity of the trends, particularly those of influenza and colds, may be affected to some extent by chance, because these diseases do not always have the same time of maximum incidence even in adjacent areas. Brief summaries of the findings of these health surveys have been published periodically in the *Monthly Bulletin* of the Ministry of Health and the Emergency Public Health Laboratory Service. The sicknesses have been grouped into four categories: serious—producing incapacity for work for four weeks or more or involving risk of death; moderate or mild—sickness incapacitating for three days or more; minor—ailments which do not incapacitate for as long as three days at a time; symptomatic—ill defined without a definite diagnosis.

During the period October, 1943, to May, 1945, about two-thirds of the persons aged 16-64 recorded at least one new illness or the recurrence of an old one starting during the period of three months preceding the interview. The monthly incidence of serious illness has a pronounced winter rise and a summer minimum, the trend being similar to that of mortality. The proportion of persons recording a serious illness has decreased during the period: in the winter of 1943-4 it was 2%, and in the following winter the percentage was only slightly over half this value. The proportion having a moderate or mild illness has declined even more—from over 15% in the winter of 1943-4 to almost a third of this rate in the winter of 1944-5. The monthly trend of minor ailments does not show any definite progression, and high values have been recorded in winter and summer; the percentage monthly incidence over the whole period varied from 13 to 28. Sickness with ill-defined symptoms follows a similar trend to that of minor ailments but at a much lower level, the monthly percentages ranging from 3 to 8. There are not the same large differences in the average number of days of incapacity as there are in the attack rates. The numbers of days lost by serious illness per 100 persons exposed to risk were 79 and 64 for November and December, 1943, and 64 and 55 for November and December, 1944. Days lost from moderate or mild illnesses were 110, 117, 78 per 100 persons per month during November, 1943, to January, 1944, compared with 54, 57, 62 for the same months in the following year. The monthly average for minor ailments ranged from 5 to 22 during the period. There was little alteration in the length of serious illness; the duration per month fluctuated from 23 to 48 days.

Moderate or mild sickness has become increasingly important as a cause of lost time: from November, 1944, to March, 1945, the average length of illness varied from 10.4 to 12.9 days, while the range for the preceding months was 5.3 to 9.3. The number of days of illness for minor ailments varied from 0.2 to 1.4. Influenza and colds form the most important cause of sickness; the average monthly

incidence per 100 exposed to risk during the winter of 1943-4 was 21.6 for males and 22.2 for females, and in the following winter the rates were 17.8 and 18.4 respectively. Rheumatism appears to be slightly more prevalent among women than among men, and this complaint was recorded more frequently in the summer than in the winter—during the summer of 1944 the average monthly incidence was 4.5% for males and 6.0% for females. It must be repeated here that the "rheumatism" was often self-diagnosed. Women made more frequent mention of nervous ailments than men: the number said to be affected by "nerves," at each interview, ranged from 1.2 to 3.5% among the males and from 2.7 to 8.3% among the females. The incidence of debility and certain nervous symptoms was 1.5 to 4.1 for men and 2.6 to 6.4 for women. The percentage suffering from neuritis, cause unknown, varied from 0.1 to 1.0 for males and from 1.0 to 1.7 for females. Functional digestive disorders appear to have increased slightly by the end of the period, but there was no obvious sex differentiation—in three of the six interviews the female attack rate exceeded the male rate. The incapacitating effect of these diseases differed between the sexes. "Nerves" caused 1% or more of the women to be laid up for one day or more in three months on four out of the six occasions, while the percentage of "nervous" males was only 0.6 to 0.8 during five of the periods. For the other three groups of complaints combined the males had more incapacitating sickness than the females: the percentage of males laid up for a day or more in three months varied from 0.6 to 2.2, while for females the rates were from 0.4 to 1.0.

For the period November, 1943, to January, 1944, an analysis was made of the number of visits to doctors. The average visits per person in the three months, whether ill or not ill during the period, were 1.04 for males and 0.88 for females to the doctor's house, and visits by the doctor to the patient's home were 0.45 for males and 0.56 for females. Attendances at hospital out-patient departments were 0.14 for males and 0.10 for females, and at clinics, place of work, etc., 0.09 for males and 0.12 for females. Expressed on a daily basis, the average visits per day for each 1,000 persons was 18.4, of which 5.7 were at the patient's home and 10.2 at the doctor's house. These values relate only to persons aged 16-64; they would be considerably higher if ages under 16 and age 65 and upwards were included.

There are two obvious weaknesses in this type of survey. The first is the smallness of the sample, and the second is that reliance has to be placed on the patient's description and diagnosis of his illness—or rather on his interpretation of the doctor's diagnosis. And the second weakness must be increased by the difficulty of finding suitable persons to conduct the survey. If in peacetime far larger samples of the population could be investigated, and if people get used to the idea of social medicine conducted in this way, then the survey started during the war should bring in more and more useful returns, and enable those in charge of, and working in, the Health Service to get a much more accurate measure of the health of the people than has been possible in the past. What we want is more information and less propaganda.

SEX HORMONES

During the war a number of books on endocrinology appeared in the U.S.A. As might be expected, some were good and some were bad, but it may not be too severe to say that, while the good were only fairly good, the bad were very bad. The worst were those which sought to "jump the band waggon" by implying a special wartime importance for endocrinology. In reality endocrinology appears to have been one of the few fields of research which yielded little or nothing for the war effort. In this country, and probably in Europe, endocrinological publication was much reduced during the war. It is likely, however, that the lull is about to end. In the occupied countries of Western Europe many scientists, debarred from their laboratories or having exhausted their reagents and eaten their experimental animals, devoted themselves to writing, and several books on endocrinological subjects have appeared or are on the way from France and Holland. It will be interesting to see what is forthcoming in this country, and how the very complex subject of endocrinology is tackled in post-war publications. One of the most difficult branches is the endocrinology of reproduction, the theme of a recently published book by Mr. Harold Burrows.¹ The subject has expanded enormously in little more than a decade, and a vast mass of material has to be dealt with by reviewers. The difficulties of presentation are obvious. How should the material be stratified—according to hormones, organs, animals, or phases of the reproductive cycle? How much fundamental biology should be included? Should the aim be to include every reference, catalogue fashion, or attempt a general description in broad terms? Should one illustrate profusely or not at all? Those who are primarily biologists prefer to approach the subject from the point of view of the integration of bodily function. They ask, for instance, what chain of events results in a rabbit ovulating after mating and only then? Or, why does the mammary gland burst into secretion after parturition? By contrast, those to whom a hormone is something in a bottle on a shelf naturally have a different approach. They ask—if an extract of men's urine grows a comb on a capon, what will it do to a pregnant rat? Or, if progesterone stimulates the ovipositor of a fish, will it relieve dysmenorrhoea? It is a remarkable testimony to the size of the endocrinological target that such grapeshot research has sometimes scored a bull.

Mr. Burrows takes a firm line with the question of literary logistics. He arranges his material according to the various hormones, and under these headings mainly according to properties and to the organ or tissue acted on. This arrangement facilitates reference, but it produces some odd results. For instance, the first three pages of the book are largely taken up by a description of the effects of proteolytic enzymes on gonadotrophins—a rather prominent position for such a subject. References to the literature are voluminous rather than selective, and will delight readers of the kind who turn first to the index of authors. There are no half-tone illustrations and no diagrams other

¹ *Biological Actions of Sex Hormones*, by Harold Burrows, C.B.E., Ph.D., F.R.C.S. Cambridge University Press. 42s.

than chemical formulae. The result is a book which is a mine of information about the effects of reproductive hormones and related substances when administered to the animal, and a book which cannot fail to be much used for reference purposes. In some ways, however, it is unsatisfying. To many workers the action of exogenous hormones is of interest mainly in so far as it throws light on the build-up of the normal animal. As it concerns the hormones associated with reproduction, this approach demands a considerable knowledge of the changes occurring in the normal reproductive processes. Mr. Burrows, however, gives little attention to the biological background of the reactions he describes, and the occurrence of oestrogen in the ovarian follicle is catalogued in the same non-committal way as its alleged presence in asphalt. Similarly, actions of the gonadal hormone which in our present state of knowledge seem trivial and incidental are not sharply differentiated from functions essential for reproduction.

In general one wishes the author had taken more trouble to indicate the probable relevance of the observations he records, even if this had meant more selection of his material. Interpretation is, of course, always dangerous, and he may well have been dismayed by the incredible miscellany of observations recorded in the literature and by the notorious propensity of reproductive endocrinology to confound its interpreters. Nevertheless, while all things are possible, some things are more likely than others even in this phantasmagorical field, and more expression of opinion on the part of the author would have enlivened the book. Its two-page glossary contains an excellent summary of the definitions of international units of sex hormones, but is otherwise so selective as to be of little value; and there is a list of proprietary hormone preparations, useful but perhaps somewhat out of place in a scientific treatise. Mr. Burrows's book is one which all those interested in the subject should have available for reference, and one must congratulate the author who, after a busy life as a surgeon, not only has made important contributions to research but has accomplished successfully a literary undertaking of this magnitude.

SINUS BAROTRAUMA AND AEROSINUSITIS

The war of 1939-45 has created conditions for high-altitude flying. It gave the man on top great tactical advantage. Thin air encountered at such altitudes increases air speed for any given power output and renders flying comfortable under adverse weather conditions. Until high altitudes became common few people were ever subjected to great changes in barometric pressure. The effects of these pressure variations upon closed cavities containing gas and air were observed in the syndrome of sinus barotrauma or aerosinusitis, characterized by congestion and acute or chronic inflammation of the sinus membranes. Temporary or permanent changes in the sinus mucous membrane, such as mucosal or submucosal haemorrhage, may result, depending on the amount of barotrauma. Pain over one or more sinuses, usually the frontal, often described as a "sting over the eye" or "a blow by a crowbar," is commonly the onset of the syndrome. This severe form is associated at times with stripping of the mucous membrane or submucosal haemorrhage, whilst in

less dramatic instances the pain develops slowly on descent or after return to ground level. An explanation advanced by McGibbon¹ is that during ascent the relatively increasing pressure within the sinus cavity causes an ischaemia of the mucosa. On descent, with a relatively decreasing pressure of the sinus air, engorgement of the mucosal capillaries results in oedema, effusion, and haemorrhage. In the absence of any previous sinusitis x-ray evidence² of opacity or thickened lining membrane is suggestive of barotrauma. In a large number of patients, however, especially those in whom the only abnormal signs are radiological, it is almost impossible to differentiate cause from effects of barotraumatic changes.

A submucous haematoma of the frontal sinus was first described by Herman³ and later by P. A. Campbell.⁴ In a case of recurrent frontal sinus barotrauma an apparent "polyp" removed by McGibbon was found to be a haematoma encapsulated in a densely collagenous fibrous tissue and undergoing organization. There was no inflammatory infiltration to suggest infection. Experimentally the picture has been reproduced by P. A. Campbell and his co-workers in a dog decompressed from 28,000 ft. (8,500 m.) after tight packing of the naso-frontal duct. Examination disclosed a large haematoma extending upward from the internal orifice of the duct. Multiple small mucosal haemorrhages were found to arise between the epithelium and the periosteum in lightly vascularized areas of the mucosa. The mucosa of the unobstructed sinus was normal. Biopsy sections of antral mucosa have been examined in a few cases of recurrent sinus barotrauma by C. Campbell⁵ in a series of cases observed in the R.A.F. Subacute or chronic inflammatory changes, marked oedema, congestion, small mucous or submucous haemorrhages, plasma cells, polymorph and lymphocytic infiltration of the mucosa, and a moderate degree of fibroblastic hyperplasia were observed. But exactly similar changes may be found in the mucosa in subacute and chronic infective antritis in which there has been no question of sinus barotrauma, so that in these few barotraumatic cases the histological appearances are probably those of a complicating infective antritis. Age, amount of flying experience, nature of aircrew duties, and type of aircraft flown are not predisposing factors, and the aetiology of the syndrome is that of many contributory factors. These may be developmental, traumatic, allergic, infective, neoplastic, or mixed. It is difficult to assess the incidence. Figures are unreliable, as in many patients the contributory factor clinically overshadows the effects of barotrauma. P. A. Campbell gives an incidence of otitic barotrauma as 1 in 20. In a series of cases observed in the R.A.F. and reported by McGibbon the relationship was approximately 1 case of sinus barotrauma to 4 of acute otitic barotrauma. In a series of experimental cases subjected to decompression the ratio was 1 to 5. It was further noted that the results of infection of the upper respiratory tract are the most frequent contributory factors. At the same time it must be stressed that many individuals suffering from acute and chronic upper respiratory infections, established infective sinusitis, and polyposis fly without experiencing any ill effect.

The diagnosis of sinus barotrauma is founded largely on the patient's complaint of pain, and the syndrome lends itself to hysterical mimicry and perpetuation as a means of escape from duty. Observations extending over a long period and based on the examination of a large number of cases have led to this conclusion. The differentiation of true sinus barotrauma from neuropsychiatric symptoms

¹ J. Laryngol. Otol., Nov., 1944, 59.
² Schneider, M., Amer. J. Roentgenol., June, 1945 53.
³ Z. Hals. Nasen. Ohren., 1941, 48, 87.
⁴ Ann. Otol. Rhinol. Laryng., June, 19'4.
⁵ J. Laryngol. Otol., Nov., 1944, 59.

which simulate the syndrome is aided by an experienced examiner's observations of the patient's reactions during a standard decompression test.

Prophylaxis can be summed up briefly. Flying should be avoided by anyone suffering from an acute or chronic upper respiratory infection. Treatment is expectant, and any manifest contributory factor should be corrected. Relief of symptoms occurring during descent from height can be obtained by re-ascent, if in an aircraft, or decompression in a chamber, followed by very gradual loss of height.

ISLET-CELL TUMOURS

The literature on tumours of the islets of Langerhans and the symptoms with which they are associated is piling up. An admirable short historical survey and report of a case successfully treated by surgery have recently been given by Stanley R. Maxeiner and Harry E. Bundy.¹ These tumours were first recognized as long ago as 1902, but, probably because the first twenty reported were asymptomatic, were thought for many years to be of academic interest only. The discovery of insulin and insulin shock led soon to the realization that islet-cell growths may often cause symptoms due to hypoglycaemia: Whipple² has collected 149 cases of this type.

According to their size and malignancy the tumours may be wholly without effect on function; may cause minor disturbances amenable to medical treatment by glucose and careful regime of life; may require surgical treatment; may cause fatal uncontrollable hypoglycaemia—for example, when metastases form in the liver. The diagnostic criteria are, according to Whipple, symptoms of insulin shock coming on in fasting or fatigued persons; a blood-sugar level of 50 mg. or less per 100 ml.; and prompt relief of symptoms by glucose. Maxeiner and Bundy, however, stress that the diagnosis is difficult in many cases, and, as in hyperthyroidism, this must clearly be so in early and mild phases of the disorder. Glucose-tolerance tests are unreliable, and administration of alloxan is not an effective diagnostic measure. Other causes of hypoglycaemia must be excluded. Usually the tumours are single, but in about 10% of cases two or more have been found. In Maxeiner and Bundy's case eight inactive tumours and one active were found. Whether a condition analogous to primary thyrotoxicosis affects the islet tissue, as suggested by Frantz,³ is uncertain. About two-thirds of all tumours are apparently benign, one-tenth certainly malignant, and the remainder doubtfully so. They are commonly found in the tail and body of the gland. (A paper by Louis P. Good⁴ on the histopathology of the tumours suggests that the tumour capsule is really compressed duct wall of the pancreas, the presence or absence of a capsule depending on the site of origin of the growth.)

In describing the surgical approach Maxeiner and Bundy emphasize that it may be very difficult to identify the tumour (or tumours) at operation; and several cases have been reported in which two or more operations were performed before a cure was obtained. When no growth can be found they advocate resection of the body and tail of the pancreas as being the most usual site of the tumours; the alternative is to close the wound and wait until such time as the tumour is big enough to be recognized at a subsequent laparotomy. Both courses have obvious disadvantages.

By reason of the nervous manifestations which they often cause the early recognition of islet-cell tumours is

of obvious importance. Dizziness, nausea, pallor, and sweating may at first be mistaken for part of a psychoneurosis or even alcoholism; convulsions, clonic contractions, and coma may, as in the case described by Maxeiner and Bundy, lead to a diagnosis of epilepsy; while maniacal seizures may produce serious consequences for which the patient cannot be held responsible. Citing another case, M. S.-M. Rayner, C. H. Rogerson, and J. G. Jones⁵ point out that a diagnosis of hysterical or convulsive fits should never be made until hypoglycaemia has been excluded. Minor degrees of insulinogenic hypoglycaemia may not be uncommon, even when a firm diagnosis cannot be made, and it would seem justifiable to give glucose a clinical trial in any case of recurrent nervous manifestations of the type described, especially if they occur in fasting conditions (e.g., early morning) or after physical exertion.

THE OBLIGATION OF THE PHYSIOTHERAPIST

As a result of the war the science and practice of physiotherapy have gained wide publicity, and the chartered physiotherapist is recognized as an essential member of the rehabilitation team. Nevertheless, far too little is still known both of the standard of training and of ethical conduct required of physiotherapists. A body for the training, examination, and registration of physiotherapists has been in existence since 1894, the date of the foundation of the I.S.T.M.. A Royal Charter was granted to that Society in 1920 when it took the name of the Chartered Society of Massage and Medical Gymnastics, and in 1943 it became known as the Chartered Society of Physiotherapy, thus denoting the increasing scope of a physiotherapist. Over many years the standard of training laid down by the Chartered Society has been progressively raised, and the length of the course has been increased from a few months in 1894 to the present length of 2½ years. When the new curriculum is introduced the training will extend over 3 years.

From the earliest days the Chartered Society has insisted on a strict ethical code for its members. Before being admitted to the Register a chartered physiotherapist must sign an undertaking "not to undertake any case except under the direction of a registered medical practitioner." Attention is called to this by-law in a letter published in our correspondence columns from Dr. W. S. C. Copeman, Chairman of the Council of the Chartered Society of Physiotherapy. This ethical by-law affects not only the chartered physiotherapist but also the patient and the medical practitioner. It safeguards the patient against loss of time and money and the consequences of unsuitable treatment, while the doctor knows that he will have the loyal co-operation of the physiotherapist and highly skilled treatment for his patient.

Dr. R. D. Lawrence will deliver the Oliver-Sharpey Lectures before the Royal College of Physicians of London on Tuesday, March 19, and Thursday, March 21, at 5 p.m. at the College, Pall Mall East. His subject is "A Case of Lipodystrophy and Hepatomegaly with Diabetes, Lipaemia, and other Strange Metabolic Disturbances suggesting a New Aspect of Insulin Action."

Following the death of Sir Comyns Berkeley, the Central Midwives Board has elected Mr. Arnold Walker as chairman and Mr. J. P. Hedley as vice-chairman for the rest of the

TRAVELLER'S OEDEMA

BY

K. ZACOPOULOS, M.D.

Chief M.O. of the Greek Sacred Regiment (Raiding Forces)

In March, 1944, forty Greek officers, including myself, succeeded in escaping to Smyrna, and from there we took a train to Aleppo, Syria. The journey was most uncomfortable as it lasted four days and we were very crowded. The younger ones among us took a little exercise, pacing up and down the corridor and station platforms, but others remained almost motionless throughout the journey. Before we reached Aleppo I was sent for to look at an officer whose feet were swollen. A second case soon appeared with the same symptoms, then a third, and a fourth, until eventually an inspection of all my fellow travellers revealed that eight of them had oedema of the ankles.

A month later another party of Greek officers reached Smyrna, and among them was Dr. Hinaris. During their journey from Smyrna to Aleppo they had had to stand for the best part of three days. Extensive oedema had appeared in the lower extremities of every member of this group towards the end of the second day of the journey.

The eight cases I attended presented oedema of both lower extremities localized to the ankle and lower third of the leg, without further signs of inflammation or of trauma. The ankles felt slightly painful and there was also a sensation of painful weight in the feet. The symmetrical oedema was not marked and hardly extended beyond the lower third of the leg. The extremity of the foot inside the shoe was not involved. No sign of lymphangitis was present, and all the ankle-joints appeared unaffected apart from the oedema and slight subjective pain during movements. We found no rise of temperature or alteration in the general condition in any of the patients. As a cardiologist I examined their circulatory systems with care and could find no abnormality.

Dr. Hinaris's cases were very similar except that the oedema was more severe and extended in some cases to one-half of the leg, and in the more severe cases to the lower third of the thigh. All our patients wore civilian shoes, in which they had escaped from Greece and travelled through Turkey, Syria, and Palestine, until they reached Egypt.

Diagnosis

The clinical appearance of these cases excluded right from the start all the conditions usually accompanied by oedema of the lower extremities. Wounds were completely absent. There was no evidence of inflammation, or of phlebitis, or of lymphangitis and lymphadenitis. There was nothing to suggest urticaria, or any trophic or deficiency oedema. None of these men had suffered from excessive malnutrition, and during our stay in Smyrna we were far from being undernourished.

It was not a cardiac oedema because careful examination of the cardiovascular system revealed no abnormality; furthermore, all our patients were regular officers who had been considered fit for military service. It was not a renal oedema because none of our patients had pyrexia, renal pain, oliguria, oedema of the eyelids, or any other symptom of nephritis.

Thus, excluding the above, we were driven to the following mechanical explanation, which we think is quite adequate.

Pathogenesis

The patients of the first group, as well as those of the second, moved very little or not at all during the journey, which is the main cause of the appearance of the oedema. The first group sat continuously with their legs suspended. The second group had to stand for hours, not doing any of the normal movements which are essential if oedema of the lower extremities is to be avoided. In this manner they unconsciously placed a mechanical strain on the venous circulation.

Movements of the limb muscles assist the venous circulation by pressing the blood from the capillaries. My cases were men in whom, apart from the immobility, the sitting position with legs hanging down had further impeded the venous return because of the bending of the knees and the pressure in the popliteal space. In the cases reported by Dr. Hinaris the

patients had been standing for long hours without movement, and this caused a more extensive oedema. In our opinion the mechanics of the condition are as follows:

The absence or reduction to the minimum of movements of the legs (voluntary or involuntary) practically stopped those contractions of the muscles which normally aid the flow of blood from the capillaries and small veins. These began to enlarge in order to receive, in addition to the existing stagnant venous blood, the new blood which was continuously moving from the arterioles through the capillaries to the small veins. Thus in the absence of the essential muscular movements a state of comparative venous stasis ensued. This factor was even more marked in the lowest venules because of the greater hydrostatic pressure of the column of venous blood. Thus the oedema began, and for as long as the lower extremities remained inactive the oedema increased.

In the first group of patients I advised movements, active and passive, especially walking, and slight massage of the oedematous area. All my patients recovered completely, and when we detrained at Aleppo none of them had oedema. In the second group of patients, too, recovery was automatic within a few days of reaching Aleppo and being able to move about freely inside the refugee camp.

Conclusions

(1) There is a form of oedema caused by inactivity to which travellers by sea, rail, or road are subject. "Deck ankles," described in para 150 of *A.M.D. Bulletin* No. 21 of March, 1943, appears to be the same condition. We consider it advisable to call this "traveller's oedema," as only this term covers all the cases that may appear. We prefer the term to two others which could be suggested: "inactivity oedema" and "orthostatic oedema." The first lays stress on the lack of movement but not on the vertical position of the lower extremities. Also we must not overlook the fact that inactivity alone in many cases does not cause oedema. The second term lays emphasis on the standing position—a most important factor, as was observed in the second group of patients; but standing without inactivity will not cause oedema of the ankles in healthy individuals. Even patients with varicose veins will not develop oedema if the heart is normal and their lower extremities are active.

(2) Traveller's oedema is caused purely mechanically in cases in which there is a great diminution, or complete absence, of muscular movements of the extremities in persons who are sitting or standing for prolonged periods.

(3) Treatment is simple. Repeated active or passive movements of the lower extremities must be started immediately. Tepid bathing of the feet is advisable, with simultaneous massage and passive movements of the toes, ankles, and calves. An elastic stocking might be tried in those few cases which do not respond promptly to massage and tepid baths.

(4) Prophylaxis is obvious. Travellers must be warned against complete inactivity, and whenever possible must avoid standing up during long journeys.

SOUTH AFRICAN MEDICAL CONGRESS

For the first time since 1919 the Medical Association of South Africa will this year hold its annual scientific meeting and medical congress. The meetings will take place in Durban from Oct. 7 to 12, 1946.

The organizing secretary, Dr. C. M. Murray, Medical House, 35, Wall Street, Capetown, invites members of the British Medical Association from Great Britain to attend the scientific meeting and to take part in its proceedings either by reading papers or in some other way. He suggests that the congress will provide an excellent opportunity for renewing and cementing the friendship between medical colleagues in South Africa and Great Britain.

The Council of the B.M.A. received the invitation with pleasure at its meeting on Jan. 30, and expresses the hope that some members could make it convenient to attend the congress and represent the Association. The Secretary will be glad to hear from any member who contemplates visiting South Africa.

L.C.C. HOSPITAL SERVICE

LARGE FUTURE DEVELOPMENTS

Wide-ranging proposals for the post-war restoration and development of its general and special hospital service were laid before the London County Council by its Hospitals and Medical Services Committee on Feb. 19. The most urgent need is the repair of war damage; of the Council's 76 hospitals, 73 have been damaged to a greater or less degree, and the cost of repairs is estimated at £2,600,000. The proposals are divided into short-term (the next five years) and long-term.

Short-term: Provision of more special units for certain types of medical and surgical treatment; improvement in facilities for treatment of tuberculosis; restoration of maternity accommodation to pre-war basis; extension of appointments system for out-patients; improvements in arrangements for visiting of patients; improvement of hospital catering; permission for medical and nursing staff to live out; establishment of medical, nursing, and domestic staff committees in each hospital.

Long-term: Provision of new hospitals in Tooting and Crystal Palace areas; acquisition of additional land for hospital expansion; provision of new maternity blocks; provision of 20 new out-patient departments; subdivision of wards to secure greater privacy; provision of special fracture units at general hospitals; provision of additional beds for tuberculous patients.

At a Press conference Mr. A. REGINALD STAMP, chairman of the committee, said that it was thought that London might be divided into some 21 districts, each of which would be served by a general hospital dealing with acute cases, with other hospitals in the district related to it, and supplying in each district what is considered in the medical profession to be a complete medical service. In 11 of these districts the main hospital might be a Council hospital, and in the others a voluntary teaching hospital. Mr. Stamp emphasized the great amount of teaching material in the Council's hospitals, and said that he hoped that his committee would be empowered to negotiate with existing teaching hospitals with a view to making certain Council hospitals available for teaching. There was good will on both sides, and the L.C.C. hoped as equal partners with the voluntary teaching hospitals to make an essential contribution to medical education.

Medical Staff Committees

The complexity of hospital organization and the increasing use made of the services of specialists have seemed to the committee to afford strong arguments for the introduction into the Council's hospitals of medical staff committees, corresponding to the medical committees in voluntary hospitals. The function of these committees would be to advise on the best use of accommodation, care of patients, improvements in staffing, and provision of equipment. If the medical superintendent agreed with such a committee's recommendations, these, within limits, could be acted on forthwith, or, when necessary, transmitted by the medical superintendent to the county medical officer; when the medical superintendent disagreed they would be transmitted by him to a higher level with his independent observations.

Concerning medical superintendents the report of the Hospitals and Medical Services Committee goes on to say:

"The clinical responsibility of medical superintendents for patients has been the subject of criticism, though some of it is not well founded. The trend of our administration, however, has been to place clinical responsibility upon the specialist in charge of the medical, surgical, or maternity and gynaecological units in which a patient is treated, and we are of opinion that this trend should continue."

Responsibility for treatment might be allocated as follows:

(1) whole-time specialists in charge of beds should be completely responsible for the treatment of the patients occupying those beds; (2) part-time consultants should, in appropriate circumstances, be similarly responsible (involving a revision of the terms on which part-time consultants are now remunerated); (3) the medical superintendent should retain responsibility for seeing that every patient is under the care of the appropriate medical officer, and for the treatment of all patients not in the care of a consultant.

"The medical superintendent should, however, remain responsible for matters of general administration and discipline, and after suit-

able consultation with the clinicians, for the allocation of beds. He should also remain responsible for the co-ordination of all services and departments, for preventing the spread of infection, and for ensuring that the instructions of the hospital committee are carried out."

It is anticipated that at least 100 additional whole-time medical officers of the registrar and houseman grades will be needed. An increased number of consultants and specialists will also be necessary, although no estimate of the number can yet be made. The number of whole-time specialists will need to be increased, and it will be desirable for a specialist to serve a group of hospitals.

Special Units

Special units for certain types of medical and surgical treatment will be situated at hospitals suitable for postgraduate training. Hammersmith Hospital (north of the river) and Lambeth Hospital (south) suggest themselves. Fracture units will probably be needed in most of the Council's "district" hospitals. Four rehabilitation centres are forecast, as well as two units for plastic surgery, one for major neurosurgery, one for major thoracic surgery, and six radiotherapy centres.

Health centres under the National Health Service scheme might adjoin Council hospitals wherever suitable accommodation can be found. The Council at present has maternity units in thirteen of its general hospitals; additional units can be opened at three others as soon as staff is available, and at two more when repair of war damage is effected. It is proposed that each district hospital should have not fewer than 50 maternity beds; also that 5,000 beds should be allocated in London for the chronic sick.

"The most urgent need, clearly, is for the repair of war damage, but progress with this work will be dependent upon the availability of labour and materials. Other problems may wear a different complexion when the Government's National Health Service proposals are known."

Reports of Societies

PENICILLIN IN TREATMENT OF SYPHILIS

At the meeting of the Section of Experimental Medicine and Therapeutics of the Royal Society of Medicine on Feb. 12, with Dr. E. N. ALLOTT presiding, a discussion was held on "Penicillin in the Treatment of Syphilis."

Lieut.-Col. JAMES MARSHALL, before speaking of observations first in early and then in late syphilis, said that it needed at least five years to assess the value of any method of treating early syphilis, and therefore the dosage and treatment schedules recently employed for penicillin had of necessity been experimental. The experiments had, however, been on a large scale and allowed of certain conclusions and assumptions.

The treatment of early syphilis had so far been carried out mainly by multiple intramuscular injections using aqueous solutions of penicillin. With this method, almost independently of the total dosage used, *Sp. pallida* disappeared from surface lesions in about 12 hours, lesions healed quite rapidly, and positive serological reactions tended to reverse towards negative. Very large numbers of cases had been treated in the Allied armies by 2,400,000 units penicillin for seven and a half days. The speaker's own experience in a small series of 67 cases was that 10 could be classified as treatment failures at the end of six months' follow-up. A recent check at the central syphilis register at the War Office showed that in 270 cases of early syphilis treated with 2,400,000 units penicillin and followed up for six months the failure rate was 8%. At the same time a check was made on the same number of cases treated by the "20-day" arsenoxide and bismuth method, and the failure rate was only 2%.

In planning a more satisfactory method of treatment he was guided by an American observation that there was probably a synergistic action between penicillin and arsenoxide. A scheme was evolved which, after certain modifications, now consisted in giving 2,400,000 units penicillin in seven and a half days and 10 daily injections of 0.09 g. neohalarsine or 0.06 g. mapharside. Any arsenical toxic effects were rare; if they did occur arsenical treatment was stopped and the total dose of penicillin was

increased to 4,000,000 units (100 injections of 40,000 units). So far 360 cases had been treated—240 by this method and 120 by an earlier modification consisting of the same amount of penicillin and 14 daily injections of the arsenic compound. Only about one-third of this number had been so far successfully followed up for four to six months after completion of treatment, and so far there had been three cases of mucocutaneous relapse, and one case of possible and another of indubitable reinfection. There had been no case of serological relapse.

The results suggested that combined therapy with penicillin and arsenoxide, although not attaining complete efficiency, was an improvement on treatment by means of penicillin alone. Combined therapy, judging by early results, was probably in the same order of effectiveness as the "20-day" arsenoxide and bismuth treatment, and, if carried out in good circumstances, was almost without danger. For patients who had relapses after treatment with penicillin alone he now used 4,000,000 units penicillin and daily injections of 0.09 g. neohalarsine or 0.06 g. mapharside for ten days. The routine treatment in Army hospitals now consisted either of 2,400,000 units penicillin with ten daily injections of arsenoxide or of 4,000,000 units penicillin alone. One thousand cases were to be treated by each of these methods, and the results of a follow-up of such numbers should yield information of some value.

Turning to late syphilis, Col. Marshall said that osseocutaneous late syphilis of the acquired or congenital type reacted rapidly to penicillin in most cases. He had had good clinical results with gummata of the testicles. Interstitial keratitis reacted equivocally to penicillin as it did to other remedies. Penicillin given by parenteral injection in standard doses did not penetrate to the cerebrospinal fluid in demonstrable quantity, but, notwithstanding this, clinical effects were manifested. Clinical improvement had been reported in varying proportions of cases at all stages and in all types of neurosyphilis. His own observations in a small number of cases of neurosyphilis confirmed those of others that the larger the dose the better the result. He had treated neurosyphilis with two courses of penicillin, each of 2,400,000 units, at a week's interval, and had had good results. In the treatment of late syphilis of all types he now began with a course of 4,000,000 units penicillin in one hundred injections of 40,000 units extending over twelve and a half days. This might be varied a little at the start by a reduction in individual doses if therapeutic shock was to be feared. After this he gave a treatment of consolidation with bismuth or with bismuth and an arsenical, depending on the type of case and lasting at least six months.

In conclusion he said that they all agreed that some comparatively rapid method of treatment was necessary to combat the lack of enthusiasm of the patient for repeated visits to hospital. Whether this could be found in penicillin alone in single or repeated courses or in some method of combined therapy was a problem which, he feared, would not be settled for some time to come.

Dr. F. R. SELBIE who had advised Col. Marshall on the scheme for combined treatment with penicillin and arsenoxide, and to whose co-operation Col. Marshall had paid tribute, followed with some description of the experiments which had been undertaken with a view to the combination of these two therapies. The experiments had shown, he said, that penicillin had an immediate and dramatic effect which was quite comparable with that produced by means of arsenical drugs. They pointed to the conclusion, however, that penicillin ought to be supplemented by some other form of treatment such as arsenical drugs and bismuth. He thought that the least one ought to give was about two-thirds or one-half of the usual dose of the arsenical when combined with penicillin.

Proportion of Treatment Failures

Dr. A. J. KING said that penicillin was introduced as a routine treatment for early syphilis in the United States Army in June, 1944, and in the British Army in October, 1944. The remedy was untried, and to use it as a routine under the conditions then prevailing was something of a gamble. Whether the risk was justified awaited the test of time, but the immediate success of so short and safe a treatment exceeded the expectations of all but the most sanguine. At the same time the conditions were laid down for a large and important experiment in which many hundreds of patients were treated with standard doses of a new

remedy, while the facilities for following up were such as would never be available in civil life. His own observation of the proportion of treatment failures after six months was very similar to that mentioned by Col. Marshall. In 105 cases there were 15% of failures, of which 13% were clinical relapses. So far as the evidence went—and it did not go very far as yet—it appeared that the anticipated results from penicillin therapy were not far short of those obtained with the standard method. Clearly, however, the comparison was speculative and scarcely to be justified by the present state of knowledge. A vast amount of information must now be available in the War Office, and it was disappointing that the cases cited amounted to no more than 270. It seemed to him that there was a good case for setting up an organization which would follow these men into civil life and do everything possible by co-operation with the public clinics to obtain information as to their clinical conditions during the next three years. Col. Marshall, who had done well to initiate experiments which would help to lower the incidence of relapsing infection, had no deaths in the 360 cases he had treated, and from this experience there were certain aspects of the value of penicillin which it was legitimate to stress even at this stage. One of these was the importance of such a therapeutic measure for uncooperative patients in civil life. The view had been expressed that the majority of early syphilitics would get well with a treatment generally regarded as inadequate, but there would be a proportion whom it would be difficult to get well even with a full and adequate treatment. It might be that when the optimum dosage of penicillin was known this problem would solve itself. The antisprirochaetal effect of penicillin was not in doubt, but its ultimate value in the treatment of syphilis was very far from having been assessed. Such an assessment was dependent on lapse of time and procedure of investigation. The urgent need was to assess by means of a follow-up the large number of cases which had been treated during the last eighteen months.

Controlled Investigations Needed

Brig. T. E. OSMOND said that he remembered well the enthusiasm with which "606" was hailed when it came in, but, after the apparent cures, relapses began to occur. It seemed to him that penicillin was in many ways comparable with arsenic. Inadequate treatment was liable to be followed by relapses. The tendency had been to increase the amounts of penicillin, and he believed this would and should continue. It might be that they ought to use ten times as much as they had been doing. He attended an Anglo-American conference in Paris last year, at which the results reported from the British Army were not nearly as good as those from the American; there was no explanation why this should be so. Penicillin should be supplemented by both bismuth and arsenic, and increasing amounts of all three drugs were required as the age of infection increased. It had always been difficult to distinguish between relapse and reinfection, and he had been very sceptical of the latter. He thought that all cases should be labelled relapses, otherwise there was danger of overestimating the effectiveness of the treatment. He pleaded for the setting up of a central institute to guide and overlook all tests, especially tests in public laboratories. Penicillin in any reasonable dosage would kill off 99% of the spirochaetes, but something was needed to deal with the other 1%. No doubt penicillin was a more effective remedy than any of the arsenicals, but it would be many years before it was known how effective it was, and whether its use was likely to be followed by later manifestations, cardiovascular or neurological. They had a wonderful remedy in their hands, but they needed a series of controlled investigations.

Surg. Capt. LLOYD-JONES described the follow-up of an investigation concerning 223 cases of primary and 72 of secondary syphilis, all of them diagnosed by the finding of the spirochaete, and treated with penicillin. There had apparently been 18 relapses over a varying number of months. With the dose now considered minimum—namely, in primary cases 13 daily injections of 300,000 units or 8 of 500,000 units, and in secondary cases 16 daily injections of 300,000 units or 10 of 500,000—there had been no relapse to date.

Congenital Syphilis

Dr. GLADYS SANDES spoke of the treatment of congenital syphilitic children with penicillin. In the florid type of infection,

in which there was a high mortality, there had undoubtedly been an improvement since penicillin was introduced. It had been found better, however, to give some arsenic preparation first, and then after a fortnight to go on with penicillin, the reason being that when penicillin was first given the children tended to get a severe catarrhal reaction, almost suffocating in their own secretions. The dosage had never been less than 20 000 units three hourly, leaving out one administration at night, and this was carried on for five days, a few had been treated with 40 000 units and the result had been apparently just the same. None of the children were over 5 years of age. The results of treatment in cases with bone disease had also been impressive. They responded extremely well and cleared up more efficiently than under almost any other treatment.

Col L. W. HARRISON described an investigation concerning the effect of suspensions of penicillin in oil and beeswax. What he had to say was rather tentative and indeed in the nature of a progress report. Beeswax had been tried in various proportions, but he had come to the conclusion that 3.5% was the best. The concentration of penicillin in the blood serum and in the urine was measured after a certain number of hours. He added that he hoped soon to have at his disposal a supply of penicillin purer than any previously obtainable and that such purer supplies would be generally available.

CLINICAL PATHOLOGY

The annual general meeting of the European Association of Clinical Pathologists was held on Jan 12 at the Glaxo Laboratories, Greenford, Middlesex. Three contributions sent by Dr F. RAPPAPORT from Tel Aviv were read by Prof F. Silberstein.

The first, on improvements of the technique of blood cultures, advised the use of a culture medium consisting of 90% fresh water fish infusion and 10% digest broth, the addition of small amounts of beef-liver, beef brain, egg yolk, starch, glucose, liquid, and *p*-aminobenzoic acid made the medium suitable even for the most exacting bacteria. The medium was kept under partial vacuum in an atmosphere of air containing 10% CO₂. The fresh water fish medium contained proteins not susceptible of coagulation by heat. A new method of skin disinfection and the use of a selective medium prepared by adding small amounts of gentian violet (between 10⁻⁵ and 10⁻⁴) to the basic medium described above enabled Rappaport to use capillary blood for culture.

In the second contribution, on collection of blood for examination of organisms of the enteric group, Rappaport recommended that blood should be taken into sterile throat swab tubes so that the clot formed and retracted around the swab, the clot could then be transferred with the minimum of interference into a tube of the same size containing a 3% glucose-bile culture medium. In the presence of glucose ferment a coarse precipitate was formed, absence of such a precipitate after 24 hours' incubation excluded the presence of organisms of the enteric group. The serum remaining in the original tube was used for routine agglutination.

The third contribution suggested technical improvements on the concentration and culture of tubercle bacilli, it advocated the use of both acid and alkaline digesting solutions and neutralization with the appropriate respective solution in the presence of methyl red and thymol blue as indicators. The acid solution consisted of equal amounts of concentrated sulphuric and phosphoric acid, the presence of the latter had a buffer effect in the process of neutralization.

Mr W. B. EMERY spoke of the preparation and purification of liver extracts, showing the satisfactory results obtained in initial treatment of cases of pernicious anaemia by the injection of highly purified extracts containing in some instances as little as 1 to 3 mg. of solids. He recommended that a standard unitage be introduced in this country similar to that used in Canada and the U.S.A. Mr J. T. MARSH showed various penicillin preparations and appliances developed in the last months. Prof S. JELLINEK showed photographs and drawings from specimens of lesions produced by electricity.

Dr G. UNGAR summarized the results of his experiments on the significance of bleeding time, and reported the isolation from the spleen of a substance which greatly reduces the bleeding time and is liberated after injury into the blood stream by means of hormonal influences.

Dr H. S. BAAR (in collaboration with Prof L. G. Parsons) presented clinical and pathological details of four cases of infantile encephalitis, from each of these a virus was isolated which when transmitted to laboratory animals produced an infection closely resembling toxoplasmosis both macroscopically

and serologically. Extensive search of the infective material, body fluids and pathological specimens had failed, however, to demonstrate typical toxoplasma organisms. He also showed three cases of pituitary cachexia in childhood, two of these were due to large colloid cysts.

Dr G. E. WACHTEL produced evidence that the intravenous injection of homologous and heterologous seminal fluid induces hypertrophy of the uterus in spayed and half-spayed immature female rabbits. A gonadotrophic effect on the ovaries had also been noticed; it remains to be shown whether this is a direct effect on the ovary or is brought about via the hypophysis.

Dr S. SEVITT showed an improved instrument for liver biopsy with which suction through a syringe can be applied concurrently with the introduction of the needle into the liver.

GAS-AND-AIR ANALGESIA BY MIDWIVES

At a meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland on Jan 25 Dr NINIAN FALKNER (chairman, Central Midwives Board, Eire) opened a discussion on "Proposed Compulsory Training of Midwives in the Administration of Nitrous-oxide-and-air-Analgesia."

Dr Falkner said that the Central Midwives Board in Ireland had recommended that new rules should be adopted making it compulsory for student midwives to receive training in the administration of nitrous oxide and air analgesia. The Central Midwives Board in England had already approved these rules. Any midwife qualifying in England after July 1 this year would come under the amendment of Rule 42. As reciprocal agreements existed between the Central Midwives Boards, it was usual for the rules and training in Eire to keep in line with the rules and training of the English Board.

Dr E. A. KEELAN (the president) considered that if the gas-air machines were used casually they would not always be successful. He recommended that nurses and midwives should receive special training in their use, this could be done in a series of lectures given by anaesthetists.

Prof O. DONEL BROWNE said he was altogether in favour of the proposal. The training should be given by anaesthetists attached to hospitals and not by other midwives or doctors. He had used the gas-air apparatus himself when it was first introduced and he stressed the importance of giving it in time to the patient. He doubted if the percentage of gas and air (45%) given by this machine provided enough analgesia, and asked if there could not be a machine which would give greater relief from pain. Finally he pointed out that, as nurses were good at giving chloroform, he did not see why they could not be just as efficient in the administration of gas-air analgesia.

Dr BETHEL SOLOMONS was all in favour of midwives being allowed to give analgesia if it could be done without danger to the patient. If there was any danger at all, the law would have to be changed so that midwives could issue death certificates. In the Dublin Maternity Hospitals it would be necessary to appoint a full time anaesthetist.

Dr R. W. SHAW agreed with Prof O. Donel Browne that the presence of an anaesthetist in any obstetrical operation was a necessity but he thought it would be difficult to obtain the services of an anaesthetist throughout all the stages of labour especially in a primipara. There were objections to chloroform being given by nurses, would gas-air be any safer or more efficient, and would the nurses and midwives be able to use it proficiently?

Costs and Quantities

Dr ALEX SPAIN said that they used gas-air analgesia very extensively in the National Maternity Hospital. The cost was considerable, in one year they had paid £625 for gas alone for the labour ward, and a trained anaesthetist would be an additional expense. In 1942 they used 22,600 gallons of nitrous oxide, and this figure rose to 188,400 gallons in 1945. He pointed out that the training was not difficult and there was no danger. Over a period of three years in the National Maternity Hospital gas-air analgesia had never caused them a moment's anxiety. The machine needed very little supervision and the patient could easily learn to use it. He agreed that 45% nitrous oxide was not sufficient to relieve pain, they used machines which gave a little over 60% and they were very satisfactory. He recommended the use of chloral hydrate and bromide during early labour, and thought that midwives were entitled to use it.

Prof. J. F. CUNNINGHAM said that it would be ideal always to employ an anaesthetist to give gas and oxygen, but expense and the time factor had to be considered. Chloroform still held its place and would continue to do so, especially in domiciliary and country practice, until something safer was found to replace it. He did not think that it was safe for nurses to use it without a doctor being present, and if they were going to be trained how to use the gas-air machine they should also be trained how to administer chloroform.

Dr. ALAN THOMPSON said that the gas-air machine might be awkward and had many drawbacks, but one advantage was that it could be used intermittently over a period of several hours. This could not be done with chloroform or the barbiturates.

Dr. J. A. D. DEENY (Chief Medical Adviser to the Department of Local Government and Public Health) told the Section that Dr. Ward (Parliamentary Secretary to the Minister for Local Government and Public Health) was prepared to approve of compulsory training of midwives in gas-air analgesia, but that he was inclined to proceed cautiously in the use of this apparatus as he did not think the average midwife in Eire would be very efficient in its use. Newly qualified midwives could be trained to use gas and air, but it would not be easy to train the older midwives.

Dr. FLORENCE MCCLELLAND said she had received the early part of her training with Dr. Minnitt, who invented the machine for gas-air administration. She was disappointed with the machine on the whole, but thought it might be helpful in isolated cases, such as primigravidae with a long first stage of labour. The patient should be trained to use it during her antenatal period; only the patients trained in its use got benefit from it. The 45% mixture was much too weak to relieve severe pain. She did not recommend giving 60% over a prolonged period, as in a trial of labour or where there was any difficulty. This apparatus was not the real answer for universal relief of pain, although it was very useful. In her practice she used cyclopropane almost invariably for normal or forceps delivery. She condemned the use of chloroform, either intermittently or even for a short anaesthesia for delivery, as she had seen acute atrophy following chloroform administration. It might be safe in 99% of cases, but one did come across a patient quite intolerant to the drug. There was no means of knowing what the state of a patient's liver was, and one was not justified in using such a toxic drug. She recommended the use of ether when nothing else was available.

Dr. T. J. GILMARTIN quoted Guedel, who introduced nitrous oxide analgesia in America in 1911, as saying: "There is no more dangerous application of nitrous oxide than its use in obstetrics by the inexperienced. . . ." Claims for success with this technique varied, and he was not satisfied from his own experience that it afforded complete analgesia. It was, however, a step in the right direction towards analgesia and away from amnesics like nembutal. He concluded the discussion by saying that everybody agreed that the Central Midwives Board was justified in bringing this proposal into operation, and that the training schools had adequate provision for dealing with the matter. The necessary apparatus should be obtained, and salaries should be found for those skilled people who would have the responsibility of training the midwives and nurses in the administration of gas-air analgesia.

STATISTICAL STUDY OF INFECTIOUS DISEASES

In a paper read before the Royal Statistical Society on Feb. 27 Prof. MAJOR GREENWOOD pointed out that, although all civilized persons now recognize that infection is a biological process, even as recently as a century ago very intelligent observers thought that epidemics might be due to "atmospherics" or miasmatic factors and that influenza was not an infectious disease at all.

Judgment whether a disease were or were not infectious or contagious was based upon statistical reasoning. Even now statistical arguments were of great importance because there might be difference of opinion as to the vehicles of infection—for instance, whether droplet infection or contamination of water or food or conveyance by biting insects played the principal part. Epidemic poliomyelitis was a case in point. Prof. Greenwood described various statistical methods in use, in particular the study of the time interval between successive cases

in families, and suggested that more work should be done on sets of cases. He then turned to the quest for a "law" of epidemics. The continued existence of mankind proved that epidemics did come to an end, and various medical statisticians had attempted to discover why. One of the first was William Farr, who suggested as a possible "law" the so-called normal curve, but subsequently proposed a rather more complex form by the use of which he predicted—with fair success—the way in which a terrible outbreak of cattle plague would decline several weeks before it did decline.

In more recent times Ronald Ross and John Brownlee devoted much mathematical ingenuity to the elucidation of epidemic forms, while the late Prof. W. W. C. Topley, in collaboration with Prof. Greenwood and others, spent many years on the study of epidemics artificially provoked in herds of mice. Brownlee was of the opinion that epidemics did not usually come to an end because all those exposed to risk and capable of being infected had been infected, but because from the very beginning of the epidemic the infective power of the organism waned. Prof. Greenwood pointed out that there was experimental evidence that this apparently paradoxical hypothesis might be true, but not enough to permit one to regard it as a general explanation. He suggested that the whole subject needed the attention of young mathematical statisticians, because the analytical difficulties of the problem were great.

RADIOLOGY OF THE CHEST

At a meeting of the Manchester Medical Society on Feb. 6 Dr. E. D. GRAY read a paper on "The Present Position of Radiology of the Chest."

He reviewed the various methods used in x-ray examination of the chest, and emphasized the importance of preliminary screen examination; there was a tendency nowadays to rely exclusively on films. Apart from the additional information obtained by fluoroscopy, it was possible during this examination to plan the subsequent radiographic procedures to the best advantage—a method of much more value than the routine exposure of multiple films without previous investigation under the fluorescent screen.

The importance of the antero-posterior chest radiograph as an adjunct to the standard postero-anterior was stressed, especially in the demonstration of small, posteriorly situated lesions, which in the one view might be obscured by superimposed shadows of the bony thorax. The principles underlying the use of tomography, bronchography, and screen photography were briefly described. Illustrations were given of a number of pitfalls, most of which could readily be avoided if the observer were familiar with the technical and physical principles of chest radiology. Mention was made of the help afforded by radiology in the study of the anatomy of the lungs, notably of the bronchial tree, the interlobar fissures, and, more recently, the pulmonary vascular supply.

If an experienced observer could say in any particular case that no abnormality had been detected, this negative finding could generally be relied on in the exclusion of many of the important intrathoracic lesions. If clinical suspicion continued, however, there should be no hesitation in repeating the x-ray examination after an interval; in some conditions there was a latent period before the radiological signs became evident. The interpretation of positive radiological findings was not so simple. Occasionally the x-ray appearances were characteristic enough to lead directly to the diagnosis; more often they had to be correlated with the clinical findings. Some cases were so obscure, both clinically and radiologically, that it might be impossible to arrive at a diagnosis from a single examination, and help must be sought from serial radiographs taken at suitable intervals.

In the subsequent discussion Dr. R. ELLIS referred to the work of previous Manchester radiologists, such as Barclay, Paterson and Twining, and to the great value of good co-operation between physician and radiologist. Dr. JESSEL pleaded for a more careful clinical examination and history-taking in cases of early phthisis. In answer to a question by Dr. LUXTON about iodized oil, Dr. Gray said that it should be avoided if at all possible until all other methods of examination, including bronchoscopy, had been tried.

Correspondence

National Research in Tuberculosis

SIR.—The letter of Dr George Luntz (Dec 1, 1945, p 781) raises a matter of national importance. Tuberculosis costs the country many millions of pounds every year and destroys or cripples thousands of persons in the prime of life, and yet our efforts to combat the ravages of this scourge are still spasmodic and half-hearted. This is not due to any lack of enthusiasm on the part of those who devote their whole lives to the prevention and treatment of the disease. One has only to attend a few meetings of the Tuberculosis Association to realize the keenness of its members, the interest which they take in new methods of treatment, and their readiness to assist sufferers from this disability in every possible way. But progress in the past has been very largely due to individual effort struggling against the complacency and ignorance of both patients and the general public. The Joint Tuberculosis Council is a body composed of some of the leading authorities on tuberculosis in the country, but it lacks the necessary financial backing to provide its efforts with the success they deserve, and its excellent reports and memoranda waste 'their sweetness on the desert air'. The National Association for the Prevention of Tuberculosis has made heroic efforts for the last forty five years to rouse the nation to realize its responsibilities with regard to the prevention of this disease. Yet, in spite of all this good work, which is almost entirely voluntary, we are still unable to prevent persons becoming tuberculous or to offer them a cure, and the infection continues to take its toll of children and young adults as it passes through the population practically unchecked.

Our knowledge of the pathogenesis of the disease is very incomplete and any attempts at prognosis are always uncertain and often fallacious. This unsatisfactory position is mainly due to lack of organized research, as regards both prevention and treatment, and the time is ripe for money and labour to be devoted to this purpose so that a concerted effort may be made to reduce this national liability. The experience and advice of the three bodies I have mentioned could be taken to assist an appointed team of experts to devise and put into execution programmes of research in tuberculosis, adequately backed by the necessary financial support from Government funds whereby it should be possible to discover the cure and determine the best methods for the prevention of the spread of the disease.

Those responsible for the treatment of tuberculosis would be only too anxious to adopt new methods which are recommended by a competent research organization. In fact, in many sanatoria under local authorities a considerable amount of research work is already performed, but it is at present individualistic and tends to run along separate channels which flow independent of each other. There is need for collaboration in this work, so that the various efforts may support each other in a united one to discover a cure for the disease.—I am, etc.,

Berkhamsted

FREDERICA HEAF

Tuberculosis in Childhood

SIR.—As a tuberculosis officer I read with interest Dr P W Roe's letter (Feb 16, p 256). I should like, however, to dispute his statement that nobody cares for the children running about the house of a tuberculous adult. It is the duty of the health visitor to warn the parents of the danger to the children, and to require them to bring the children to the dispensary to see the doctor. It is then my practice to do a Mantoux test, to x ray all with a positive reaction and to observe all cases, negative and positive, so long as they are still in contact with the tuberculous case. Sometimes, of course, the parents pay no heed to what the health visitor says, and I am sure I would be very glad if the general practitioner would reinforce her remarks, to see that these children are properly investigated at the dispensary. Though the G.P. may not be able to order an x ray examination he can still send these children to the T.O., who can do so.

Furthermore though I have always been a keen advocate of health centres and a balanced State medical service I do not

think that any useful purpose will be served by equipping health centres with an x ray plant, even with a skilled radiographer. I know very few G.P.s who are able to make an intelligent reading of a chest film to-day, and though they might acquire that skill no doubt, I see no reason why they should trouble when there is already a fully equipped public health service ready and eager to do this work.

I agree, however, that it is almost impossible at the present time to do more than just follow up these cases. Unless there is something definitely pathological we cannot send them to a sanatorium. Contact may be broken by removing the adult to a sanatorium, but the chronic case is often still positive when he returns. We urgently require country "preventoria," to which we might send the child contacts for periodic holidays to stimulate their resistance. These would also be of tremendous help in the family where the mother is the tuberculous patient, as cases arise in which sanatorium treatment has to be refused or drastically curtailed because there is no one to look after the children and nowhere to send them.—I am, etc.,

Bishop Auckland

WILLIAM D GRAY

Lay versus Medical Administration

SIR.—The question put by Sir Frederick Menzies (Feb 16, p 251) on this vital point is both timely and necessary. In the next few months a decision will be made for good or ill which will have profound influence on the future of medicine. Is the chief officer of the administrative unit—regional, divisional, or whatever it may be—to be a layman or a medical man? It is very proper to have a layman as Minister of Health, and it is democratic and wise that under the Minister in the various regions there shall be committees of weighty lay composition, but who is going to direct the very considerable administrative machine which will be necessary both to advise the committee and to carry out its decisions? The personnel will be numerous, there will be many laymen and a few doctors. At the higher levels both professional and non-professional officers will have important functions and a degree of parallel organization may be desirable, but there can be only one head. If this is a layman it is unlikely that he will fully understand and be sympathetic towards the many medical problems that will beset his department. The prominent idea that the layman has some mysterious inherent quality for administration that is withheld from a man who has studied his subject and qualified in it is absurd. It would be equally idle to pretend that every doctor was, *ipso facto*, a capable administrator, but a good medical background is surely not a bad foundation on which to build experience in the administration of a large medical organization.

Some clinicians fondly believe that with medical advisory committees they can do without doctors at head offices. The lay secretary at their hospital has never got in their way. He always does what he is told, and so they think they will similarly "manage" the lay administrators in a new health service. What a cardinal error! Let there be no mistake about this. Advisory committees cannot be given executive functions. Organization there must be and chief officers with considerable powers. We should do everything possible to see that such officers have the necessary medical background and combine the scientific outlook with a practical experience of administration.—I am, etc.,

London N.W. 11

F J BENTLEY

SIR.—Sir Frederick Menzies expresses the hope that the Minister of Health will appoint medical men as the chief administrative officers of regional organizations in the new health services. He might have gone further and insisted that medical men selected for such positions should be chosen only from among those who have had wide and successful experience of the administration of medical services. A medical qualification alone is no guarantee of ability to perform administrative functions. The medical administrator is just as much a specialist in his own line as are those who identify themselves with various types of clinical work. Sir Frederick Menzies, I am sure could suggest where such men are to be found, and so could I, Mr Editor, but after reading your unpleasant attack (with its sneering headline) upon the county medical officer for Essex (Feb 16, p 241), I feel that you would not approve my suggestion.—I am, etc.,

Nottingham.

CYRIL BAYNS

Physical Therapy in Mental Disorder

SIR,—Those who have been practising psychiatry during the past twenty years cannot help having noticed one significant fact with regard to nearly each one of the newly introduced physical treatments of mental disorder. At first it is tried in the most hopeless varieties of mental illness—e.g., chronic schizophrenia. The results prove disappointing. It is then tried in schizophrenia of recent duration; the results continue to be disappointing. The treatment is then transferred to the less malignant forms of mental illness—e.g., the manic-depressive group, or at least schizophrenia with a cyclothymic colouring; a psychotic episode is thus made to clear up more rapidly, but recurrence is not prevented. Finally the neuroses—the milder worries and depressions of life—are attacked, and good recoveries are frequently obtained. A wag has remarked that E.C.T. produces the best results in schizophrenia when the illness is at such an early stage that a diagnosis cannot be made.

The sequence of events noted above has happened with cardiazol, E.C.T., and insulin, and is now happening with leucotomy. Among the ultra-enthusiasts are those who consider that leucotomy should be performed in the earliest stages of mental illness, even where no other forms of treatment have been attempted. Dr. G. W. T. H. Fleming complacently envisages an era when one will hurry to leucotomize a patient aged 60 who has developed a sudden depression with suicidal behaviour (*J. ment. Sci.*, April, 1942, p. 282). One can guarantee that under such circumstances there will be a favourable "recovery" rate, for does not every medical officer of a mental hospital well know that at least 80% of his recoveries (in the major psychoses) occur within the first year of admission anyway, leucotomy or not? But this operation destroys all the finer feelings and emotions, eradicates all the original and creative faculties. Many psychiatrists, like myself, believe that it is worth while to suffer a depression a little longer and obtain a real cure, a restitution to normality, rather than rapidly attain a facile, emotional dementia.

Permit me, Sir, to observe that the greatest advance in the last fifty years in relieving the sufferings of mentally sick people has been the practical application of the researches of Pavlov, Freud, Jung, Adler, and Stekel. Why then is there such a concentration on the physical modes of treatment, with the inevitable neglect of psychotherapy, for there are nowhere near enough psychiatrists available for the pressing needs of the population? One answer lies in the more dramatic and shop-window aspects of the former, especially so far as laymen are concerned. The ordinary public (I have read newspaper reports by journalists who have been invited to watch the fun) can readily appreciate the hum of an electric machine with all its dials and gadgets, or the splendid view of a large, well-fitted operating theatre, complete with shining surgical instruments; but what can the psychotherapist exhibit except an armchair, a couch, and perhaps a syringe filled with evipan or pentothal? here is just no comparison from the advertisement point of view.

And there is another reason why pushing a button is more popular than intense psychotherapy. Anyone can quickly learn the technique of E.C.T., but efficient psychotherapy requires many years of experience, and we are short of well-trained personnel. Very few of us get anywhere near Prof. Jung's ideal—a doctor of wide culture, who has travelled far and experienced much himself in suffering and happiness, who is well read in all the leading schools of psychology, philosophy, and religion, who possesses natural sympathy, patience, and kindness, and who has a keen desire to understand the sufferings of others. Those of us who are enthusiastic earnestly try to live up to such an ideal, but it is very time-consuming, and the work is exhausting. Yes, I must admit, pressing a button is much easier, and a more readily available capacity.

One argument given for intense physical treatment is that in the more malignant psychoses "we must do something." But there is no virtue in furious activity unless this is impelled in a scientific manner. Why must such an attitude be adopted in psychiatry, when the same policy is not followed in other branches of medicine? General physicians cannot "cure" rheumatic valvular disease or hypertension, neurologists cannot cure disseminated sclerosis or the muscular dystrophies, but they do not rush indiscriminately to shock treatments; they seem to be

content to admit honestly that in the present state of knowledge only palliative treatment is available, and that we must hopefully await the results of research. And this impels me to draw attention to a great failing in the organization of psychiatry in this country. The Mental Treatment Act of 1930 (Section 6) gave every local authority the power to expend money on research. How many local authorities have taken advantage of this, and to what extent? But without organized research psychiatry will not progress with any great rapidity. To convulse or to leucotomize hundreds of patients on a conveyor-belt principle in order to be able to boast of astronomical figures to some lay committee is not scientific research.

Finally, I wish to make it clear that, unlike Dr. D. W. Winnicott, I am not opposed to experimental procedures on physical lines in any of the more malignant psychoses, but I strongly object to E.C.T. and leucotomy being used in a non-scientific and indiscriminately wholesale manner.—I am, etc.,

Park Prewett Hospital, Basingstoke.

I. ATKIN.

SIR,—Dr. Winnicott informs me privately that I am mistaken in suggesting that he does not approve of other than psychotherapy in mental illnesses. I am sorry if I have done him an injustice. It seems that our points of view are not so separate as at first appeared. He disapproves of electric convulsive therapy and leucotomy in any case; I feel that they should be used only in selected cases and deprecate their abuse.

It seems a great pity that no indications, no definite canons regarding the application of these treatments have been formulated. It might be suggested that something like the following would be of use in indicating when these therapies were to be employed. Although they appear self-evident such criteria are frequently neglected and no harm can be caused by stating them. (1) Because they are drastic treatments with occasional serious consequences (fractured vertebrae in convulsions, death in insulin coma) convulsive and insulin therapy should be used only after a careful and complete physical and psychological examination has been performed, and after every effort, such as the correction of environmental stress, psychotherapy, and so on, has been made. (2) Because a certain percentage of schizophrenics recover spontaneously, and this usually occurs within two years of the onset of the disease; moreover, because leucotomy is a mutilating treatment, it is absolutely contra-indicated before this period. It is indicated afterwards only when everything else has been tried and failed. In the case of obsessionals a period of five years should be substituted because this illness has less severe social consequences and the patient is more likely to recover spontaneously or with lesser forms of treatment.

In my opinion anyone who rushes in to apply mutilating operations such as leucotomy without using criteria such as those suggested above should lay himself open to an action for maiming, and sooner or later I am sure that this will happen with serious consequences to the operator and his advisers.—I am, etc.,

London, W.1.

CLIFFORD ALLEN.

SIR,—In the debate on this subject there is evidence of some confused thinking. That treatment is at times given unnecessarily, unskillfully, or even with a lack of humanity, may be a criticism of the exponents but not of the methods themselves. It is, however, to be deplored when argument is perverted into personal attack. The reflections on the character of Dr. Jan Frank, made by one of your correspondents in the issue of Feb. 16, are as unjust as they are irrelevant. We had the chance of working with him at Graylingwell Hospital. Because he is a trained psycho-analyst who uses physical treatment to help those beyond other means of relief, we learned much from him of the way humanity and individual insight should guide the doctor in his approach to the patient.—We are, etc.,

ELIOT SLATER.
WILLIAM SARGANT.

Maudsley Hospital, S.E.5.

SIR,—Medical officers who, strange to relate, do for the most part know what they are about will have attended with interest to the counsel of the few that have written with knowledge and authority; they will have been wearied by the quite remarkable fatuity of those who have gone to such trouble and length to

display neither. Without demur—at least, without much—we have seen ourselves described as dishonest, brutal, and feeble-minded. But against the rank bad taste of Dr. C. G. Learoyd (who, for some reason, thinks it necessary to emphasize that he is not a psychiatrist) and his contemptible innuendoes associating the views of Dr. Jan Frank with the methods of "Hitlerite Germany," I know that I am not alone in wishing to protest. I am only surprised that you, Sir, have thought fit to print them.—I am, etc.,

Exeter.

JOHN A. AINSIE.

Stethoscope versus X Rays

SIR,—It has been stated that the discussion at the Royal Society of Medicine under this heading "showed a remarkable unanimity between physicians and radiologists" (*Lancet*, 1945, 2, 784). The correspondence in your columns, I am pleased to note, can hardly be said to have done the same.

As a radiologist who has been dubbed (*Post-grad. med. J.*, 1944, 20, 135) to have "an unhappy aversion to mass radiography" and one who clings "to the traditional gibe of the old school of wooden stethoscopes" and "whose experience apparently differs from the rest of the civilized world," I regret to note, with your correspondent David W. Tough (*Feb. 16*, p. 254), that there are so many so-called chest specialists who can find unanimity or satisfaction in deriding the value of one sense in favour of another. He and your correspondents R. C. Hutchinson (*Jan. 5*, p. 31) and E. Weatherhead (*Jan. 19*, p. 103) have rightly stressed the fact that we have five senses and that the use of every one is essential in diagnosis, for any one may give a clue when all the others fail. The radiograph, good though it may be, is merely one of the aids to vision; and though to the novice and the careless clinician or radiologist its spectacular appearances are overwhelming, this is merely because they have neglected to study the limitations and the best uses of radiology and to cultivate the other senses. They have failed to appreciate what I have described (*Proc. roy. Soc. Med.*, 1945, 38, 555) as "the latent negative radiographic period" and "the positive radiographic symptomless period."

The adoption of radiology as the sole essential for the diagnosis of disease on the plea that progressive tuberculosis and other conditions are symptomless is leading to the serious neglect of the clinical history and other clinical methods. Diagnosis and treatment are being carried out without proper examination or attention to the patient. Consultations are held and decisions made between physician and surgeon, not on the patient but on the radiographs. True, the neglected symbol of clinical methods, the stethoscope, is prominently worn to denote the specialty. If there is any comment which ought to have been made under the heading "Stethoscope versus X Rays," it is that the stethoscope necessitates contact of the physician with the patient but x rays do not. The essential clinical evidence is either not sought or neglected because of the concern over the radiographic appearances; and, still more strange, while all this deference is paid to the radiography, the radiologist's opinion, the person who ought to be in the best position to co-operate and advise on radiographic appearances, is neglected and often studiously avoided. This neglect is often apparent to the experienced radiologist, for he is frequently able to get from the patient (the clinician's request in hospital does not supply it) evidence which helps him to interpret his radiographs. Surely the duty of the radiologist is to supply the clinician with all the evidence which radiology can offer; he cannot do this to the best interests of the patient unless the clinician has made an adequate examination and indicated his findings.

To-day the abuses of radiology—I have recorded the most prominent (*Brit. J. Radiol.*, 1945, 18, 249)—are rampant, and unless checked will bring it into disrepute. It is this we have reason to fear. There is a growing tendency to read more into the radiograph than is justifiable, for we do not yet appreciate the extent of the variations of the normal. Unusual radiographic appearances in the symptomless patient tempt the inquisitive—the more the less his experience in radiology—to explore, with the production of symptoms to the disadvantage of the patient. Serial radiographic study by experienced observers is more instructive and less harmful if combined with intelligent clinical investigation.—I am, etc.,

Birmingham

JAMES F. BRAILSFORD.

SIR,—In view of the recent correspondence on this subject this case may be worth recording.

An old friend of mine, an auctioneer, consulted his doctor to find out why recently he felt so tired out in the evening. He confessed that he was increasing his allowance of whisky to overcome this feeling. His doctor could find nothing to account for his symptoms, and sent him to Harrogate for rest and change. He was put under the charge of a very competent practitioner in that town, who also could find no definite evidence of disease. He returned to work after six weeks, but at the end of a month he again consulted his doctor complaining of the same feeling of exhaustion after his day's work. His doctor then took him to London, where he was overhauled by two well-known consultant physicians. Again neither could find anything definite to account for his symptoms, but one suspected early malignant disease of the stomach and advised a bariatric meal to be done in London. My friend, however, insisted that I should do this examination in spite of the wish of the consultant.

I could find no x-ray evidence at all of mischief in the intestinal tract, and as I thought my verdict would not be accepted as I was unknown to either consultant, with the consent of his doctor I x-rayed his chest, though none of the four physicians who examined him suspected mischief there. The film revealed extensive tuberculous infiltration in both lungs. In fact there was very little lung tissue not involved. In the left middle zone there was a big cavity draining into a bronchus. His sputum was strongly positive. He lived six weeks only after the diagnosis of his condition was made.—I am, etc.,

Newton Abbot.

W. H. STEEF.

Fractured Patella

SIR,—In an article entitled "Fractured Patella treated by Excision" Mr. R. Brooke (*Feb. 16*, p. 231) advocates this procedure for transverse as well as for comminuted injuries. The evidence in support of this recommendation does not seem to me to be convincing. In 35 cases followed up there were 19 examples of transverse fracture; 7 of these were left with some disability. Of 29 cases which he observed personally, 26 were found to have "no deformity." This is surprising as I do not remember seeing anyone who had lost a patella without observing some flattening of the knee when it was viewed in the semi-flexed position, and also appreciable reduction in the circumference of the thigh on the affected side.

It is common ground that excision of the patella breaks the continuity of the rectus tendon and the patellar ligament. This deficiency is not always made good by suture of the lateral expansions of the quadriceps. I have seen a good number of imperfect results. It may be that a final decision as to the merits of excision in the treatment of these injuries should be withheld till the late results of a comparable series of fractures competently sutured have been recorded. Meanwhile, I think that suture with multiply stainless steel wire is the method of choice.—I am, etc.,

Radcliffe Infirmary, Oxford

MAX PAGE.

Transmesenteric Hernia

SIR,—I was very interested to read Mr. Peter Martin's account (*Feb. 16*, p. 238) of his case of obstructive mesenteric hernia.

On Jan. 22 I operated on a patient who was suffering from strangulated transmesenteric hernia. There was a defect in the mesentery of about 1 foot (30 cm.) from the ileo-caecal junction, and the extraordinary feature was that the loop of bowel was strangulated on both sides of the mesenteric defect. The bowel had apparently passed from right to left, and of this 6 inches (15 cm.) had passed back again. The bowel was non-viable, and resection of the terminal 18 inches (45 cm.) of the ileum was performed and end-to-side anastomosis of the ileum to the caecum was effected. The margins of the opening in the mesentery, which were smooth and rounded, measured approximately 2 inches by 2 inches (5 cm. by 5 cm.).

The patient made an uninterrupted recovery and was discharged from hospital on Feb. 15.—I am, etc.,

Liverpool.

JAMES MORONEY.

Nitrites in Coronary Occlusion

SIR,—Standard textbooks on medicine and cardiology invariably state that nitrites are contraindicated in the treatment of coronary artery thrombosis, as well as in the pain of "cardiac ischaemia" due to infarction of the myocardium.

No further explanation is usually given, and one is left alone to reflect on this somewhat dogmatic statement.

The two relevant factors in this case are that the coronaries fill during diastole and that the coronary flow depends on the mean blood pressure. Now the diastolic pressure is little influenced in coronary thrombosis, but there is a sharp fall in the systolic pressure. Thus, although the mean blood pressure is less, the diastolic should still be adequate to fill the unaffected coronaries.

Nitrites are supposed to work by acting directly on the smooth muscles of the arteries, producing relaxation. One may well ask if they have any effect on arteries which are hardened and thickened by atherosclerosis. Undoubtedly they must have, as the efficacy of nitrites is proved in the relief they afford in the treatment of angina pectoris.

Coronary thrombosis, like occlusion of an artery of a limb, probably also sets up a certain amount of reflex spasm in the affected artery, its branches, and possibly in the rest of the coronaries, thus accounting for the severe degree of shock that accompanies this phenomenon. Sir Thomas Lewis suggested that the pain was not due to vascular spasm or local anoxia, but the muscular activity of the heart which liberates a pain-producing factor if the arterial supply is occluded. In cases in which the arterial supply to a portion of a limb is occluded by an embolus, for instance, papaverine has been successfully employed in improving the collateral circulation and relaxing associated reflex spasm until a better blood supply is established. Why can this principle not also be applied to the heart? If coronary thrombosis does not cause instantaneous death it is attended by all the evils complicating infarction of the myocardium. The present treatment makes no attempt to correct this and save a portion of the heart muscle from being transformed into a useless piece of fibrous tissue; furthermore it only partially treats the shock by the administration of morphine. The latter is probably only given because of its analgesic properties, as no other drug will afford sufficient relief from pain.

What, then, is the contraindication to a careful administration of intravenous saline or plasma as well as the continuous use of small doses of nitrites for 24 to 36 hours, or possibly longer? The objection to the use of intravenous therapy would be that, although beneficial in the treatment of shock, it would throw an extra burden on the already diseased heart, while in most other cases of shock the myocardium is relatively sound. Of the use of nitrites one might say that besides further lowering the blood pressure, in organs in which infarction is said to occur, there is an already poor or non-existing collateral circulation and that dilating the other arteries might only make matters worse by increasing the degree of infarction.

I should be grateful to know if, in the opinion of competent authorities on the matter, the use of nitrites and a drip is justified in attempting to save the myocardium from permanent scarring and improve the prognosis in occlusion of the coronary arteries.—I am, etc.,

Mayday Hospital, Thornton Heath

H. JASLOWITZ.

Ocular Signs in P.O.W.s from the Far East

SIR,—I should like to reply to Dr. H. G. Garland's letter (Jan. 26, p. 143) and his criticisms as they arise, as well as add some further notes.

Major Dansey-Browning and I sent our preliminary report for censorship in September, 1945. Its purpose was to draw attention to an ocular syndrome, apparently previously overlooked, before the clinical material was dispersed, a more detailed and extensive investigation on greater numbers to follow. Publication for a variety of reasons was delayed till January, 1946.

It should be borne in mind that we were dealing only with the ocular signs as we found them and as described in the literature. The essential features for stress were: (1) There was no ocular paresis as described. (2) There was no peripheral field constriction as described. (3) The proportion of cases of bilateral retrobulbar neuritis (the use of this term is more fully discussed below) and having a central scotoma to white targets having a similar shape to the toxic amblyopia was high. (4) While reviewing the relevant literature from the ophthalmic aspect we carefully avoided that "slough of despond," dietetic

deficiency theories, for we felt that by doing so we were concentrating attention on a more important feature—namely, the irreversible optic atrophy and its relation to the toxic amblyopias.

The syndrome as described by Dr. Garland is similar to that described under the rarer manifestation of beriberi and pellagra in Manson's *Tropical Diseases* (11th ed., 1940) and in Stitt's *Tropical Diseases* (6th ed., 1942). But in none of these accounts are the ocular signs and sequelae stressed which Major Dansey-Browning and I feel are so important and so frequently overlooked.

I endorse Dr. Garland's thesis that the syndrome is due to a dietary deficiency, probably in the B group of vitamins, but repudiate the cavalier dismissal of the part vitamin B₁ plays. I think it would be reasonable to add to vitamin B₁ deficiency, nicotinic acid deficiency and probably an unknown fraction of the B complex. But although vitamin B₁ deficiency was expected—for one finds it difficult to reconcile deficiency of a fraction of a complex and have little or no evidence of deficiency of the remainder of that complex—yet nevertheless this has been the case, as some figures given below will demonstrate. Vitamin A deficiency was possibly present, in that difficulty in seeing, particularly in a dim light, was a marked complaint among those showing a scotoma during the onset of their visual disturbance; how much should be ascribed to vitamin A deficiency is debatable.

Dr. Garland's objection to the term "retrobulbar neuritis" is understandable, and there is a growing body of opinion that it should be replaced by "neuropathy," but the term was used intentionally for the following reasons: (1) A term sanctioned by use, conveying a clinical picture which finally resolves itself in either primary or secondary optic atrophy and having as a cardinal sign pain on moving the eyes. (2) It brings it into line with the other toxic amblyopias, particularly tobacco-alcohol amblyopia (*vide* Carrol and others). (3) The pathological description, although demonstrating that the nerve lesion is a degeneration and, in so far as the cranial nerves are concerned, irreversible, the presence of congestion of the meninges and haemorrhages does not exclude an inflammatory factor. (4) In quite a proportion of cases was seen the blurring of the edge of the disk and the "moth-eaten" appearance of the papillo-macular retinal fibres, particularly to red-free light, one associates with a post-neuritic optic atrophy, and so "neuritis" is preferable to the vague term "neuropathy" in this instance.

The collaboration between Major Dansey-Browning and myself was broken in November by my being posted, and so I am unable to refer to much of our preceding work. However, these figures are from work done in this centre by me since that date and are self-explanatory.

Of 87 cases examined 62 patients gave a definite history of beriberi. There were 38 who had some treatment for beriberi; this treatment was restricted by supplies, and varied from small amounts of marmite, rice polishings, yeast, thiamin tablets, and injections (injections only for a short while for moribund cases), nicotinic acid, a "green grassy stuff they made themselves," shark oil (vitamin A), and red palm oil (vitamin A). There was a bilateral central scotoma to 3/1000 mm. white target with enlargement of the blind spot and a typical "tailing" of the scotoma directed towards the blind spot in 16 cases, 11 of whom gave a history of pain on moving the eyes as one of the important factors of visual disturbance noticed, and only 4 of these had had any attempt at treatment, which was given solely because they "were very ill, and then only for a short while because supplies were so limited and others as ill as they were." One of these was given "grass extract," one marmite, one yeast, and the worst of all had a few thiamin injections. Only one of the cases showed nerve deafness and had been referred to an otologist. Of the total number 2 alone showed arboflavinosis, looping of the limbal vessels, and gave a history of photophobia and keratitis.

It should be remembered that they were all Category A men before capture, and therefore 30 myopes among them is a rather high proportion. I am under the impression, although I have no notes to confirm this, that there is an equally high proportion of arcus senilis. It appears, therefore, that malnutrition may have some bearing on the incidence of these two conditions, particularly myopia.

In conclusion may I thank Mr. Fitzgerald Moore for a personal communication which has been most helpful, and express my unbounded admiration for those who, with but the most primitive equipment, managed to make vitamin extracts locally

and dispense accurate spherical corrections, the lenses being made from broken car wind-screens and the frames from such material as was available.—I am, etc.,

Military Hospital, Lincoln

W. M. RICH.
Capt., R.A.M.C., Ophthalmologist

Suprapubic Drainage of the Bladder

SIR,—In the *Surgery of Modern Warfare* (p. 668) and in an article by R. Ogier Ward and E. W. Riches it is recommended that in cases of retention of urine due to spinal injury permanent suprapubic drainage should be established by a catheter introduced suprapubically by a method of blind puncture. The patient is to be put in a partial Trendelenburg position, the highest point of bladder dullness mapped out, and then the puncture introducing the catheter is made at this point, or at the mid-point between the umbilicus and symphysis, whichever is the lower. The puncture is to be made in a backward and downward direction. The bladder is allowed to empty slowly for 48 hours. This initial slow emptying is necessary until the track is sealed off and prevents the complication of a contracted bladder at a later stage.

On June 11, 1945, a man of 75 was admitted to hospital with acute retention due to prostatic obstruction. Before admission attempts had been made, without success, to pass a catheter; further fruitless attempts were made in hospital. A very competent house-surgeon, having got the book referred to above, faithfully followed the, very full and very clear instructions. All appeared to go well, no difficulties were encountered, and the bladder was emptied slowly as directed. A few days later the patient's abdomen began to get distended, and for various reasons I was asked to take over the case. The bladder was draining satisfactorily, and at first I thought the condition was one of mild paralytic ileus. However, it soon became evident that there was a partial obstruction of mechanical nature; this never became complete, though it caused great anxiety. By June 25 he was much better so far as the obstruction went, but he developed pneumonia. This was slow to clear up and his heart gave much anxiety. By Aug. 23 he was well enough for prostatectomy. I began by enlarging the suprapubic opening towards the pubis, and, expecting the bladder to be adherent to the anterior abdominal wall, was horrified to find I had opened small intestine. Further investigation revealed that the peritoneal reflection from the bladder was low, only just above the pubis; the bladder had fallen away from the abdominal wall, and the space between was filled with coils of small intestine firmly matted round the track of the catheter. When these latter coils had been separated as far as seemed wise, the damaged intestine repaired, and the peritoneum closed, the patient's condition being still good enough, the prostatectomy was proceeded with. From this operation the recovery was at first surprisingly uneventful. There was no intestinal trouble, and by the tenth day the suprapubic wound was dry, though not superficially healed, and he was passing urine normally every two hours. On the twelfth day there was haemorrhage into the bladder with clot retention; this was overcome by washing out. On the fourteenth day the heart began to give trouble, but settled down again, and he went home on Sept. 28.

From then he was well until just before Christmas, when acute intestinal obstruction developed and he was readmitted to hospital. At the operation on Christmas Day the cause of the obstruction was found, as expected, to be due to adhesions between loops of small intestine. These were divided and he made an uninterrupted recovery.

It is evident that when the original puncture was made the bladder was, by its distension, pressed firmly against the anterior abdominal wall; that the peritoneum was traversed, and that as the bladder emptied slowly, as directed, it fell away, the catheter bridging the gap; small intestine followed the bladder down, surrounding the catheter, and became adherent round the track. It seems to me that puncture as high as described must usually traverse free peritoneum, and that the adherence of the bladder at the puncture site cannot be safely counted on. It may be argued that the operation of puncturing the bladder as described is not intended for cases when a further operation on the bladder is expected, and that had he been left with the indwelling suprapubic catheter no further trouble would have arisen, but I cannot feel that it is very desirable to have coils of intestine matted round the catheter track.

This unfortunate case confirms my feeling that it is much safer, when performing suprapubic drainage, to expose the bladder, strip up the peritoneum, and introduce the catheter under vision. This small and simple operation can easily, if desirable, be done under local anaesthesia.—I am, etc.,

Guildford.

E. W. SHEAF.

Cardiac Massage

SIR,—I would like to support Prof. John Morley (Feb. 2, p. 177) in his objection to the use of intracardiac—or intravenous—injections of adrenaline in cases of cardiac failure during anaesthesia. In the past I have had clinical proof of the fact, long known to pharmacologists, that adrenaline causes the heart to go into fibrillation. Few experiences in surgery are more dramatic or pleasing than to see a needle, inserted into the heart of an apparently dead patient, begin to swing from side to side, like an inverted pendulum, in time with the returning pulse. I know of no method of stimulating the heart more certain, speedier, or simpler. I find the spinal needles of Pitkin or Howard Jones very suitable for the puncture, as they are long, fine, and usually ready sterilized on the anaesthetist's trolley. The vital importance of speed cannot be over-emphasized, for there is much evidence to show that cardiac cessation for over 1½ minutes results in irreversible cerebral changes, especially in the middle-aged and elderly. I have had two cases, and I know of others, in men of over 65 years of age in whom the heart has not been stopped for more than 1½ to 2 minutes before it was re-started by needling. Both of these men showed mental changes similar to those met with in senile imbecility; these changes persisted for five to seven days, and subsequently the patients showed a complete amnesia for this period.—I am, etc.,

Liverpool, 1

J. B. OLDHAM

SIR,—While supporting Mr. Hamilton Bailey (Jan. 5, p. 29), Prof. John Morley (Feb. 2, p. 177), and Mr. Harold Dodd (Feb. 16, p. 252), I would like to point out that much of the information required by surgeons and anaesthetists on this important matter is contained in an article called "Cardiac Resuscitation" in the *Journal* of Sept. 21, 1935 (p. 540).—I am, etc.,

Glasgow Royal Infirmary

W. B. PRIMROSE

SIR,—Mr. Hamilton Bailey is such an eminent surgeon that it is with diffidence I join issue with him in his statement that adrenaline injection is of little or no use in cardiac failure (Jan. 5, p. 29), or stoppage of the heart in certain conditions. Dr. Carl Bodin, of Budapest, about 23 years ago in an exhaustive letter to the *Lancet* recorded a remarkable case of resuscitation by the injection of 1 ml. of 1 in 1,000 adrenaline chloride into the right ventricle, the patient being dead for three minutes. All signs of life had gone—corneal reflexes, respiration and pulse, and no heart sounds. The patient being very obese, with a 3-in. (7.5-cm.) needle he injected 1 ml. adrenaline chloride into the right ventricle. He advised that the best position for this was to inject into the fourth left intercostal space, keeping close to the sternum to avoid the internal mammary artery. This seems to be the safest area for the right ventricle; it avoids the conus arteriosus and the anterior descending branch of the left coronary artery.

I followed this method many years ago in a patient dying of pneumonia. He was in *extremis* and moribund; he revived remarkably, but unfortunately his family got him out of bed to relieve his bladder in two hours' time, and he collapsed. One should not wait, of course, until all signs of life disappear, but I think the general practitioner should attempt this method in more cases of the dying and possibly some lives might be saved.—I am, etc.,

Southall

JOHN R. O'BRIEN

Anaesthesia

SIR,—Dr. W. A. Bellamy (Feb. 16, p. 252) falls into the common error of assuming that so-called modern anaesthetic methods are more difficult of accomplishment and produce less efficient results than those he describes. I always try to impress on people that the seemingly more elaborate procedures are in reality much easier for the anaesthetist and much more satisfactory for the surgeon and patient than some of the apparently simpler ones. Take for instance a common emergency. A well-built muscular man is admitted with a diagnosis of perforated gastric or duodenal ulcer. The abdomen is as rigid as a board and the patient frequently groaning in agony.

According to Dr. Bellamy anaesthesia is induced either by open ether or by the very simple Boyle's apparatus. Even a skilled anaesthetist often fails to produce anything approaching satisfactory operating conditions using such methods. Relaxation is often incomplete, and the exaggerated diaphragmatic movements so characteristic of deep ether anaesthesia are a source of embarrassment to the surgeon.

The method I prefer, though seemingly more complicated, is in reality much easier to perform and produces infinitely better conditions for the surgeon. The patient is put to sleep with an intravenous barbiturate and a bilateral intercostal nerve block performed. Nobody could describe this as difficult. It produces absolute relaxation of the abdominal wall. Anaesthesia is then maintained with light cyclopropane using to-and-fro absorption, certainly one of the simplest and least toxic general anaesthetics. No endotracheal tube is needed, and frequently a pharyngeal airway can be dispensed with. The operative field is very quiet and recovery is quick and uneventful in contrast to the prolonged period of depression which follows a deep ether narcosis.

One could cite numberless examples showing that the much-maligned modern methods are much simpler and safer than the older ones.—I am, etc.,

Bodelys Park, Surrey.

F. G. ETHERIDGE.

SIR,—I never quite know whether anger or disappointment is the more prevalent when I read letters like that of Dr. Bellamy; I trust, however, that my reply is more in sorrow than in anger.

There must be many hundreds of anaesthetists in the English-speaking countries who are devoted to their specialty and who spend a great deal of thought on how they can make their patients safer for surgery. Many of us even correspond across land and ocean to the same end. A number of us in Britain, banded together under the auspices of the Anaesthetics Section of the R.S.M., attend meetings where we discuss and criticize innovations and exchange views. Were Dr. Bellamy to attend our gatherings I can assure him that he would find no attempt to wrap up our art "in a halo of Heath-Robinson mumbo-jumbo" but, on the contrary, a sincere and honest attempt to probe the many mysteries still hidden from us. We even publish our proceedings. This being so, I feel rather hurt that Dr. Bellamy should have been so unfair.

I agree that all new things are not necessarily good things; but all good things were once new, and had they not been investigated at the time would not have survived to benefit mankind. There is no need to pursue this moral. Dr. Bellamy asks, in effect, why anaesthetists do not stick to the same techniques as were prevalent twenty years ago. I reply: for the same reason that we no longer travel between London and Aylesbury by stage coach; we have discovered better means. Surgeons have greatly increased their surgical repertoire during twenty years, and embark upon heroic procedures many of which are only made possible by modern methods of anaesthesia.

With regard to teaching, Dr. Bellamy may derive some comfort from the fact that at least one hospital is considering a course to teach undergraduates anaesthetics at special operating sessions upon patients selected to withstand the rigours of "simple" anaesthetics, thus ensuring that students may gain experience *sans* "mumbo."

The remarks about deaths during anaesthesia are misleading, and the fallacy involved has only recently been exposed in your correspondence columns. Suffice it to recall that one of the many causes why these fatalities do not decline is the increase in the surgical treatment of conditions once thought inimical to surgery. Another is the ill-advised administration of pentothal either to unsuitable subjects or in unsuitable surroundings with no resuscitative drugs or oxygen at hand in case of difficulties. The administration of both chloroform and pentothal might be summed up in the following slogan: Dead easy—easy dead. A better appreciation of this fact might lead to a marked fall in the number of anaesthetic fatalities.

To show that I really am not entirely consumed with anger may I extend a hearty welcome to Dr. Bellamy to attend the next general meeting of the Anaesthetics Section as my guest in order that he may assure himself that no witchcraft goes on. Time and date: 5.30 p.m., Friday, March 1. Subject: Curare.—I am, etc.,

London, W.1.

A. H. GALLEY.

SIR,—Dr. Bellamy (Feb. 16, p. 252) has cast a rather obvious fly. But in case his devoted head should remain bowed and not notice an important point: the percentage of deaths under anaesthesia, which is not of necessity the same as anaesthetic deaths, may not have decreased in the last fifteen years with the advent of modern methods and apparatus, but the extent and severity of surgical procedures justifiably undertaken to-day on cases that were previously considered unfit surely make amends for the apparent complexity of the apparatus.

There are still indications for the use of open chloroform anaesthesia in surgery and obstetrics, and it can be employed in place of much apparatus which appears complicated to the occasional anaesthetist. The "professional anaesthetist," however, is prepared to use whatever form of anaesthesia is most conducive to the patient's well-being and post-operative comfort and the satisfaction of the surgeon's requirements. I submit that these criteria are more often satisfied to-day than they were fifteen years ago.—I am, etc.,

Cambridge

ANGUS SMITH,
Squad Ldr., R.A.F. Medical Service

Spinal Analgesia in Operative Obstetrics

SIR,—About six weeks ago I made the arduous journey to Croydon in order to watch Mr. Rufus Thomas perform a lower-segment Caesarean section under heavy nupercaine analgesia. At that time I was apparently the first visitor from London to do so, although Mr. Thomas's articles on the subject go back for some years, so I feel that my observations may be of interest. I had expected to see a competent performance, but what I actually saw was something far more than that.

I have witnessed many lower-segment Caesarean sections performed with more or less ease and perfection by many different surgeons, and I have personally performed the operation under most types of anaesthesia with the exception of spinal analgesia. It has always seemed to me that the only real difficulty in the performance of this operation lies in the accessibility or otherwise of that portion of the uterus which forms the operation field. Even the most expert anaesthetists admit that it is not easy with inhalation anaesthesia to maintain an anaesthetic which is both light enough not to injure the baby and at the same time deep enough to give adequate access to the pelvis. From what I saw at Croydon it seems to me that these difficulties are eliminated under heavy nupercaine analgesia.

From start to finish the operation went like clockwork. There was no hurry of any sort, but why should there be as the analgesia lasts for some hours? The abdominal wall was relaxed in a manner which must be the dream of the average surgeon performing the lower-segment operation. Ease of access to the lower segment was maximal, as also was ease of delivery of the head. Bleeding was practically non-existent, and the uterus expelled the placenta spontaneously through the uterine wound without interference. The baby, which weighed over 9½ lb. (4.3 kg.) entered this world in as fit a condition as I have ever seen. Completion of the operation was carried out with a maximum of care and deliberation and a minimum of worry and haste.

So much for the technical details, but what of the patient's reaction? So far as I could see she had practically none. The analgesic was given by the operator himself, and the patient did not apparently know what type of anaesthetic she was due to have beforehand. Before the operation was due to start, the resident anaesthetist was summoned, and throughout the operation he recorded the blood pressure at regular intervals. I understand from Mr. Thomas that should the systolic pressure fall below 100 he gives an injection of methedrine into the uterine wall, but on this occasion it remained at about 130 throughout. After delivery of the baby the patient complained of slight nausea, which was immediately controlled by inhalation of a little oxygen. It has been suggested that Mr. Thomas's results must depend on a well-trained team. It seemed to me that the team consisted largely of the surgeon himself, as the duties of the anaesthetist were merely to record the blood pressure and, if necessary, to administer a little oxygen if the patient complained of nausea. The assistant on this occasion, I may add, was acting for the first time.

It does seem to me that there is no place in medicine for prejudice, yet many surgeons are still objecting to all forms of spinal analgesia for Caesarean section simply because they have been brought up to do so. After all, the two series recorded by Mr. Thomas, and more recently by Dr. Louis Resnick (Nov. 24, 1945, p. 722), total up to over 600 cases without a single fatality. Surely in this instance the old legal maxim of *res ipsa loquitur* applies—the facts speak for themselves.—I am, etc.,

London, W.1.

D. G. WILSON CLYNE.

Morbidity and Spinal Analgesia

SIR.—In following with interest the correspondence on the scope of spinal analgesia in Caesarean section one notices that no reference has been made to morbidity. Complications not leading to death, like invisible exports, do not always figure in the balance sheet. What information have anaesthetists and neurologists on sequelae such as paresis, sphincteric involvement, etc.? Obviously any one operator has probably not enough experience to be able to assess these risks. Are women less prone to these than men? Is the fear of their occurrence justified or mere prejudice?—I am, etc.,

London, W.1

KENNETH BOWES.

Significance of the Erythrocyte Sedimentation Rate

SIR.—May we be permitted to reply to some of the points raised in the correspondence which followed our letter (Oct. 27, 1945, p. 584). Dr. J. W. Shackle (Nov. 24, p. 742) refers to acid-fast bacilli found in gastric juice. In the 7 cases referred to, tuberculosis was produced in guinea-pigs by inoculation of gastric washings. We had read the interesting article to which we think he referred (Yates, Oct. 20, p. 530). Details of the 7 cases we quoted may be of interest. The E.S.R. figures refer to readings obtained in standard Westergren tubes using Heller and Paul 3:2 ammonium and potassium oxalate mixture.

Case No.	Sex	Hb % (Haldane)	E.S.R.			Gastric Lavage (Guinea-pig Inoc.)		Skiagram
			Date	Results		Date	Result	
				1 hr.	2 hr.			
19	M	94	11/2/44	mm. 7	mm. 10	11/2/44	+ve	Assmann focus R. upper zone
21	F	86	28/1/45	7	51	26/1/45	+ve	(?) Primary complex plex L. mid-zone
23	F	94	15/2/45	26	86	23/2/45	+ve	Mottling R. upper zone
26	M	91	11/2/44	12	30	11/2/44	+ve	Bilateral mottling
35	F	94	31/3/45	7	23	31/3/45	+ve	Primary complex R. lower zone
37	F	92	2/4/45	15	44	2/4/45	+ve	Round foci upper zones (R:L)
38	M	104	30/10/44	6	27	30/10/44	+ve	Assmann foci L. apex and infra- clavicular area

We examined fairly recently a woman aged 21 who was a contact of a case of pulmonary tuberculosis. A skiagram taken on May 13, 1944, showed a small Assmann focus in the left infraclavicular zone and slight mottling in the right mid-zone. Sputum (May 12) was positive. The E.S.R. figures (May 20) were as follows:

Heller and Paul Mixture		Westergren		Hb % (Haldane)
1 hr.	2 hr.	1 hr.	2 hr.	
8 mm.	27 mm.	8 mm.	22 mm.	92

The patient died seventeen months later of widespread bilateral phthisis. None of the above E.S.R. figures was corrected for corpuscular volume, but from the haemoglobin percentages it is unlikely that a correction for plethora would have raised the rates appreciably. Further, Wintrobe himself says that methods of correction for the effects of anaemia are crude and artificial.

Dr. K. B. Rogers's letter (Dec. 29, p. 940) contains some statements which call for comment. In the first paragraph, referring to our letter, he says: "They quote experiments performed in Westergren-type tubes, comparing the one-hour reading obtained with the same blood diluted with 1/5 its volume of 3.8% sodium citrate and with Paul and Heller's oxalate mixture."

Reference to our letter will show that we diluted the volume (1.6 ml.) of blood with 0.4 ml. of sodium citrate, which is 1/4 the volume of blood. Presumably Dr. Rogers had in mind the fact that the final blood-citrate mixture will contain one-fifth of its volume of citrate. Dr. Rogers states that we compared the one-hour reading by the two methods and goes on to offer an explanation of our observation that the sedimentation rates of the oxalated samples were not uniformly faster than those of the citrated samples. He says, "The one-hour reading can occur in any part of these curves, thus explaining their variable results." This may be correct, but we compared the two-hour and not, as he quotes, the one-hour reading. The first sentence of the fourth paragraph of his letter conveys the impression that more recent reference to the papers we cited would have elicited information which in fact did not exist in them. "Many of the authors do not give the method they employed in carrying out the E.S.R. . . ." is just a repetition of our statement that "many writers do not state the method they employ." In the fourth paragraph Dr. Rogers says ". . . and unfortunately Dr. Kayne is dead, so I cannot trace the technique he employed." Since our letter does not contain a reference to any personal figures quoted by the late Dr. Kayne for the E.S.R., the effort to trace his technique would have been quite irrelevant to the question under consideration.

Our views on the E.S.R. have been described as "scathing" and "too condemnatory." In our letter we were referring to the variable results which we had personally obtained with two commonly employed methods (the Westergren and the Heller and Paul oxalate methods). We could not, and did not, damn methods of which we had no personal experience. We would repeat that the E.S.R. test as performed and interpreted by many clinicians carries too large an error, particularly in females, to render the results of real value. Certain standards for normality accepted by various authors were given. We have no reason to alter our opinion that if these are accepted many apparently healthy persons will give readings well outside these limits and many cases of active tuberculosis will give readings within these limits. The recent paper by Trenchard (*Lancet*, Dec. 29, 1945, p. 842) supplies ample proof of this latter statement. Except when dealing with such isolated groups as hospital nurses the physician is unlikely to have obtained a "normal" reading for the individual prior to the development of a suspected pathological state. On the other hand, we are in entire agreement with Hilliard that real progress on the lines followed by Whittington and his colleagues is being made. Those who regard the problem of E.S.R. as having been reduced to a consideration of two factors—tissue destruction and corpuscular volume—which can be accurately assessed in a 100-mm. Wintrobe haematocrit-sedimentation tube maintained at 20° C. should peruse Muller's monograph (1943, New York) and papers such as those by Obermer (*Practitioner*, 1943, 151, 43) and Weingarten (*Lancet*, Oct. 27, 1945, p. 526) when they will no longer remain in doubt about the multiplicity and complexity of the factors involved.—We are, etc.,

D. M. KEAY.

D. G. McINTOSH.

Quinine for Induction of Labour

SIR.—Mr. F. Neon Reynolds (Feb. 16, p. 257) states that the use of quinine for the induction of labour is a "thoroughly bad practice which is productive of many stillbirths each year." Would it not have been a good thing if Mr. Reynolds had given actual figures, preferably from his own practice, to justify such an important statement?

I first used quinine for the induction of labour in May, 1931, and have since used it 105 times out of a total of 647 confinements. I have found it a most helpful procedure, and have not had a single stillbirth in all these 105 cases. There is a proper stage in pregnancy when quinine can be used with safety and success. To use it at the wrong time and in the wrong type of case is to court disaster. I am, of course, not an F.R.C.O.G., and not even a D.R.C.O.G., and I have not been within a maternity hospital for 40 years; I am only a rural practitioner with no begowned, bemasked, and begloved assistants to help me; only a district nurse and "an auld wifie to haud a leg." Possibly, had I Mr. Reynolds's qualifications and bevy of assistants I might have his results. However, I

again ask, Upon what facts and figures does he base his statement? and this request includes stage of pregnancy and normality or otherwise of the case. You must know how to carry out a procedure if you are to have success.—I am, etc.,

Tain

E. K. MACKENZIE.

Artificial Pneumothorax Refill

SIR,—Like most of my colleagues who have worked for a few years in sanatoria and chest hospitals, I have given several thousand refills for pneumothorax, and perforated the parietal pleura several hundred times for different reasons. I suppose that it was chiefly luck that kept "pleural shock" away, but I have never seen a case. As to the "humanity and common sense" invoked by Dr. Alastair Allan (Nov. 3, 1945, p. 607) in the cause of local anaesthesia for pneumothorax refills, my memory is most vivid as regards the humane aspect; as soon as I deemed reasonable in view of the clinical and fluoroscopic findings, I abandoned local anaesthesia—after informing the patient that I was about to do so—and plunged my sharp Morland's needle into the previously visualized space. The number of patients who regretted this change was strikingly few; and in fact at one time I deliberately anaesthetized a large number of my "regulars," who usually were given their refill straight, with a view to getting their reactions. They were unanimous to the effect that the straight refill was much to be preferred—time spent was a little shorter, the more nervous of them could "feel" the refill needle in its course through the anaesthetized track, the prick with a sharp Morland's needle thrust through the chest wall swiftly and with a steady hand was certainly no more painful than the insertion of the anaesthetic needle, and finally there was often an aching bruised feeling at the site of injection hours after.

It goes without saying that if there is the slightest doubt as to the clearance of the lung under the proposed site of puncture, the refill needle must by no means be used as a space-seeker. I do believe with Dr. C. F. Hawkins (Nov. 24, p. 742), whose letter I have just read, that pleural shock is no more likely with one sharp needle than with another, though I should be glad to see statistical evidence on the matter.—I am, etc.,

Burgco, Newfoundland.

HORACE D. ROSENBERG.

Homosexuality

SIR,—It was refreshing to see homosexuality ventilated in Mr. Stanley-Jones's letter. Few subjects are so persistently ignored by both doctors and laity. Indeed it might be claimed that one's attitude towards it is a useful index of tolerance, sympathy, and understanding. Even most doctors appear to become "hot and bothered" and full of violent prejudice when it is raised. It is high time that a cooler and more scientific approach were adopted. Our penal laws against it are a disgrace to civilization and a vestige of those abominable days when a man was hanged for stealing a sheep, etc. I would suggest that the air of grand tragedy usually evident on the few occasions when the matter is discussed is out of place. Too much is said about "curing" the condition, and I doubt exceedingly whether it is "now generally conceded that the majority of cases of homosexuality yield to treatment by psychotherapeutic measures." A small draught of Prinzhorn would be salutary to dispel such optimism. The very radical opinions of René Guyon as shown in his *Sex Life and Sex Ethics* are often dismissed as somewhat naive, but are a step in the right direction.

What is wrong with homosexuality? That seems to be the crux of the matter. Can we not say that it is an immature attitude which prevents, except in very rare cases, a completely satisfying love relationship of body, mind, and spirit? In other words a disharmony which allows the part to supersede the whole. Such an immaturity is by no means confined to homosexual relations, but is even more commonly evident in many heterosexual activities. This is admirably brought out by Solov'yev in his famous work *The Meaning of Love*.

It takes all sorts to make a world, and the immature have their parts to play. It is also a commonplace that many great men have shown a more than usual degree of bisexuality. Wagner once exclaimed, "What is art but a way of remembering youth?" So we should not talk too readily of curing homosexuality any more than we talk of curing red hair. Rather it

is our attitude which needs changing. It is true that from the utilitarian point of view homosexuality and many types of heterosexuality cause a diminution of the birth rate. In countries with a more civilized criminal code than ours these are only crimes when they violate the rights of others. Perhaps in another hundred years we shall catch up.—I am, etc.,

Edinburgh

G. G. SHERRIFF.

Normal Temperatures

SIR,—The annotation on basal body temperatures and the menstrual cycle (Feb. 9, p. 209) is of great interest. About the year 1900 the "premenstrual wave" of temperature was noticed and discussed by several sanatorium observers. Carefully taken temperatures were for long the best guide we had to the prescription of rest and/or exercise. For instance, *The Open-Air Treatment of Pulmonary Tuberculosis* (F. W. Burton Fanning, 1909) refers to this on page 36. As it was only seen in about half the patients Dr. Burton Fanning thought it was a symptom of tuberculosis. Marcus Paterson regarded it as physiological, and hence his "danger signal," needing bed rest, was 99° F. in man, 99.6° in women (mouth temperatures).

At Ventnor I was satisfied that there was a menstrual cycle. The temperature was taken in the mouth for ten minutes, all necessary precautions being observed. The waking temperatures were 97–97.6° usually, the rise, of a degree or more, showing more clearly than in the daytime, when, of course, the influence of varying activity modified the readings. I missed the "sharp fall," my impression being that the fall was rather gradual, either before or during menstruation. It was more frequently stated and taught that menstruation resulted in a rise of temperature; but this was only associated with considerable pain or malaise among our Ventnor patients.

The use of the clinical thermometer is casual: "a half-minute thermometer; everyone knows that the normal is 98.4" (in centigrade countries it is 37°=98.6°). So far I have rarely met any practitioner who had been taught that a healthy woman might have a normal day mouth temperature of 99.4° at some time in the monthly cycle. Now we have not only confirmation, but explanation; and at last it may be taught to medical students and to nurses in training.—I am, etc.,

Llanishen, Cardiff.

JAMES C. GILCHRIST.

Bornholm Disease

SIR,—The description of Bornholm disease (Feb. 16, p. 242) does not mention what seemed to me its most distinguishing feature in those very few cases I have seen. The combination of an anxious expression, a still abdomen, and an inspiratory check rather than the expiratory grunt of lobar pneumonia seemed to me of considerable importance in establishing the diagnosis on clinical grounds.

The involvement of the neck and shoulder muscles surely suggests referred pain via the phrenic nerve.—I am, etc.,

Richmond, Yorks.

A. F. T. ORD.

The Metric System

SIR,— *Full fathom five (9.5 m.) thy father lies;
Of his bones are coral made.*

While agreeing that the present chaotic system of weights and measures used in medicine should be replaced by the metric system, one may perhaps ask whether the *Journal* is not attempting it in the wrong way. Two most interesting articles that have appeared lately, of a surgeon's experiences in Siam, and another at sea off Deal, have been ruined and made most irritating to read, by such statements as, e.g., "the hut was flooded to a depth of about 2 feet (61 cm.), and the bunks were only 2–3 inches (5–7.5 cm. above the water." Again, that there was "a depth of 5 fathoms (9.5 m.)" and a reference to an "area of 30 sq. miles (50 sq. km.)" and others (I quote from memory) which I am certain their authors never wrote—and in terms in which they never thought. These terms are not used in any medical reference whatever, and the fathom anyway is traditional sea measure that the medical profession has no right or reason (or, I hope, wish) to change. I wonder what would have been the equivalent of a speed in knots?

If we do eventually adopt metric measure, we shall not do so in the way in which the *Journal* is attempting it. In this

week's issue a mixture is given as containing "Pot. brom. gr. x (0.65 g.)" to a dose, and an ointment made up to a balance of 3i (28.4 c.cm.). It is obvious that the dose will become 50, 60, 100 mg., and the volume of ointment 30, 50, 100 c.cm., or similar round figures, avoiding these unnecessary and irritating decimals.

It is useless to try to introduce metric measure by finding exact equivalents to our existing measures; the only way will be to recast the whole system of dose, frequency, etc., at one fell swoop, in a more manageable form, which may attract rather than repel.—I am, etc.,

F. KEITH HAYMAN.

*One important reason for giving the metric equivalent is to help the foreign reader, who will easily translate the exact equivalent into the dosage used in his country.—ED., *BMJ*.

Chartered Society of Physiotherapy

SIR,—I find with surprise that many of my colleagues are unaware of the self-denying ordinance which is incorporated by the Chartered Society of Physiotherapy in their by-laws.

The by-law in question requires them to refuse to treat any patient except under the direction of a registered medical practitioner, and was incorporated in the Royal Charter which was granted to them in 1920. The principle of medical direction had prior to this been completely accepted by members of the Society, since they believed that they would gain much from their association with the medical profession, ensuring as it does continuity of science and practice. It has been said in some quarters that the Society's action in withdrawing recently from the Board of Registration of Medical Auxiliaries was a step towards repudiating this obligation. I am able to state, however, that this suggestion has never been entertained, whilst it is unlikely that the Privy Council would permit such an alteration in the by-laws which would ultimately be to the disadvantage of the patient. Since the members of the Chartered Society have thus largely entrusted their future to the medical profession, it would seem to be just that we should make every effort to co-operate with them in both their private and their public work even more than we have done in the past.—I am, etc.,

London, W.1.

W. S. C. COPEMAN.

Merchant Seamen's Health Ashore

SIR,—As one whose professional activities are solely concerned with the health of the officers and men of the Merchant Navy, I was deeply interested in the article by Mr. James S. Hall (Feb. 16, p. 244). I and other medical officers working in connexion with the Merchant Navy Reserve Pools see the sailor at a somewhat different angle from Mr. Hall. We see him when he is ashore, Mr. Hall when he is afloat; and this may be the explanation of some rather striking differences in the incidence of disease as it affects the Merchant Navy.

Mr. Hall says "pure neurosis was rare." In 5,113 cases of illness or injury causing unfitness for sea-going seen at this Pool between January, 1945, and December, 1945, psychoneurosis accounted for 9% (as against 3% in Mr. Hall's cases). The explanation of this difference probably lies in the fact that group loyalty is strong enough to make a man withhold his symptoms until he gets ashore, when he knows that his unfitness for duty no longer prejudices the safety of his ship or throws extra strain on his shipmates.

Again, Mr. Hall says "venereal disease is high in the scale" (accounting for about 7% of his series). We, on the other hand, find just over half that figure, with syphilis and gonorrhoea about equally balanced. Finally, lest the young ship surgeon, having read Mr. Hall's article, be too prone to dismiss lightly symptoms of peptic ulcer, I would point out that during the same period at this Pool we have had 116 cases of gastric or duodenal ulcer (2%), all confirmed by investigation: hardly "an extremely rare complaint." In short, we find the sailor-man much more neurotic, considerably more dyspeptic, and either less concupiscent or more careful than does Mr. Hall.—I am, etc.,

ALAN WATSON,
Senior Medical Officer,
Merchant Navy Reserve Pool.

London, E.1.

Obituary

W. CAMAC WILKINSON, M.D., F.R.C.P.

Dr. Camac Wilkinson died on Feb. 2 at Virginia Water at the age of 88. For the greater part of his life he devoted himself with unflagging enthusiasm to one cause—the use of tuberculin for the diagnosis and treatment of tuberculosis—and urged its value as a curative agent long after most other physicians had discarded it for that purpose. A disciple of Robert Koch, whom he first met in 1884, and who gave him personal instruction and encouragement in later years, he shared Koch's belief, announced in 1890, that a cure had been found for early cases of phthisis, and from that time onwards Wilkinson advocated tuberculin therapy with polemical pen but dwindling success.

William Camac Wilkinson, a native of Sydney, went to Sydney University as a student of classics and won a scholarship and gold medal on the way to graduating B.A. After gaining further distinction in science at Sydney he came to England to enter University College Hospital, taking the M.B.Lond. in 1882 with first-class honours in medicine and a scholarship and gold medal in forensic medicine. He proceeded M.D. two years later and was elected F.R.C.P. in 1902. At U.C.H. he was awarded the Fellowes gold medal in clinical medicine and other prizes and an exhibition and the Atchison scholarship. Post-graduate study in clinics at Strasbourg and Vienna was the next stage in his career. Returning to New South Wales he became physician to the Royal Prince Alfred Hospital, physician to the ear, nose, and throat department of the Sydney Hospital, and lecturer in medicine and pathology in the university. In 1909 the Royal College of Physicians of London awarded him the Weber-Parkes prize for the best essay on a subject connected with tuberculosis; the title of this essay was "Tuberculin in the Diagnosis and Treatment of Tuberculosis," and a second edition of it appeared in book form in 1912.

In 1910 Camac Wilkinson left Australia to settle in London as a consultant. For many years he acted as honorary director of a tuberculin clinic for ambulant patients in Nottingham Place, W., and gathered around him pupils in the hope of spreading further the doctrine he held. He was also instrumental in founding a dozen other clinics in London and other towns, but they had all disappeared by the end of the war of 1914-18. His publications, apart from many letters and articles in medical journals, included books on *Treatment of Consumption*, which appeared in 1908; *Principles of Immunity in Tuberculosis* (1926); and *Tuberculin: Its Vindication by Technique* (1933), the first part being devoted to tuberculous disease of the eye, and the second to the diagnosis, treatment, and prevention of phthisis. His belief, stated over and over again, was that sanatoria should be reserved strictly for those cases that could not be treated at tuberculin clinics in accordance with his own method. He held that no risk arose from treating open tuberculosis, in ambulant patients, with tuberculin even in large doses, and that it quenched infection at the source. Nothing shook him from this article of faith, or from his conviction that tuberculin had never had a fair trial.

LADY STANTON, M.R.C.P.

Elizabeth O'Flynn, as she was known to her medical friends and colleagues, died on Feb. 1 in the Hospital of St. John and St. Elizabeth from influenza bronchopneumonia. A week before her death, in spite of physical weakness, she was working at the Mothers' Hospital, Clapton, but for years ill-health had made her life a heavy and difficult struggle, calling for courage and constant effort from one with her frail physique.

A correspondent writes:

Those who witnessed her gallant jesting at her own expense when lying ill twenty years ago could not help but pay tribute to that courage which failed neither in the face of severe pain nor in the knowledge that her arm might be amputated in the effort to save her life. Elizabeth O'Flynn studied at the London School of Medicine for Women and in Edinburgh, and when during the war of 1914-18 St. George's opened its doors temporarily to women, she joined that hospital. After qualifying in 1917, she was successively appointed house-surgeon, house-physician, medical registrar, and assistant curator of the museum at St. George's, evidence that her ability was

recognized to be of a high order. By this time her interest in pathology was aroused, and after holding a post in the pathological department at King's College Hospital, she was appointed assistant to Dr. J. G. Greenfield at the National Hospital, Queen Square, and, soon after, pathologist to the Queen's Hospital for Children, a post she held for 25 years until the time of her death; latterly she also undertook the pathological work of the Mothers' Hospital, Clapton. In her younger days Betty O'Flynn could be the life and soul of a party; every year at the time of the Aldershot Tattoo she would join a group of young professional colleagues of both sexes for a picnic outing—occasions which still live vividly in the memory of many of those who shared them with her. With her Irish wit and quickness went a lack of sense of time, and punctuality was never one of her virtues—a fact that involved her in many difficulties. Probably the happiest time of her life was during the short period of her marriage. In 1930 she married Sir Thomas Stanton, K.C.M.G., Chief Medical Adviser to the Secretary of State for the Colonies, and was thus brought in contact with the medical problems of the Colonial Medical Service, as well as with many members of that service. With her husband, too, she enjoyed visits to hospitals on the Continent of Europe and offered hospitality in London to visiting medical men. The death of her husband in 1938 was a shock from which it seemed to her friends that she never recovered.

Elizabeth O'Flynn, before permanent ill-health overtook her, contributed, either alone or jointly, articles on various pathological subjects to the medical journals, including the first description in this country of the changes in the organs in glycogen disease (Bellingham Smith and O'Flynn, 1933).

ERNEST F. NEVE, M.D., F.R.C.S.

The death took place at Srinagar, Kashmir, on Feb. 6 of Ernest Frederick Neve, a "crusader in Kashmir," to apply to himself the title of one of his books. Dr. Neve gave nearly half a century of active service to missionary medicine in northernmost India, and for ten years or more after his retirement he continued to live in the beautiful mountainous country which he had made his home. He was born at Brighton in 1861, educated at the grammar school there, and after spending two years in Germany entered Edinburgh University in 1879 and qualified in medicine in 1882. Quite early in life his eyes were fixed on a missionary career in India, to which an elder brother had already been dedicated, and he spent the next three years in preparation, acting as resident house officer at the Livingstone Memorial Training Institution in Edinburgh. He served also during part of this time as demonstrator in anatomy at the Medical School and senior assistant in the pathological department and senior ophthalmological assistant in the Royal Infirmary.

In 1886, having obtained the M.D., with gold medal, and the F.R.C.S.Ed., he went out to Kashmir, where he was associated with Dr. Arthur Neve at the Church Missionary Society hospital, Srinagar. This institution he continued to serve as honorary surgeon until 1923, and afterwards as consulting surgeon until his death. He was also one of the founders in 1892 of the Kashmir State Leper Hospital, and acted as its honorary superintendent for many years. While immersed in all this work in India he won the Gunning Lister Prize of Edinburgh University in 1889. His early training in ophthalmology proved useful in India, and in 1894 he published in the *Edinburgh Medical Journal* an analysis of 200 cases of cataract extraction. Other contributions to medical literature included accounts of excision in 700 cases of tuberculous glands and of 72 cases of Caesarean section in osteomalacia. His *Crusader in Kashmir*, published in 1928, referred not to himself but to his brother, and gave an account of the medical missionary work of the two of them, its beginnings and later developments in a strongly Mohammedan country.

Ernest Neve was also famous as a mountaineer; he was a foundation member of the Himalayan Club and made the first ascent of Kolahoi and other Kashmir peaks. He revised successive editions of a *Tourist's Guide to Kashmir*, and other works from his pen were *Things seen in Kashmir and Beyond the Pir Panjal*. In the war of 1914–18 he was captain in the Indian Defence Force Medical Corps. In 1918 he received the Kaisar-i-Hind gold medal of the first class for public services in India. He was also made a vice-president of the Church Missionary Society and the Royal College of Surgeons of England elected him to its Fellowship. In 1934 he retired from active medical work. He had been a member of the British Medical Association for fifty years and was a past-president of the Kashmir Medical Association.

Dr. JOSEPH COHEN, of Aldershot, who died on Feb. 4 at the age of 79, qualified as M.R.C.S., L.R.C.P. from the London Hospital in 1896, and held clinical assistantships there before settling in general practice. He had been a member of the B.M.A. for 48 years. A colleague writes: Joseph Cohen, as he would have wished, died in harness. He was engaged in active practice to within three days of his death. He was a general practitioner of the type which has raised our profession to the place which it occupies in the community to-day. His love and respect for his profession made him determined that nothing of himself should be spared in his exercise of it, and he gave himself unsparingly to the service of his patients. The result was that his patients, in return, gave him their deepest trust and affection, knowing that they would never look to him in vain for help, no matter what problem they brought to him. He was "guide, philosopher, and friend" to three generations of many Aldershot families, where the seniors valued his wisdom and the children his kindness and unfailing gentleness. Professionally he never allowed himself to grow rusty, and in later years, when troubled with insomnia, it was always a medical book or the current *Journal* with which he occupied the sleepless hours. Never too old to learn, he was assiduous in picking the brains of his younger colleagues in pursuit of the latest advances in medicine. His standards of professional ethics were unswerving and his conduct towards his colleagues was irreproachable; he demanded as much from them. His knowledge and skill were ever at the disposal of his fellow-practitioners, while his gay cheerfulness was a tonic to patients and colleagues alike. To work with Joseph Cohen was a pleasure and a privilege; the force of his example, both as a physician and as a man, made one better fitted to practise the profession which, in his own small community, he so outstandingly adorned. Another colleague writes: "Old Cohen" was an outstanding example of what is really meant by the phrase "the backbone of the profession." He had practised in Aldershot for longer than anyone could remember; he swore that he had forgotten all his medicine, yet at the age of 79 he was as modern and up to date as his youngest colleagues, and worked as hard as any of them in spite of a cerebral vascular warning 10 years before his death. Cohen showed the courage of a lion when he palpated his own death-warrant. I was asked to see him, and suggested that he should come that very morning, but he declined with thanks, saying that he had far too many visits to do! He was mercifully spared a long illness and died game and cheerful.

Dr. GEORGE CHRISTOPHER ROBINSON, a well-known Knaresborough medical man, died suddenly on Feb. 5 at Holyhead while on his way to Ireland for a holiday. Born in 1878 in County Fermanagh, Northern Ireland, he studied medicine in Dublin and took the L.R.C.P.&S.I. in 1902. Then for 37 years he practised at Knaresborough and held a number of public appointments. He was police surgeon for many years and medical officer to the Harrogate, Knaresborough, and Wetherby Joint Isolation Hospital. He gave up active work in July, 1939, and moved to Harrogate, but later returned to Knaresborough to carry on the practice of his younger son, Dr. Gerald B. Robinson, absent on war service. His elder son is Dr. Terence G. Robinson, medical superintendent of Shields General Hospital. Dr. G. C. Robinson was a prominent Freemason and in his younger days a noted rugby footballer. He joined the B.M.A. in 1923, was elected vice-chairman of the Harrogate Division in 1929 and chairman in 1930.

Dr. GRACE MARGRETE FREDERICKSON DOVER, of the Christian Women's Medical College, Ludhiana, Punjab, died on Feb. 5 at her mother's home at Telscombe Cliffs, Sussex. She was born in India, at Ghoom, in 1898, daughter of the late Rev. John Frederickson. From Queen's Hill School, Darjeeling, she went on to George Watson's College, Edinburgh, and studied medicine at Edinburgh University, graduating M.B., Ch.B. in 1922. She worked for a year in the ear-nose-and-throat department and in the eye department of the Edinburgh Royal Infirmary, and then became senior house-surgeon at the Royal East Sussex Hospital, Hastings. She returned to India to take up the appointment of lecturer on diseases of the ear, nose, and throat at the Ludhiana Women's Medical College and officer in charge of the ear-nose-and-throat department of the Memorial Hospital, Ludhiana. Dr. Dover received a temporary commission as lieutenant in the I.M.S. in June, 1943, and was later promoted captain.

We regret to announce the death on Feb. 13 at Broadway, Worcestershire, of Dr. CHRISTOPHER WILFRED SHARPLEY, who retired to Cutnall Green, near Droitwich, some little time ago after living at Smethwick, Staffs. He joined the B.M.A. in 1905, represented the West Bromwich Division at the Centenary Meeting in London and at Dublin in 1933, and had been chairman of his Division. A student of the Leeds Medical School he qualified M.R.C.S., L.R.C.P. in 1903, and after serving as

house-physician at the General Infirmary at Leeds became casualty house-surgeon at the Hull Royal Infirmary. During the war of 1914-18 he held the temporary rank of captain, R.A.M.C., and acted as radiologist to the 4th Northern General Hospital, Lincoln, and went over-seas to join the 69th General Hospital. After the war he took the Oxford D.P.H. and became M.O.H. and school medical officer for the borough of Oldbury, Worcestershire, and published a series of annual reports on his work.

Dr. ROBERT GEORGE KEVIN, of Belfast, who died on Feb. 16 after an operation for a serious abdominal condition, graduated in medicine in 1908 and took the M.D. of Queen's University, Belfast, and the D.P.H. in 1911. Before settling in practice he had been house-surgeon at the Royal Victoria Hospital and R.M.O. at Purdysburn Fever Hospital. His wide popularity is reflected in the two tributes that follow. W. D. writes: Dr. R. G. Kevin is mourned by a multitude of patients and friends. He was a man of high intelligence, wide knowledge, supreme kindness and skill, unfailing cheerfulness, and tireless energy. His friends could always be sure of obtaining light from him on any medical problem which puzzled them. He was an enthusiastic and skilful fisherman, and his skill with the shotgun was as great as with the fishing rod. The delight of these excursions with him was not only the sport, but his extraordinary knowledge of birds, beasts, and plants, of castle and dolmen which converted the landscape into a fairyland. He knew the serious ordeal that awaited him, but retained his stout-hearted cheerfulness to the last. G. F. C. writes: By the death of George Kevin Belfast has lost one of its outstanding medical practitioners, one who will long be remembered by all who had the privilege of knowing him. A clinician of the highest order, he combined a sound knowledge of the main branches of medicine with a clear and sympathetic understanding of his patient, thereby making his opinion of the highest value. Endowed with a keen zest for life, whatever he did he did with all his might, be it work, for which he had a remarkable capacity, or play, in many branches of which he excelled—he was a good golfer and a keen sportsman: indeed he was never happier than on those days when he could slip away with rod and gun from the din and bustle of the city to the quiet countryside which he loved so much. Gifted with a sense of humour, he had a well-stocked storehouse of anecdotes drawn from the experiences of his daily life. His genial presence and hearty laugh will be greatly missed by all those with whom he worked at the Board for the medical examination of recruits for His Majesty's Forces. He leaves behind him a record of work well done and a heritage of happy memories. To his widow and sisters sincerest sympathy goes out in their irreparable loss.

The Services

Capt. S. Sankaran, I.A.M.C., has been awarded the M.C. in recognition of gallant and distinguished services in Burma.

The following appointments and mentions have been announced in recognition of gallant and distinguished services while prisoners of war:

M.B.E. (Military Division).—Major (Temp.) W. M. MacLeod, and Capt. T. C. N. Gibbons, W. Milburn, A. P. Norman, J. E. Readman, N. S. Seaford, A. F. Stallard, H. T. Tate, and H. W. Wykes, R.A.M.C.

Mentioned in Dispatches.—Lieut.-Col. F. J. O'Meara, Majors W. L. Kinnear, M.B.E., and G. G. E. Smyth, Majors (Temp.) J. M. Fosbrooke and E. Moore, and Capt. J. A. Learner, D. J. MacRae, J. A. S. Mulligan, and T. M. Park, R.A.M.C.

The following appointments, awards, and mentions have been announced in recognition of gallant and distinguished services in the field:

O.B.E. (Military Division).—Lieut.-Col. (Temp.) E. M. Hennessy, R.A.M.C.

M.B.E. (Military Division).—Major (Acting) H. McP. Kilgour, R.A.M.C. (since died).

M.C.—Capt. A. Crook and A. Gourevitch, R.A.M.C.

Mentioned in Dispatches.—Lieut.-Col. T. A. S. Samuel, M.C., T.D., Major (Temp.) S. W. Barber, M.B.E., and Lieut. S. T. Williamson, R.A.M.C.

The Queen of the Netherlands has conferred on Lieut.-Col. J. R. Lochead, E.D., and Major A. G. Minnes, R.A.M.C., the decoration of Officer of the Order of Orange Nassau, and on Capt. N. N. Levine and M. Victor, R.A.M.C., the decoration of Knight of the same Order, in recognition of distinguished services in the cause of the Allies.

CASUALTIES IN THE MEDICAL SERVICES

Officially presumed to have lost his life in action at sea on September 13, 1944.—Capt. George Ferguson Allan, M.B., Ch.B., R.A.M.C.

Medical Notes in Parliament

Rickets

Dr. STEPHEN TAYLOR raised, on Feb. 11, the subject of rickets. He said it differed from most human ailments in that medical knowledge of it was practically complete. Its cause was known, as also how to prevent it. The Ministry of Health Survey on Rickets, published in March, 1944, covered the whole country and had been made for the Ministry by the British Paediatric Association. By x-ray tests it was found that about 4% of the children under 18 months had or had had rickets. By ordinary direct medical examination the figure was about 12%, varying from 0% in St. Albans to 60% in Sheffield. From the x-ray figure the House must conclude that about 24,000 children suffered from rickets each year, though the figure might have changed a little since the issue by the Ministry of Food of whole-cream dried milk with vitamin D added to it. During the war the policy of the Ministry of Food had been to make vitamin D, cheap or free. Orange juice containing vitamin C and cod-liver oil containing vitamins A and D, had been chosen media, but had not been entirely successful. In a wartime social survey in April, 1944, the Ministry of Food found that among 900 mothers with young children about 70% collected orange juice and only 40% cod-liver oil. Cod-liver oil was relatively unpopular. Its consumption among children over 1 year in age fell off rapidly, while babies were liable to spit it out. Cod-liver oil and malt would not prevent rickets unless it had vitamin D added to it. He urged the Government to test a real alternative in one or two Northern towns—1/10 milligramme of calciferol dissolved in about 15 milligrammes of bland arachis oil. That mixed perfectly and tastelessly with cocoa butter. A small penny bar of chocolate taken once a week would then contain all that was needed to prevent rickets. It might be able to add to the chocolate pro-vitamin A (carotene).

Mr. KEY, replying for the Ministry of Health, said findings differed widely when, during the investigations of 1944, the same group of children were examined by several clinical observers and radiologists. Evidence of mild rickets was found in 24% of children under 6 months and about 4% of children under 12 months, with a negligible number above that age. There had been no increase of rickets during the war. The Medical Subcommittee of the Ministry's Advisory Committee on Mothers and Young Children made recommendations arising out of the 1944 report. Those recommendations were accepted by the Minister and acted upon. National cod-liver oil with its 700 or 800 units of vitamin D per teaspoonful had received publicity. Vitamin D was being added to national dried milk. There had not been a substantial increase in the uptake of cod-liver oil. Some 25% of mothers with children under the age of 5 were taking their share. Consumption seemed to be smaller in summer than in winter. Investigation showed that palatability was largely due to the way in which cod-liver oil was given to the child. Difficulty in getting the necessary quantities of vitamin A prevented the use of vitaminized chocolate. Infants would not be properly treated if this chocolate was used. Experiment in co-operation with the Ministry of Food was proceeding on the problem.

Social Research

Dr. STEPHEN TAYLOR asked on Feb. 14 if the Government would establish a Social Research Council on similar lines to the Medical Research Council. Mr. HERBERT MORRISON said the committee under the chairmanship of Sir John Clapham which, at the request of Mr. Dalton and himself, was examining the adequacy of the existing provision for research into economic and social questions, had given attention to this point. He preferred to await any observations on it that might be made in their report before reaching any conclusion.

Infectious Disease in Pregnancy

Mr. HERBERT MORRISON announced on Feb. 13 that the Medical Research Council had received reports from Australia suggesting that certain congenital defects in children, including deafness, may be causally connected with infectious disease in the mother during pregnancy. The council was investigating the subject, and the question of the effect on the child's hearing was receiving special attention.

Duty on X-ray Apparatus

Replying for the Board of Trade on Feb. 14 Mr. BELCHER told Col. Stoddart-Scott that there was a shortage of deep x-ray therapy apparatus in this country, particularly of certain components. If an application for exemption from duty in a particular case was made to the Board of Trade it would

consider carefully whether it could recommend the Chancellor of the Exchequer to grant the exemption.

Release from the R.A.F.

Answering on Feb. 20 inquiries by Col. Stoddart-Scott and Mr. Garry Allighan Mr. JOHN STRACHEY said medical officers in the R.A.F. in Groups 28 and 29 would be released in March. General duty medical officers in the Army were now being released up to Group 38 and their colleagues in the Naval medical service would be released up to Group 47 by the end of March. Distribution of recruits to the three medical services was still under consideration, but the Air Ministry hoped to receive an allocation which would help to even up the release rate.

Colonial Medical Service in West Africa

Mr. LIPSON asked on Feb. 20 what steps were being taken to recruit and train doctors for the Colonial Medical Service in West Africa and to maintain it at its present level. Mr. GEORGE HALL said applications received from qualified men for appointment to the Colonial Medical Service now nearly equalled the total number of vacancies. Applications continue to come in at a steady rate. He was concerned at the disinclination of many candidates to serve in West Africa. He had under consideration proposals designed to make the service more attractive, particularly to candidates with higher qualifications. For training the fullest use was made of the courses in tropical medicine at the Universities of London, Edinburgh, and Liverpool.

Supply of Medical Textbooks

Mr. PALMER on Feb. 21 asked the Minister of Education if she would take steps to improve the supply of textbooks for medical students. Miss WILKINSON said production of textbooks was in the hands of the publishers, but supplies were affected by shortages of labour and materials. Recent increases in the quota of paper allowed for books and the release of printers under the Class B scheme would result in better supplies becoming available soon. Where shortage of paper held up production the publishers of textbooks had an additional source of supply from the reserve held by the Moberly Committee, who were ready to give sympathetic consideration to applications for important books which the publishers could not produce from their ordinary quota.

D.D.T. in Common Use

Mr. BEVAN on Feb. 21 told Mr. Austin that according to present knowledge there was little risk attaching to the use of D.D.T. in the form in which it was commonly used—namely, as a powder or a watery suspension. Further investigations were proceeding into the toxicity of D.D.T. in oily solution. In any form D.D.T. should be kept away from food, since taken internally it was harmful.

Tuberculosis Treatment in Switzerland

Mr. E. BEVIN announced on Feb. 20 that possible arrangements for the treatment in Switzerland of a certain number of tuberculosis cases were under consideration by the Minister of Health and the Minister of Pensions, as a result of a generous offer recently made to the Minister of Health through the Swiss Minister. A proposal to take over in Switzerland two sanatoria owned by the German Government would require careful consideration from many points of view.

Psychiatric Treatment of the Prisoner.—Mr. EDE stated on Feb. 7 that arrangements existed under which any prisoner, man or woman, at any establishment could receive psychiatric treatment if the medical officer considered it desirable. He said that not all sexual offenders were suitable subjects for psychiatric treatment, but all were specially examined with a view to such treatment if the examination showed they were likely to benefit thereby.

Priority Telephone Calls for Doctors.—Mrs. MIDDLETON on Feb. 21 asked the Assistant Postmaster-General to introduce priority telephone calls for the medical profession to obviate delays in securing hospital beds for patients. She recalled that a similar system operated formerly under the National Telephone Company. Mr. BURKE replied that when a member of the medical profession had to make a vitally urgent call the operator would give the call priority if the urgency was explained at the time.

Notes in Brief

Mr. Isaacs told Sir Henry Morris-Jones on Jan. 24 that it was no longer possible to direct women to fill domestic vacancies in hospitals. He hoped that as a result of acceptance by hospital authorities of the new code of conditions relating to hospital domestic workers unemployed women would show increasing willingness to enter this field.

The Government has taken no decision to advance the next census, which is due in 1951.

Mr. Barnes repeated on Jan. 28 a previous refusal to add doctors to the list of priority categories for the purchase of Service reconditioned motor cars.

Universities and Colleges

McGILL UNIVERSITY, MONTREAL

New Department of Anaesthesia

Recently at McGill University there has been created a Department of Anaesthesia, with Dr. Wesley Bourne as its head. The chief objects are: (1) The improvement of the teaching of anaesthesia to the undergraduate student in medicine. (2) The enhancement of opportunities for learning anaesthesia by the internes of the hospitals connected with the university. (3) The maintaining of a three-year diploma course in anaesthesia for those graduates in medicine who desire to become specialists in a complete manner. (4) The development of investigation in anaesthesia, in the way of interrelationship, in the clinic and in the laboratory, and, also, in an interdependent fashion with McGill University's other departments. Dr. Wesley Bourne and his associates feel, with good reason, that the founding of their department celebrates the centenary of anaesthesia in a most practical way.

UNIVERSITY OF LONDON

Prof. Wilson Smith, M.D., has been appointed to the university chair of bacteriology tenable at University College Hospital Medical School. Since 1939 he has been professor of bacteriology in the University of Sheffield.

The degree of D.Sc. has been conferred on N. F. MacLagan, an internal student at Middlesex Hospital Medical School.

LONDON HOSPITAL MEDICAL COLLEGE

The following entrance scholarships for 1946 are announced: *Two open Scholarships* (value £100 each), in two or more of the following subjects—human morphology and embryology, physiology and pharmacology, biochemistry, and pathology, bacteriology, and morbid anatomy. The examination will be held on April 16 and 17. *Price Scholarship (Medical)* (value £100), and *Francis Farmer Scholarship (Dental)* (value £50), in biology, chemistry, and physics. The examination will be held on April 17. *Price University Scholarship* (value £100) in anatomy and physiology (limited to students of the Universities of Oxford and Cambridge). The examination will be held on July 5. Applications for admission should be sent to the Dean, Dr. A. E. Clark-Kennedy, London Hospital Medical College, Turner Street, E.1.

The Glanfield Harris Prize in Anaesthetics (value £60) is provided out of interest on a sum of money subscribed by relatives and friends in memory of Dr. John Richard Glanfield Harris, formerly assistant anaesthetist and assistant instructor in anaesthetics to the London Hospital, and will be awarded triennially to the author of the best essay on "Recent Advances in Anaesthesia." Candidates must be students of the London Hospital within ten years of obtaining a registrable medical qualification. No person will be eligible for the prize on more than one occasion. Essays for the prize will be received up to Dec. 31, 1947, and should be addressed to the Dean of the Medical College, from whom further particulars may be obtained.

Medical News

A clinical meeting of the Medical Society of the L.C.C. Service will be held on Wednesday, March 6, at 2.30 p.m., at Bethnal Green Hospital, Cambridge Road, E., when the staffs of Bethnal Green and Hackney Hospitals will demonstrate cases.

The 166th anniversary dinner of the Medical Society of London will be held at Claridge's Hotel on Friday, March 8, at 7 for 7.30 p.m. Applications should be sent to the Registrar of the Society, 11, Chandos Street, W.1.

It is hoped to institute a course of lectures and demonstrations in applied anatomy, physiology, and physics, suitable for medical men intending to take Part I of the Diploma of Physical Medicine, beginning on Monday, March 18. Prospective candidates should communicate with the Dean of the Medical School, Guy's Hospital, S.E.

The Ophthalmological Society of the United Kingdom will hold its annual congress on Thursday and Friday, May 30 and 31, and Saturday, June 1, at the house of the Royal Society of Medicine, 1, Wimpole Street, W. The subject for discussion is ocular disturbances associated with malnutrition. The president's address bears the title "Johannes Evangelista Purkinje." The Bowman Lecture will be given by Dr. Arnold Knapp, on intracapsular extraction of cataract. Part of the Friday afternoon session will be devoted to a joint clinical meeting with the Ophthalmological Section of the R.S.M. Members who intend to take part in the discussion or to read papers should write before the end of March to the honorary secretary, Mr. Frank W. Law, 36, Devonshire Place, W.1.

A meeting of the Association of Industrial Medical Officers will be held on Friday, March 22, at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C. Private business will start at 4.30 p.m. and will be followed by the public business at 6 p.m. Dr. Beards will read a paper on "A System for the Recording of Sickness Absence in Industry with the Object of Determining Occupational Factors of Causation" and Dr. Chard will read a paper on "Practical Treatment of Minor Industrial Injuries". The meeting will be continued from 10 a.m. to 12.30 p.m. on March 23 at the out-patient department of the West London Hospital, Hammer Smith W. Dr. W. S. C. Copeman has arranged a practical demonstration on "Rheumatism in Industry".

The American Ambulance in Great Britain, which is being wound up after very valuable war service, has given £25,000 from its surplus funds to the Middlesex Hospital. The money will be used to endow two single bed wards, to which members of the staff of the American Embassy and other citizens of the U.S.A. will have first claim. On Feb. 20, in the board room of the hospital, Mr. Gubert H. Carr handed the cheque to Col. J. J. Astor, chairman of the board of management, who gave thanks for this gift and handed to Mr. Carr a written acknowledgment in which were set out the purposes to which the money will be applied. Others, he said, had already expressed the nation's thanks for the magnificent work of the American Ambulance. Sir Gordon Gordon-Taylor, in a tribute to the work of the American organization in the war, said that when the Royal College of Surgeons was badly damaged by enemy action in 1941, and the Hunterian Museum almost destroyed, the American Ambulance came to their aid with 78 ambulances and removed 26,000 specimens to various parts of the country. The American Ambulance Unit has also presented £5,000 to Guy's Hospital to endow four beds and two cots and the same sum to St. George's Hospital and to the Westminster Hospital.

The National Collection of Pathological Specimens of War Injuries has been moved and is now housed at Farm Laboratory, the Ridgeway, Mill Hill, London, N.W.7 (telephone, Mill Hill 1182).

Dr. Robert C. Page, a medical officer in the Army Air Forces during the war and assistant medical director of the Standard Oil Company (New Jersey), has been appointed general medical director of the company. He succeeds Dr. Willard J. Denno, chief medical officer since 1918, who developed the medical department from an office with one part-time physician to a world-wide organization having 11 hospitals and more than 150 physicians.

EPIDEMIOLOGICAL NOTES

Discussion of Table

The *Empress of Australia* arrived at Liverpool with one of the crew suffering from smallpox, three other cases had been put ashore at Suez. The infection was believed to have originated in Bombay.

In *England and Wales* the notifications of dysentery were 70 fewer than in the preceding week, while scarlet fever and measles were more prevalent, increases of 54 and 44, respectively, being recorded. The only fluctuation of any size in the returns for scarlet fever was a rise in Lancashire of 48. The increase in measles was mainly contributed by Lancashire and Norfolk (25 and 23 more cases). There were no variations of note in the local trends of diphtheria and whooping-cough.

The fall in dysentery was due to a decrease in the outbreak in Leicestershire, where the notifications fell from 130 to 69, in the preceding six weeks 797 cases were reported in this county. The other large returns were Lancashire 37, London 24, Northamptonshire 22, Northumberland 21, Warwickshire 17, Bedfordshire 10, Worcestershire 10.

In *Scotland* the chief features of the returns were increases of 128 in measles and 32 in diphtheria. The rise in measles was due to the large increase in Glasgow. The recent persistent high level of diphtheria is unsatisfactory, and another intensive drive for immunization of children against diphtheria is to be launched.

In *Eire* the notifications of diphtheria fell by 34, and those of measles by 27. The only notable rise was that of 24 for whooping-cough.

In *Northern Ireland* diphtheria rose from 16 to 24.

Week Ending February 16

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,303; whooping-cough 1,329; diphtheria 489; measles 1,489; acute pneumonia 1,387; cerebrospinal fever 73; acute poliomyelitis 9; dysentery 255; typhoid 5. Deaths from influenza in the large towns numbered 220. Four cases of smallpox, including one imported case, were notified during the week, 2 of the cases were reported from the metropolitan borough of Hampstead and 2 from Essex, Thurrock R.D.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Feb. 9.

Figures of Principal Notifiable Diseases for the week, and those for the corresponding week last year for: (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland.

Figures of Births and Deaths and of Infant Mortality rate for: (a) The 126 great towns in England (administrative county) (b) London (administrative county) (c) The 13 principal towns in Eire (d) The 10 principal towns in Northern Ireland.

A dash — denotes no cases, a blank space denotes disease not notifiable or no return available.

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	93	6	24	4		91	5	37	4	2
Diphtheria Deaths	477	27	140	41	2	402	18	117	66	11
Dysentery Deaths	337	24	65	1	—	324	39	104	22	7
Encephalitis lethargica, acute Deaths	4	1	1	—	—	1	—	—	—	—
Erysipelas Deaths	—	—	46	8	—	—	40	6	1	—
Infective enteritis or diarrhoea under 2 years Deaths	48	5	10	27	1	56	6	5	9	4
Measles Deaths	1,211	237	221	85	1	20,627	814	417	41	11
Ophthalmia neonatorum Deaths	67	5	20	—	—	63	3	15	1	1
Paratyphoid fever Deaths	8	—	—	—	—	2	—	—	2(B)	—
Pneumonia influenza (from influenza)†	1,832	114	107	40	1	1,449	95	16	7	3
Pneumonia primary Deaths	—	84	25	43	6	—	334	28	20	10
Poliomyelitis, acute Deaths	—	—	1	—	—	—	—	—	—	—
Poliomyelitis, acute Deaths	11	—	1	1	—	5	—	2	—	—
Puerperal fever Deaths	—	1	6	—	—	—	2	8	—	—
Puerperal pyrexia† Deaths	173	16	10	1	1	133	11	12	2	1
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths	1,405	124	173	21	3	1,466	68	180	22	38
Smallpox Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever Deaths	6	—	—	3	1	6	1	1	3	3
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* Deaths	1,253	100	69	49	8	1,516	70	135	74	17
Deaths (0-1 year) Infant mortality rate (per 1,000 live births)	62	63	67	49	51	51	41	70	—	40
Deaths (excluding still births)†	6,552	1,049	837	27	18	6,564	923	828	320	210
Age-standard death rate (per 1,000 persons living)	—	—	18.4	17.6	—	—	—	18.8	20.6	—
Live births	7,382	1,106	874	418	258	7,002	712	819	340	236
Age-standard rate per 1,000 persons living	—	—	17.6	26.8	—	—	—	16.4	22.6	—
Stillbirths	231	31	33	—	—	218	19	30	—	—
Rate per 1,000 total births (including stillbirths)	—	—	7.6	—	—	—	—	3.5	—	—

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes puerperal fever for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Articulate Westcent, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Indiscriminate Use of Sulphapyridine

Q.—*I was amused this morning by a request from a patient for sulphapyridine tablets for his cold. A chemist neighbour told me that a note was handed to him recently for "a bob's worth of sulphapyridine." Am I depriving my patients by adhering rigidly to the teaching that this drug is no good unless given in doses of 20 gr. (1.3 g.) every four hours in streptococcal pneumonia and other conditions caused by this organism?*

A.—The sulphonamides have no effect on the viruses which usually cause the common cold; hence this treatment for an uncomplicated cold is useless. Many of the bacteria which sometimes appear as secondary invaders are susceptible to them, and taking a sulphonamide may therefore prevent the persistence of the catarrh, the development of sinusitis, or even more serious complications which sometimes result from secondary bacterial infection. In patients whose colds habitually pursue such a course sulphonamide treatment may be justified; it is simply a waste of the drug to give it to every case. The small doses usually taken should be adequate for preventing infection, which is the aim of this treatment. Sulphapyridine is scarcely the drug of choice for this purpose, owing to its marked tendency to produce nausea; sulphathiazole, sulphadiazine, or sulphamezathine would be preferable. The fact that all of these have been in short supply is a strong reason for not prescribing them indiscriminately and unnecessarily for trivial ailments.

What is an Epidemic?

Q.—*Almost every time influenza appears some official says there is no epidemic. Shortly afterwards somebody cautiously refers to an "outbreak," and then, when everyone knows an epidemic is on, the word appears in official pronouncements. What is an epidemic?*

A.—Our correspondent's question is as hard to answer as the old question: When does a heap of stones, steadily diminished by taking away one stone at a time, cease to be a heap of stones? If in some populous area the monthly average number of notifications of, say, diphtheria were 9 and in a particular month 100 were notified, probably most people would say diphtheria was epidemic there. If 20 cases were notified, perhaps "prevalent" would be the word chosen rather than "epidemic." The word prevalent is to most of us less alarming than the word epidemic, hence an official preference for it. It is interesting to speculate why the word epidemic is more alarming. Perhaps we are unconsciously affected by the ancient doctrine that epidemic diseases were due to corruption of the "atmosphere." If that were true the only advice we could give would be to flee into clean air (the advice our forefathers did give). This might not be much less futile than official advice now given, but everybody would see its futility.

Exercise Tolerance in Valvular Disease

Q.—*Are exercise tolerance tests useful in assessing chronic valvular lesions?*

A.—Tests of exercise tolerance have not very much value in the assessment of chronic valvular disease. A careful history of the patient's activities and symptoms really provides more satisfactory information. It must be remembered that people with chronic valvular disease may have a perfectly good exercise tolerance; and people may have a bad exercise tolerance for reasons other than those connected with valvular disease. The test must, of course, be suited to the age, weight, and fitness of the patient, and to the severity of the lesion from which he is suffering.

A simple test is to record the patient's heart rate when lying, then note it when standing, and then get him to mount some twenty times or less, as thought suitable, on to a stool about 12 to 18 inches (30 to 45 cm.) high. This exertion should be carried out steadily for about 45 to 60 seconds. The heart rate can then be recorded at the end of the test, and again after one minute. Further observa-

tions can be taken at the end of succeeding minutes. In a healthy person the normal reaction would mean the resumption of the original standing rate after about 45 to 60 seconds.

Excitement may introduce a factor tending to provoke acceleration. Effort syndrome may be present, quite apart from valvular disease, and so give a defective result. Probably as important as anything else is observation of the severity and duration of any dyspnoea that may have been produced. With so many variable factors, it is obvious that the test must be considered in the light of other findings. It has, however, a definite place where information of an objective character is desired as to the effect of physical exertion upon the heart. Most textbooks have information on the subject.

Pasteurization and Surgical Tuberculosis

Q.—*Are there any statistics available which prove that pasteurization of milk results in a fall in incidence of surgical tuberculosis. If so, what are the relevant facts?*

A.—Statistics which prove that pasteurization has decreased the incidence of surgical tuberculosis are not available. Deaths from tuberculosis, except for the country as a whole, are tabulated under two headings only—"respiratory tuberculosis" and "all other forms." The trend of the mortality from surgical tuberculosis must therefore, be indirectly estimated from "all other forms." This indirect approach was made by Prof. G. S. Wilson in his book *The Pasteurization of Milk* (Arnold, London). He compared the experience of London, where almost 100% of the milk is pasteurized and that of the rural districts, where most of the milk consumed is raw. While not proving in a strictly scientific sense that pasteurization has decreased the incidence of bovine tuberculosis, the evidence produced supports this contention.

Internal Combustion and Vitamin B

Q.—*I read in the "New Statesman and Nation" that recent discoveries in the vitamin B group show that they "quicken the processes of internal combustion, so that the desirable loss of heat takes place easily and a man can remain energetic and mentally alert without succumbing to the lassitude which a hot climate usually imposes." How much of the above statement is true?*

A.—As so often happens, the superficial analogy of the human body with an internal combustion engine, implied in the question is very misleading. There seems to be some confusion between "loss of heat" and the stepwise release of energy, due to a chain of enzyme reactions, that results finally in the complete combustion of carbohydrate (glucose) to carbon dioxide and water. Several of these reactions are catalysed by enzymes, of which certain water-soluble vitamins form an integral part; these are aneurine (thiamin, vitamin B₁), riboflavin, and nicotinic acid (or its amide). It is doubtful whether there have been any serious scientific publications showing that these processes, provided they are proceeding normally in a healthy body receiving an adequate diet, can be at all influenced in such a manner as to affect the heat-regulating mechanism of the body.

Difficult Child

Q.—*While I was away from home my daughter, aged 3½, fretted for me, would ask after me at meal-times, and be sick. I have now returned home, but the trouble continues. She still creates a scene at meal-times, saying first that she has cramp, then that she is hungry and wants feeding, and then she is sick. After that she generally eats well. She declares that it is her naughty dollies who are sick and who make her miserable. What is the right treatment?*

A.—Feeding difficulties are very common between 3 and 4 years of age, and usually clear up spontaneously unless too much notice is taken of them. In this case the onset of symptoms while she was missing the parent, and her insistence on projecting her "naughtiness" on to the dollies, suggest that she is suffering from anxiety so acute that she cannot control her behaviour. It would probably be wise to let her be seen by a children's psychiatrist, but if there is a good day nursery or nursery school in the neighbourhood it might help her to attend this. Feeding difficulties often cease when children have meals in a group, and the nursery should be able to provide additional outlets in play and other occupations that would benefit her considerably.

Altered Blood from the Nipples

Q.—*A woman of 50 has noticed for some months that on squeezing the nipples a small droplet of an inky-black fluid can be expressed. There is no pain, and the breasts and the nipples look quite healthy. What are the cause of this, and the treatment?*

A.—The discharge from the nipple in this case is almost certainly old changed blood arising from small papillomata in the larger sub areolar collecting ducts. If the sector of the breast radiating from the particular point at which the discharge appears is palpated, it will probably be found that pressure will produce more discharge. Some of these papillomata in the course of time may undergo malignant change into duct carcinomata, but others have been

followed for many years without any sign of such change. It is sometimes advocated that the small sector of the breast concerned should be excised, but this may be followed by a repetition of the discharge from other sectors. On the whole it is probably wisest to do nothing active at this age, although the breast must, of course, be kept under active observation. The writer has not seen much improvement following x-ray treatment in these cases, and mastectomy (in this case bilateral), which has been suggested, would appear rather too drastic a treatment for a condition which is, after all, only potentially malignant.

Seborrhoeic Dermatitis in a Child

Q.—What is the best treatment for seborrhoeic dermatitis in a child of 1 year? Is the diet of any importance? If sulphur is used is there a risk of producing a sulphur dermatitis?

A.—External treatment by sulphur requires experience and judgment, and is perhaps best avoided except in conditions such as acne and rosacea where the seborrhoeic basis requires it. This applies to all forms of infantile eczema, because, although it is sometimes effective in the seborrhoeic variety, the chance of aggravation is not inconsiderable. Probably a mild boric and zinc ointment with 2% ichthammol would prove a safer application.

Diet in infantile eczema is a controversial subject, and while skin-tests often prove positive to such things as egg-white and milk, their exclusion usually makes no difference to the eruption. The fat over-nourished child probably benefits from restrictions, but at the present time special diets are either difficult or impossible, and might even interfere with the development of a growing child.

Abortion

Q.—A woman aged 30 had an abortion (2 months) in 1943. In December, 1945, she gave birth to a five-months foetus. From her history the pregnancy should have been seven months, but the foetus was in good condition and did not look as if it had been dead for two months. A week before labour she had a slight haemorrhage, and just after it a rather more pronounced one. Can you tell me: (1) the most probable cause or causes; (2) the chances of a future normal pregnancy; (3) the best immediate post-natal treatment; and (4) if she attempts a future pregnancy what precautions should be taken? She has a slight degree of anaemia and is rather nervous; otherwise normal.

A.—(1) The fact that the foetus was small for its age rather suggests some interference with its nutrition and possibly an underlying fault in the placenta. It would be interesting to know whether the latter showed signs of infarction or other abnormality. Steps should be taken to exclude vasculo-renal disease—of which even a slight degree may be significant—and any general illness which might impair foetal nutrition. The anaemia may be important, and its nature and degree should be determined. The mention of nervousness raises the possibility of thyrotoxicosis as a causal factor in the abortions. Local disorders should also be looked for, and if bimanual examination gives negative results uterolappingography could be carried out, to exclude deformities such as a septate uterus. If no cause can be found it should be remembered that the occurrence of two abortions is not necessarily indicative of an abortion habit; they may each have been caused by random factors not likely to recur.

(2) The chances for the future depend largely on the cause of the abortions, if one can be found. For all cases of two consecutive abortions, however, and irrespective of treatment, it has been calculated mathematically that the chances of the third pregnancy progressing to term are 30 to 60% (for full discussion see P. Malpas, *J. Obstet. Gynaec. Brit. Emp.*, 1942, 49, 65). If a cause can be found and treated the chances are, of course, much higher.

(3) There seems no need for immediate treatment other than for the anaemia and any other condition which investigation brings to light.

(4) Advise the patient to wait six months from the time of the last abortion before attempting to conceive again. In the next pregnancy, if no cause for the abortions has been found, treatment should be on the usual empirical lines: rest, avoidance of coitus and travelling, sedatives for general nervousness, and possibly twice-weekly injections of 5 mg. progesterone up to the twenty-eighth week of pregnancy. Attention should be paid to ensuring the patient an adequate diet; supplements of iron and large doses of vitamin E might be helpful.

Menopausal Neuralgia or Rhinitis

Q.—About 30 years ago a lady had severe influenza followed by frontal sinusitis, which was treated surgically. Recently she has had neuralgic attacks in the distribution of the right fifth nerve; the eye waters and becomes slightly congested. A.P.C. tablets do good temporarily, and I have used the ordinary type of nasal spray, keeping the mouth open during this procedure. Would a course of sulphonamides or penicillin be useful?

A.—Before advising treatment an attempt at a more accurate diagnosis should be made. The symptoms given in this question

correspond more closely with trigeminal neuralgia or menopausal vasomotor rhinitis than with frontal sinusitis. If there are no facilities for diagnosis other than observing the effects of treatment, ephedrine 1/2 gr. (32 mg.) and phenobarbitone 1/2 gr. (32 mg.), twice daily, with an adequate dose of stilbestrol, are effective in controlling the symptoms of vasomotor rhinitis. Neither penicillin nor sulphonamides are indicated without more adequate investigation of the cause of the pain.

INCOME TAX

Assistant Installed in Own Residence

B. C. has hitherto been allowed to deduct only one-half of the expenditure on house rent, rates, heating and lighting, and cost of maid. He has now installed a full-time assistant in the house and has left the district.

* The whole of these expenses are claimable as from the date when B. C. ceased to use the premises as a private residence. The benefit which the assistant receives by residing on the premises provided at B. C.'s expense is not part of the taxable income of the assistant.

Use of Car

H. J. is in full-time employment, and receives £45 per annum plus 34d. per mile for the use of his car. He proposes to sell the car for, say, £350, and buy another for, say, £500. What relief, if any, can he claim against his income-tax assessment?

* In ordinary circumstances the Revenue authorities would not entertain such a claim, holding that the cash received would, over a period of years, cover the "necessary" cost of travelling in the performance of the duties. It is possible that representations that in existing conditions the cost of replacement is quite abnormal and therefore has not been recouped might succeed to the extent of securing deduction of some part of the £150 to be expended in replacement.

M. N. has a "full-time Government appointment," but is allowed to do a little private practice in his spare time. He keeps a car but receives no allowance for its use in connexion with his appointment. What can he claim for its use against his earnings from private practice?

* A proportion of the total running costs, including depreciation, insurance, etc. The proportion will presumably be determined by the ratio of the total mileage to the mileage specifically due to the private practice. If the result of the private work is that a loss is incurred, the amount can be set against the Government salary, etc., under Section 34 of the Income Tax Act, 1918.

Temporary Residence in the United Kingdom

E. J. holds a Colonial appointment and has been granted twelve months' special leave for a specified form of training. He will continue to pay the Colonial tax. He landed in this country on Oct. 31, 1945. What is his liability, if any, to British income tax?

* E. J. has clearly come to this country for a temporary purpose only and without the intention of establishing a residence here. Accordingly he will not be liable to British tax in respect of his Colonial income unless he spends six months in this country in any one financial year. As he did not arrive until Oct. 31, 1945, he will not be liable for the year to April 5, 1946; and he will not be liable for the year to April 5, 1947, unless he spends six months in this country in that year.

"GASIMA" is in the Colonial Medical Service and has been granted three years' study-leave in this country.

* He will apparently become "resident" but not "ordinarily resident" and will be liable to British tax. He will, however, be entitled to "double income tax" relief, and to the usual allowances—i.e., £180 for a married man and £50 for each child, and 10% in respect of earned income. Fees paid for medical courses and examinations will not be deductible.

Deduction of Tax from Assistant

R. R. explains that a former assistant of his acted as his locum-tenent while on Army leave. He has asked the local inspector of taxes what tax he should deduct but has had no reply.

* As the former assistant is not normally carrying on his profession as a locum-tenent it seems to be both right and desirable that he should be treated as an employee and suffer tax by deduction. The amount to be deducted is the sum shown against the appropriate amount of "gross pay" on the pink "emergency card." If R. R. has not been supplied by the tax office with such a card, no doubt he will receive one on a request being made.

LETTERS, NOTES, ETC.

Longevity

Dr. HUGH MACKINTOSH (Troon) writes: Your correspondents appear to have overlooked two rather important indicators concerning longevity. First, human remains have been disinterred by archaeologists, almost certainly pre-Flood, having characteristics that indicate longevity far greater than anything we can at present conceive. The most striking indication is the extraordinary way in which the teeth are worn right down into their sockets by long usage. Thus "the ancient cemetery at Ur (i.e., Abraham's Ur of the Chaldees), and the still more ancient one (circa 2,000 years older) at the neighbouring site called Al-Ubaid, testify strongly not only against revolutionary theories but also to the accuracy of the Bible in ascribing long life-periods to primeval mankind." And Sir Arthur Keith states: "Certainly, as physical anthropologists measure people, the later people of Ur were not the equal of the earlier people found at Al-Ubaid"; and again: "The ancient Sumerians were a large-headed, large-brained people, approaching or exceeding in these respects the longer-headed races of Europe. . . . The teeth of the early Sumerians of the Al-Ubaid cemetery were worn down to an extraordinary degree—much more than those of the people buried in the later cemetery of Ur itself." Actually there is ample secular evidence to show that there once existed on this earth of ours a race of men of magnificent physique, splendidly muscled, with a brain capacity exceeding that of modern man, and having all the signs of extreme longevity. My second point is that in trying to estimate the claims of the Bible for great length of years your correspondents are assuming that climatic conditions on the earth have always been as they are now, whereas there is much evidence that that is not so. In his book *Evolutionary Geology* McCreadie Price shows that the geological evidence supports the view that at one time the earth enjoyed a uniformly warm climate from pole to pole ideally suited for the growth and long life of plants and animals. The plants and animals that existed then and whose species have survived to the present day were giants of their kind. He also shows that a catastrophe of world-wide character occurred that could only be explained by the Flood of the Bible. There is only one thing that can be visualized as giving a uniformly warm and equable climate—namely, something that would envelop the whole earth so as to prevent the direct rays of the sun from penetrating its surface and at the same time act as a heat-trap. The only thing that can be imagined as doing this is a complete envelope of water vapour high up in the atmosphere or at its upper limit. Under such conditions the climate would be uniformly warm, with no extremes of any kind, and there would be no showers but a heavy dew to water the surface of the earth. Nor would the seasons exist as they do now, nor the clear distinction between day and night that a direct view of the sun, moon, and stars gives. If, by some chance cause, this belt or envelope of water vapour were to be precipitated on to the earth, the result would be a flood of the extent described in the Bible, with all those extremes of heat and cold, moisture and drought, that we now experience due to the action of the direct rays of the sun. So it would seem that conditions for animal and plant growth and survival were once much more ideal than they are now, and that we cannot judge the possibility of the extreme longevity claimed in the Bible on the assumption that climatic conditions were the same then as they are now.

Jittery Legs

A. R. writes: The following two personal cases suggest that this symptom, which was discussed in the annotation (Jan. 19, p. 95), has a sexual basis. (1) For some years I was troubled with pruritus. If the scrotal skin around the root of the penis was traumatized—e.g., by too rough drying after a bath or by scratching—I invariably had symptoms in bed shortly after. Trauma to the under surface of the scrotum or to the perineum had no such sequel. The symptoms were similar to those you describe, and consisted of an ill-localized discomfort, apparently in the muscles of the calf, relieved for some 5 to 10 seconds by movement of the legs, then building up again and demanding another movement for its relief. This happened only in bed. Until I discovered a means of speedy relief the symptoms would persist for some half to one hour on each occasion. I found that a local anaesthetic applied to the traumatized area usually gave prompt and complete relief. Occasionally, if the trauma had been more severe, relief was only partial. (2) During the first years of our marriage my wife sometimes had similar symptoms when lying close to me in bed. These were relieved either by coitus or by moving further apart.

"General Debility"

Dr. H. CRICHTON-MILLER (Harrow-on-the-Hill) writes: On p. 303 of the *Journal* of Feb. 23 a question is asked in the following terms: "How can so-called general debility in the ordinary working-class patient be tackled so as to get the quickest recovery?" Without

commenting on the positive advice offered, may I enter a protest what is omitted? I refer to the complete absence of any reference to bacteriogenic conditions. Not a word is said about septic toxæmia or intestinal stasis; no mention is made of infected sinuses or dental toxæmia. And yet these must account for a goodly proportion of cases. May I suggest that before prescribing a "large amount" of rest or exhibiting an equally "large amount" of appreciation the practitioner would do well to investigate the E.S.R.?

Descent of the Testis

Dr. H. MACNAUGHTON-JONES (Amersham) writes: There is a simple explanation which may account for the descent of the testicle at birth which does not appear to have been mentioned. The season in which birth took place was a material consideration in non-migratory animals, including man during his development and in primitive states before the adoption of clothes. Though the increased survival of the young born at a particular period would, apparently, be sufficient to secure parturition during it, in animals in which there was a material interval between copulation and parturition the exposure of the testicle to climatic changes would be a valuable factor in determining the presence of minimum and maximum appetence in the male at the appropriate times. Indirectly and to a minor extent it would affect the period of appetence in the female, inasmuch as those in which its presence coincided with that in males would be those most frequently bearing young, and during development would lead to correlation.

Hypodermic Needle for Skin Suture

L./S.B.A. KILLE (Glenholt Camp, Plymouth) writes: The other day an incised wound of the wrist was sutured in a way I had never seen before. All the S.B.C.P.O. used was a hypodermic needle and horse-hair suture, prepared with the usual aseptic precautions. The suture was passed through the bore of the needle till the end was visible but clear of the needle point. With his free hand he brought together the wound edges, and with a smooth sweep passed the needle through the flesh on either side of the wound; the patient was unaware that he had been touched with a needle. The suture was passed on through the bore and the end gripped with the free hand; the needle was then withdrawn along the length of the suture, and the suture was tied. Four sutures were inserted in this way without any discomfort to the patient, and the operation was as neat as any I have ever seen.

Toxic Effects of High Octane Petrol

Major JOHN H. LANKESTER, R.A.M.C., writes from Oxted: With reference to the question and answer under this heading (*Journal* Jan. 26, p. 152) and to Mrs. Jean Patey's note (Feb. 16, p. 264) some of the patient's symptoms may well be caused by the tetra-ethyl lead which is added to high octane petrol. Intoxication by the tetra-ethyl lead contained in 100-octane petrol was common among Indian Pioneers engaged in filling petrol cans in Abadan in 1943-4. Three or four deaths occurred before adequate preventive measures could be adopted. Absorption of this form of lead is largely by inhalation, and is accelerated by high temperature. The severe cases with mental symptoms were during the excessively hot summer months. Early symptoms include headache, giddiness, epigastric discomfort, and muscular weakness. Later, and often with dramatic suddenness, mental symptoms supervened in the form of violent mania with acute terror. Such cases were usually fatal. Preventive measures adopted were: improved ventilation at working site, reduction of spilling, the use of a barrier cream on the hands, and the strict enforcement of a roster of duty which gave operators other duties away from exposure to petrol in order to allow excretion to take place. Special precautions are also necessary in the handling of the pure tetra-ethyl lead. An authoritative article by the medical staff of the oil company concerned would be of interest.

Service Conditions and the Ethical Code

The writer of the letter with this heading published on Jan. 12 1946 (p. 76) under the pseudonym "Hippocrates" informs us that the dental surgeon in question was not an officer of the Army Dental Corps.

Medical Golf

The Medical Golfing Society marked its renewal of activities by a dinner at the Trocadero, in conjunction with its annual general meeting. Sir Charles Gordon-Watson was in the chair. Some 41 members were present, and all enjoyed a good dinner and a very cheery evening. It is hoped to hold a one-day meeting at Walton Heath, and in the late autumn a week-end meeting at the sea.

New Year Honours

Acting Squad. Ldr. Frank Desmond MacCarthy, R.A.F.V.R., was appointed O.B.E. (Military Division) in the Honours List published on Jan. 1.

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THE HEALTH OF INDIA*

BY

Sir JOHN MEGAW, K.C.L.E., D.Sc., M.B.

Major-General, I.M.S.(ret.), President, India Office Medical Board, and Medical Adviser to the Secretary of State for India, 1933-9

For more than 25 years I have studied the health situation in India with ever-increasing anxiety and with a growing conviction that the country was heading for a calamity which could not be prevented unless the people were aroused to a sense of their danger and thereby induced to take the road to safety that is open to them.

The health of India is a vast and complicated problem, but, like many other great problems, it will be found simple in its essential aspects if examined in the right way, which is to make a search for the basic principles concerned, and to refuse to allow one's attention to be distracted by side issues. When this method of inquiry is adopted it becomes clear that the health of human beings throughout the world is governed by certain natural laws which are so obvious that an apology would be needed for stating them if it were not that they are widely ignored.

These laws, though unwritten, have been discovered by the simple process of observing the state of health of groups of persons living in different ways in various parts of the world. It has been found that high standards of health and length of life are enjoyed by all the groups that follow a certain general plan of life, whereas ill-health and premature death are common in all the groups that fail to conform to this plan. It might be expected that differences of race and climate would have a disturbing influence on this observation, but these and other factors can be ignored, because it has been found that the better standards have always been achieved irrespective of all such considerations when the rules of healthy living have been adopted.

The Basic Law of Health

The basic law of health can be stated either as a command with a promise attached or as an article of a penal code. Expressed in the former way it would read: "Every community in which effective action has been taken to control all the diseases that can be prevented will be rewarded by a high standard of health and longevity." Stated in the other way the law would run like this: "Failure on the part of a community to protect itself against preventable diseases will be punished by sickness, misery, and premature death. These penalties are inflicted without mercy and in an indiscriminate manner on men, women, and children of the offending communities." The obvious is often overlooked, and this matter is so important that it deserves to be closely examined to make sure that the law just stated is clearly understood.

Malnutrition a Preventable Disease

First of all there is the question of what is meant by the term "preventable diseases." There is a general impression that the only important preventable diseases are those caused by infec-

tion, indeed, there are countries in which a high standard of health has been attained by concentrating attention almost exclusively on the control of these diseases. This success has given rise to the assumption that similar results can always be obtained by the prevention of infection, and accordingly the efforts of the public-health organizations have everywhere been directed towards this end. But there are many countries, of which India is one, where another group of diseases may be responsible for more sickness and premature death than all the infectious diseases taken together. This group consists of the types of malnutrition caused by insufficient and unsuitable food. The most casual observation of the people of any overcrowded country like India shows that most of the inhabitants suffer from lifelong ill-health and poor physical development, which are clearly due to faulty nourishment. There is also abundant evidence to show that in these countries most of the people who die prematurely of infectious diseases would have survived if their resisting powers had not been sapped by malnutrition. So that, although the official returns show one or other infectious disease as the cause of death, from the practical point of view the real cause has been malnutrition.

The means of preventing malnutrition has never been a mystery, so that in the strictest sense of the term it is a preventable disease. The real mystery connected with malnutrition is that in the countries where it is a major public-health problem no effective organizations have been set up to measure the harm that it does and to supply expert advice on the steps needed for its control.

I do not forget the valuable research work that has been done in India on the subject of nutrition; this has shown beyond any shadow of doubt that the diets of most of the people are quite inadequate to maintain health. The information made available by research ought by itself to have called attention to the need for a thorough investigation into the root causes of the inadequacy of the diets.

Rewards and Punishments

Let us see what standards of health can be obtained by complying with the basic law of health, and how these standards compare with those existing in India to-day.

It will be found that in every country in which malnutrition and infectious diseases have been reasonably well controlled the average length of life has increased to well over 55 years; indeed, it can be stated with some degree of confidence that when the knowledge already available has been fully applied to the prevention of disease an average duration of life of more than 60 years will easily be obtained. Seeing that the average length of life in India is less than half this figure, it is clear that the people are sacrificing more than half the period of existence that has been made available to them by Nature. This is not the whole story; the shortened span of life is spent in a disease-ridden and miserable condition.

* The Sir George Birdwood Memorial Lecture delivered before the India and Burma Section of the Royal Society of Arts.

The remedy, of course, is obvious. So far as infectious diseases are concerned an effort has been made in India to apply the remedy, and already an appreciable degree of success has been achieved. I do not propose to deal with the subject of *control of infection*; this aspect of the public-health problem is being tackled on sound lines, and if the results have hitherto been disappointing the reason is that malnutrition has been allowed to persist.

The control of malnutrition is a straightforward matter; perhaps, indeed, the apparent simplicity of the problem has been the reason why the help of public-health experts has not been considered necessary, except in connexion with dietetic research. It has always been assumed that the only thing needed was to produce more food. By such means as the construction of great irrigation works and the introduction of improved methods of agriculture, enough extra food has actually been provided to feed many millions of people. Great credit is due to those who have planned and carried out these schemes.

But a new, and unexpected, factor came into play; this was a prodigious increase in the rate of growth of the population, resulting from a reduction in the number of deaths from infectious diseases. By the irony of fate the public-health organization, in controlling one group of preventable diseases, has created conditions in which the control of the other group has become increasingly difficult.

The Law of Growth of Population

Clearly the adequacy of a food supply depends not only on the amount that is available; the number of mouths to be fed must also be taken into account. Now this factor in its turn is bound up with the working of a law of Nature which is of basic importance in connexion with the prevention of disease, and which, like the basic law of health, has been discovered by the simple and reliable method of observing what happens among different groups of human beings all over the world. It may be called "The Law of Growth of Population," and it can be stated in these words:

"When a community of human beings is completely protected from premature death caused by preventable diseases and violence, its numbers increase so rapidly that they become doubled and redoubled every 25 to 30 years unless some check is imposed on the natural rate of reproduction."

The conditions in which this maximum rate of increase occurs are very rarely complied with in every respect; no country has yet completely abolished all the preventable diseases, and those countries in which this goal has nearly been reached have almost invariably imposed checks on the birth rate by such methods as celibacy, delayed marriage, and the use of contraceptives, so that we cannot expect to find large-scale examples of the rate of increase just stated. But if we look at the communities in which no checks are imposed on the natural birth rate and in which good standards of nutrition prevail, it will be found that this rate of increase is more and more closely approached according to the degree to which deaths from infectious diseases are prevented.

A striking example of increase of population was given by Sir Evelyn Wrench in the *Times* of March 1, 1938. This writer stated that the 60 000 Frenchmen who settled in Canada in 1859 had nearly 5,000 000 descendants alive in 1938. Making allowance for preventable deaths from infection and the checks imposed by celibacy and delayed marriage it seems certain that the capacity for multiplication must have been at least as great as that stated in the law.

Some experts have raised objections to the validity of this law and have argued that when a good standard of health and comfort has been achieved the birth rate automatically declines. But their arguments are based on what happens in countries where the number of births are restricted in the ways already mentioned. It is now generally recognized that in these countries the striking fall in the birth rate has been due to various controls deliberately applied with the object of achieving the desired standard of living. There is no evidence to support the inherently improbable theory of a sudden decline in the capacity for reproduction. In communities where contraception is practised there is no means of finding the extent to which this is responsible for causing a reduction in the number of births;

but in countries like Eire, where the population is controlled by celibacy and delayed marriage, we can see how drastically these measures have to be applied to prevent an undue rate of increase.

Anyhow, we are concerned with India, where none of the methods of birth control is practised to an appreciable degree, and here we find that the birth rate is highest in those parts of the country where food is most abundant. It would therefore be the height of folly to rely on a comforting theory based on no reliable evidence and flatly contradicted by experience in India and all other crowded countries in which the natural birth rate is unrestricted.

Now let us see the implications connected with the law of growth of population, even if the very conservative period of 30 years is adopted as the time needed for doubling to occur. In India, for example, suppose that complete success had been obtained in the prevention of infectious diseases, and suppose that adequate nourishment were provided for the existing population by increasing the available supply of food by 50%. What then would have to be done to maintain these satisfactory conditions of life if the people refused to make any change in their matrimonial customs? A further progressive increase in the food supply would be needed so as to bring this up to three times the present amount by the end of 30 years, to six times the present amount within 60 years, to 12 times that amount in 90 years, and so on.

These figures, of course, are fantastic, but they do not reduce the law of growth of population to absurdity; what they do show is the utter impossibility of achieving and maintaining good conditions of health without imposing a check on the birth rate.

The people must choose for themselves whether to adhere to the present system of unrestricted propagation of children with its attendant misery or voluntarily to apply an adequate check. If the latter alternative is chosen they must select the kind of check that they prefer; no Government can dictate in a matter of this kind, but equally no Government can be held responsible for failing to provide health and well-being to people who refuse to conform to the natural laws which must be obeyed if these blessings are to be secured.

Up to now I have been dealing with the general principles of health, with special reference to highly populated countries like India, and I hope I have made it clear that these principles are both simple and obvious. It must also be understood that they apply to all human beings, for all time, and in every part of the world. They ought to form the basis of all public-health efforts.

Let us look at some examples of the manner in which these principles or laws have been operating in India in recent times.

Growth of Population in India

Since the first census was made in 1872 the population of India has been increasing; for 50 years the rate of increase was irregular, but on the average it was about 4% every ten years. Since 1921 there has been a remarkable rise; during the ten years 1921-31 the increase was by 10%, in Travancore there was a startling rise by 27%; in the ten-year period 1931-41 the increase for the whole of India was by 15%, or an actual increase of about 50,000,000. In this period the most striking increases occurred in North-Western India, Bengal and Travancore, where they ranged from 19% to over 22%. When allowance is made for the large number of deaths from infectious diseases it is clear that in these widely separated areas the population could easily have become doubled within 30 years, provided that enough food could have been obtained and that infectious diseases could have been fully controlled.

Optimistic Views

These figures, especially the addition of 80,000,000 to the total population within 20 years, were obviously portentous; but there were differences of opinion as to what they actually did portend. On the one hand the considerable decline in the number of deaths from infectious diseases, coupled with the freedom of the country from any widespread famine, was regarded by optimists as evidence of a healthy state of affairs. For example, in 1940 a very distinguished expert claimed that

it was possible to look with considerable satisfaction on recent progress and future prospects of public health in India, he said there was good reason to expect that improvement in the standards of life would cause a decline in the birth rate.

In the recently published report for 1942 of the Public Health Commissioner it was stated that the death rate, 213 per mille was the lowest ever recorded, and that the birth rate had also fallen to 29.2 per mille—a decline of special interest in view of the discussion on "what was regarded as the increasing population pressure and the alleged failure of food supplies to keep pace with it."

In the book *Social Service in India* (1938) the following statement is made "The sting of famine has been drawn, indeed the Famine Codes published in the early years of this century are mostly obsolete and lie undusted on the office shelves."

The Bengal Famine

It appears that even in well informed circles there were some who could take a complacent view of the situation up to quite recent times. On the other hand there were ominous signs as will presently be seen but these attracted so little attention that the distressing famine in Bengal in 1943-4 caused a gasp of astonishment as well as of horror in India and in this country. The causes of the famine have been fully and ably dealt with in the report of the Commission which made a thorough investigation under the chairmanship of Sir John Woodhead. This deals chiefly with the causes that actually precipitated the famine, but to my mind the most important part of the report consists of a few sentences which describe "the background against which the events leading to the widespread starvation in 1943 must be viewed." Here are some of the most significant findings.

The Commission obtained evidence showing that about one half of the 7,500,000 families depending mainly or solely on agriculture for their livelihood held less than two acres of land or owned no land at all, whereas the smallest area needed to maintain an average family in reasonable comfort was estimated as being at least five acres. In their search for evidence to show the previous state of nutrition of the people of Bengal the Commissioners had to fall back on a survey, made by myself, of the health conditions in the villages of India in 1933. This survey was carried out by sending a list of questions to a large number of doctors working in typical agricultural villages, the doctors were asked to confine their replies to facts and opinions based on their own observations. An analysis of the replies received from 69 doctors working in different parts of Bengal showed that 22% of the people were regarded as "well nourished," 47% as "poorly nourished," and 31% as "very badly nourished."

The Commission accepted these figures as "indicating in a general way the unsatisfactory state of nutrition of the people of Bengal ten years before the famine," though they also remarked that the findings could not be accepted as showing conclusively that nutritional conditions in Bengal were worse than those of India as a whole. In my own comments on the survey the same opinion had been expressed, and I had also pointed out that while the findings were regarded as conveying a substantially true impression of conditions of rural life in British India, one of the chief objects of the survey was to show the need for a thorough investigation into the state of health of the agricultural population. It is indeed surprising that the Commissioners should have been compelled to rely on this rough and ready inquiry of the "Gallup poll" type as the only available evidence on so momentous a question.

The Commissioners went on to state that poverty and malnutrition in Bengal left a section of the population with few reserves, material or physical, to meet superimposed calamity, that there was no margin of safety, and that though such conditions were common to most other provinces of India they were of fundamental importance and were favourable to the occurrence of famine. Among the general conclusions it was stated that agricultural production was not keeping pace with the growth of population, and that a considerable section of the people were living on the margin of subsistence.

The significance of these statements is greatly enhanced by the fact that they carry the authority of a man who weighs his words with a deep sense of responsibility. It becomes clear that, although the factors responsible for precipitating the famine were largely unpredictable, there were also basic factors which, if allowed to operate without interruption, would have made famine inevitable sooner or later. It is also clear that these basic factors could have been observed, and that from an examination of the trend of events a forecast could have been

made showing that any exceptional shortage of the harvests due to failure of the rains would precipitate a crisis.

A remarkable feature of the famine was that the actual shortage of food in 1943 was estimated as being only about 6% of the normal supply. Special attention should be paid to the ominous words already quoted that the fundamentally important basic conditions were common to most other provinces of India.

The most important lesson to be learned from the famine is the need for an organization charged with the duty of providing reliable information with regard to the nutritional condition of the people, and of preparing regular forecasts based on the observed trends of population and food production, to show what is likely to happen not only in seasons of normal harvest but also in the event of widespread failure of the crops.

A curious sidelight on conditions in Bengal before the famine is contained in the Bengal Health Report for 1941, which was issued only a few weeks ago. It appears that in 1941 the death rate was 6.6% higher, and the birth rate 5.3% lower, than in 1940. This simultaneous deterioration in the death and birth rates is very unusual, it had happened in 1918, when it was accounted for by the influenza pandemic, and again in 1933. Without a careful examination of all the circumstances it would be rash to express a dogmatic opinion about the significance of the figures, but the recurrence in rapid succession in 1938 and 1941 of so exceptional a feature in the statistics suggests that the nutritional condition of the people of Bengal was approaching the critical point at which the reproductive capacity of the people begins sharply to decline.

The statistics for India as a whole show that a relatively high birth rate can be maintained in spite of low nutritional standards, so that any considerable fall in the birth rate that cannot be explained by the occurrence of severe epidemics may well be a danger signal showing that the community is coming perilously near the breaking point at which a further reduction in the food supply is likely to precipitate famine.

Distress in Travancore

Bengal was not the only part of India to suffer from distress in 1943. The Chief Minister of Travancore made a public statement in the month of October in that year to the effect that a distressing condition of under nourishment and famine conditions had existed unrelieved in the State during the previous twelve months. Eyewitnesses have given detailed reports of widespread starvation, though not on so spectacular a scale as in Bengal.

The experience of Travancore is even more instructive in some respects than that of Bengal. The State is described in the latest edition of the *Encyclopaedia Britannica* (1929) as being "conspicuous for good administration and prosperity." This remarkable tribute is universally regarded as being well deserved: the people have attained an exceptionally high standard of literacy, they are orderly, intelligent, and industrious and private philanthropic agencies are unusually active. Only a few years ago the very idea of danger of famine in the State would have been scouted.

Yet the Census Report of 1941 is quoted as stating that in the lowland agricultural areas the increasing density of population was reducing the people to "a level of sheer despondency," and that in these areas there were 1,833 to 2,407 persons on each square mile of land.

It has already been seen that the growth of population in the State has been phenomenal, in the three successive decades since 1911 the percentage increases were 168, 27.2, and 19.1. In actual figures the increase during the 20 years 1921-41 was from about 4,000,000 to 6,000,000 or about 50%.

The author of a report in which the famine is described expresses himself as being "staggered" at finding that, whereas in 1938-9 there were 200 births for every 100 deaths in 1942-3 there were only 150 births for 100 deaths. I, myself, find these figures staggering, but not for the same reasons, the author seems to regard the occurrence of two births for every death as a standard that must be maintained, but he does not appear to have asked himself the question—How long can the people continue to find food if their numbers go on increasing at this rate? I find the numbers staggering for another reason, they show that even in conditions of distress the population has continued to swell at a relatively rapid rate. Nature obviously

does not begin to exercise effective control over the inordinate rate of growth of the population till the people have been reduced to an extreme condition of misery and weakness.

The same author's plans for restoring prosperity to the State are interesting. He recommends an increase in the area under grams and pulses, the development of mixed farming, the keeping of cattle, poultry, sheep, and pigs, and, "more than all, the purchasing power of the consumer must be increased." Remedies like these are often advocated by well-meaning persons who do not appreciate the unfortunate fact that a well-balanced nutritious diet cannot be produced on an area of ground that is only large enough to provide a meagre ration of such bulky foods as tapioca or rice. To suggest a system of mixed farming for a family that has to maintain itself on a plot of less than two acres is absurd. In such conditions the people are compelled to grow the crop that gives the largest yield as the only way of staving off hunger. When animals are kept they must be fed either on the produce of the land or on food bought in the market in exchange for the money obtained by the sale of a cash crop. In either case, the milk, meat, or eggs provided by the animals would not go far to satisfy the hunger of the family. On miserably small holdings all that can be hoped for is to keep the family alive at a wretchedly low standard of nutrition.

The Government of Travancore is making an effort to increase production by the use of fertilizers, and this step is likely to ease the situation to some extent, but if the people are thereby enabled to produce two babies in exchange for every person who dies the outlook for the future is far from bright.

The experience of Travancore is fundamentally similar to that of Bengal, but there is one special lesson to be learned from Travancore; this is that a high standard of literacy, even when combined with the advantages of a humanitarian administration and private philanthropy, cannot avert the inevitable consequences of disobeying the laws of Nature.

Criticisms Forestalled

Critics will doubtless discover a weak point in arguments based on the experience of Bengal and Travancore; in both of these areas famine conditions were precipitated by the sudden cessation of rice imports from Burma. But there is reliable evidence to show that not only in these areas but also in most parts of India the food situation had already deteriorated to such a degree that any considerable reduction in the food supply, from whatever cause, must have driven the people over the line that separates scarcity from famine. The Bengal Famine Commission report makes it clear that what may be called "pre-famine" conditions exist throughout the greater part of India.

You may suspect that this is an exaggerated statement; surely if the situation had been so serious it would have caused alarm and have given rise to a searching inquiry. It may seem incredible that so little attention was paid to the repeated warnings of danger, but there are several factors which help to explain the attitude of fatalistic indifference that prevailed. There is the traditional belief in "the Unchanging East," so that the very possibility of the revolutionary change that was taking place was contrary to all preconceived ideas. There was also the lack of reliable information which would have shown the extent of the change. Perhaps most important of all is the fatal tendency of human beings to refuse to meet trouble half-way. India is not the only country in which the Governments and leaders of public opinion have been apathetic in the presence of impending calamity. Let me quote a dramatic example of a similar state of affairs. In the course of a speech delivered in 1936 Mr. Churchill used these words: "I have been staggered by the failure of the House of Commons to react effectively against these dangers," and "I say that unless the House resolves to find out the truth for itself it will have committed an act of abdication of duty without parallel." Most of the other countries of the world showed a similar failure to react to danger in the pre-war days, so that there is no force in the argument that things cannot be so bad otherwise there would be signs of alarm. It must be concluded that human beings in general suffer from a defect, a kind of blind spot, in their psychological vision, which prevents them from seeing the signs of approaching disaster.

I do not propose to engage in the fruitless task of trying to fix the blame for past neglect. When things go wrong it is usual to look for a scapegoat or to blame the Government, but in the present case there would be great difficulty in finding judges and a jury who are themselves free from a share in the responsibility. The situation in India is like that of Britain on the eve of the last war, and the one thing needed is for all to sink their differences and unite in determined action to contend against the common danger.

What Can Be Done?

You will ask—What can be done? If the question were—What could be done? it would be easy to give a reply. It would be—Set about securing the immediate observance of the basic laws of health. I do not mean some of the laws, because already strenuous efforts are being made to comply with part of the health code dealing with the prevention of infection and the increased production of food. But there is only too much evidence that when everything possible has been done in these directions there will still be a great gap between the amount of food that will be available and the number of mouths to be fed. As soon as more food has been provided and infectious diseases have been satisfactorily controlled there will be a further up-surge in the rate of increase in the population, and the problem will be as far from solution as ever: the only difference will be that it will have become greater and more difficult to solve.

It is true that ambitious plans have been proposed for such an increase in the production of food that there might be no need for some years to come to tackle the thorny question of controlling the birth rate. The weakness of these plans is that their success is conditional on the possibility of persuading the people to make drastic changes in their outlook on life and manner of living. Such changes as will be involved in the abolition of uneconomic small-holdings and the elimination of millions of useless cattle will certainly be resisted quite as fiercely as the changes needed to control the number of births.

In any case it seems certain that a satisfactory balance between population and food supply cannot be reached without making very strenuous efforts not only to increase the food supply but also to restrict the growth of population.

Root Cause of the Trouble

The crux of the whole problem is how to bring about the necessary change in the outlook on life of the people; I still think that the best way of dealing with this essential aspect of the situation would be by the appointment of a Commission of the kind asked for more than 20 years ago by the medical research workers of India. These workers at four successive annual conferences, held in 1923-6, unanimously adopted resolutions, proposed by myself and seconded by the late Major-General Hutchinson, Public Health Commissioner with the Government of India, in which an appeal was made to Government for the appointment of a Commission, chiefly non-technical, for the purpose of making a thorough inquiry into the wastage of life and economic depression which were regarded as being due to causes that were capable of being removed. The reply of Government was that the proposed Royal Commission on Agriculture would be the most suitable body for making inquiries into the evils referred to in the resolution.

When the report of this Commission appeared it was found to contain one pertinent reference to the root cause of the trouble. It was pointed out that "an increase in the yield of crops would merely postpone the effects of the growing pressure of population on the soil," and that "no substantial improvement in agriculture could be effected unless the cultivator had the will to achieve a better standard of living." It was also stated that "the responsibility for initiating the steps needed to effect this improvement rested with Government."

These significant words completely justified the appeal by the research workers for an investigation into the non-technical aspects of the problem; it was clear that the social and psychological aspects of the question could not be properly investigated by agricultural experts, but only by persons familiar with the mentality and conditions of life of the villagers themselves. The policy of Government has always been directed towards effecting improvements that could be carried out by adminis-

ive action, and too little attention has been paid to the principle that what is done by the people themselves always counts greater and more lasting benefits than anything that is done for them by outside agencies. When each family learns how to plan its life on right lines the improvement effected in this way will be multiplied by many millions and the total results will be enormous.

Repeated appeals have been made for an investigation on these lines, but unfortunately they were not backed up by the weight of public opinion needed to convince Government that there was a real demand for such an inquiry. In the absence of this widely expressed desire for a Commission the Government may well have feared that if they had taken the initiative their action would have been regarded as an attempt to distract attention from embarrassing political issues. Whether for this or other reasons, no convenient time could ever be found for a study of the subject from the broader point of view.

Now that the shock caused by the Bengal famine has created a sense of danger the atmosphere is more favourable for a searching inquiry. The persons best fitted for carrying out the inquiry are enlightened Indians; but especially Indian women, because the women are the chief victims of the existing system, and because they have shown themselves far more ready than men to sink political and communal differences in their efforts to secure better conditions of life.

The objects of the inquiry would be to make an unbiased report on the social and other customs which play so important a part in causing ill-health and economic depression in the villages, and to recommend suitable action for bringing about the needed changes in these customs. The Commission would have to keep clear of all subjects connected with the special interests of political parties or communities. Disease is no respecter of races, creeds, or political parties.

Need for a New Outlook

The simplicity of the problem in principle and the obvious nature of the solution are in very sharp contrast with the extreme difficulty of applying the solution; but if the gravity of the situation were fully realized the people would be eager to unite in saving the country from disaster. One of the chief services that would be rendered by the Commission would be to create the sense of danger needed to convince the people of the need for a change in their plan of life.

What has to be done is clear—it is nothing less than to create a new outlook on life, which must be in accordance with the principles already stated. You will not expect me to anticipate the findings of the proposed Commission with regard to the method by which this outlook can be created. The working out of the method will indeed be a difficult task, though if the will to succeed is strong enough the modern resources of wireless broadcasting can enable the teachers of the life-saving knowledge to convey their instruction to every remote corner of India. Receiving sets can easily be installed in every village in India at a cost which would be negligible in comparison with the benefits resulting from education by word of mouth and the introduction of much-needed entertainment to the drab lives of the people.

I have not presented a plan; but only a plan to prepare a plan. The plan itself can be prepared only by educated Indians, on whom must rest the responsibility for saving their countrymen, and themselves, from a terrible disaster.

The reports for 1945 of medical officers of health should be prepared on the same lines as the report for 1944. Among subjects of current interest which should be included are tuberculosis (including the allowances scheme), venereal disease (including tracing of contacts and follow-up of defaulters), care of premature infants and of illegitimate children, and the steps taken to combat infestation. Arrangements should continue to be made for careful preservation of all records, including the statistics to be supplied by the Registrar-General. As regards water, the report should state: (i) whether the water supply has been satisfactory in quality and quantity; (ii) the number of bacteriological examinations and the results obtained, also the results of any chemical analyses; (iii) the facts about contamination of any kind and the action taken; (iv) the number of houses and the population supplied from public water mains (a) direct to the houses and (b) by stand-pipes.

CAUSES OF DELAYED MENSTRUATION AND ITS TREATMENT

AN INVESTIGATION IN THE WOMEN'S AUXILIARY AIR FORCE

BY

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The prevalence of amenorrhoea in members of the Women's Auxiliary Air Force on entry to the Service, without any obvious pathology in the uterus, adnexa, or any of the other body systems, prompted me to investigate this interesting syndrome.

The comparative absence of any important work on the subject of delayed menstruation in the English language up till about 1939 is to be wondered at. Schweitzer (1917) records that 4% of 2,016 gynaecological patients consulted between 1916 and 1917 suffered from *Kriegsamenorrhoe*, as the condition was then called: Comparable figures were offered by Graefe (1917), Grünebaum (1917), and Hannes (1917). Reviewing the situation in 1928, Teebken stated that 0.19% of the patients examined in 1914 suffered from *Kriegsamenorrhoe*, and this figure rose to 5.11% in 1917. The duration of the amenorrhoea was 2 to 24 months, and he believes that (1) a deficiency of first-class protein, (2) psychical disturbance, and (3) increased work are the most important aetiological factors.

With the above facts in mind, it was realized that a unique opportunity presented itself to pursue further the study of this condition in members of the Women's Auxiliary Air Force, in whom its occurrence was by no means infrequent. An attempt was therefore made to investigate (1) the incidence of delayed menstruation in airwomen, (2) the relationship of delayed menstruation to occupation, (3) the relationship, if any, to the protein content of the diet, and (4) a form of therapy. It was also hoped that endometrial biopsies would be performed, but this was not possible owing to factors beyond my control.

Incidence of Delayed Menstruation in Airwomen

The incidence of amenorrhoea in airwomen was investigated in nine Royal Air Force stations: the total number involved was 2,312. The girls were questioned during what is known as an F.F.I. examination (i.e., free from infection), which is done as a routine with frequent regularity in an airwoman's career to exclude the presence of the ordinary skin infections. They were specifically interrogated with regard to (a) regularity or otherwise of the menstrual cycle, (b) history of amenorrhoea on entry to the Service, (c) dysmenorrhoea, (d) menorrhagia. Table I gives a summary of the results obtained.

TABLE I.—Incidence of Menstrual Anomalies in 2,312 Airwomen

Year	Normal and Regular	Amenorrhoea on Entry to Service	Dysmenorrhoea	Menorrhagia	Completely Irregular	Total
1939	5	—	—	—	—	5
1940	186 (84.5%)	6 (2.7%)	11 (5%)	2 (0.9%)	15 (6.8%)	220
1941	689 (83%)	52 (6.2%)	31 (3.7%)	14 (1.6%)	44 (5.3%)	830
1942	753 (82.3%)	59 (6.4%)	33 (3.6%)	18 (1.9%)	52 (5.6%)	915
1943	285 (83.3%)	22 (6.4%)	13 (3.8%)	1 (0.2%)	21 (6.1%)	342

From the figures, therefore, it will be seen that delayed menstruation constituted one of the greatest menstrual abnormalities in the 1941-3 period, and invariably dated from the time of entry to the Service.

Relation between Delayed Menstruation and Occupation

The total number of cases of amenorrhoea in the present series was 139. Of these, 52 (37.41%) were clerks, 20 (14.4%) were cooks, 16 (11.5%) were drivers, while 9 (6.4%) were employed on general unskilled duties. Telephone operators numbered 9 (6.4%), 8 (5.7%) were equipment assistants, and 7 (5.03%) were batwomen. Flight mechanics numbered 4 (2.9%), and 3 (2.1%) were waitresses. Only 2 (1.44%) occurred in each of the following trades: administrative staff, safety equipment workers, wireless operators, tailoresses, and instrument repairers. Finally 1 (0.72%) was a sparking-plug tester. The greatest number of cases of amenorrhoea therefore occur in those with sedentary occupations.

Length of Menstrual Delay.—The length of the menstrual delay (to the nearest month) in 139 cases of amenorrhoea was calculated from the time of the first missed period (Table II).

TABLE II.—Menstrual Delay in 139 Cases of Amenorrhoea

Menstrual Delay in Months	No. of Cases	%
1	9	6.47
2	29	20.86
3	62	44.64
4	16	11.51
5	5	3.59
6	15	10.79
7	3	2.15

It will be noted that 62 (44.64%) had a delay of three months, while only 3 (2.15%) had a delay of seven months.

Relation between Delayed Menstruation and the Protein Content of the Diet

Teebken's contention that a deficiency of protein is one of the most important factors in the production of delayed menstruation could not be allowed to go unconfirmed. As a result, the diets of the Royal Air Force stations in question were investigated. One specimen menu drawn at random will be quoted in some detail to illustrate the method of calculation of the various quantities of protein, carbohydrate, and fat in the diet (see Table III). Many other menus were similarly investigated, but the results of only some of these will be recorded (see Table IV).

TABLE III.—Specimen Menu

Menu	Weight (oz.)	Calories per oz.	Carbohy- drate* (g.)	Protein (g.)	Fat (g.)	Total Calories
Breakfast						
Porridge (dry)	1	116	20.6	3.8	2.5	116
Bacon (fried, streaky)	1½	149	0.0	8.7	16.84	191.57
Bread (national)	8	64	102.4	22.4	4.0	512
Butter	½	226	Tr.	0.05	12.1	113
Milk, tea, etc.	4	19	5.6	3.6	4.4	76
			128.6	38.55	39.84	1,008.57
Dinner						
Beef stew	6	31	4.2	18.6	10.2	186
Potatoes (old, boiled)	8	23	44.8	3.2	Tr.	184
Brussels sprouts (boiled)	8	5	4.0	5.6	Tr.	40
Peas	1	28	5.4	2.0	Tr.	28
Apple (stewed)	4	5	4.8	Tr.	Tr.	20
			63.2	29.4	10.2	458
Tea						
Sausage (fried)	4	81	18.0	15.6	20.8	324
Biscuits, tea, etc.	2	124	41.4	6.8	7.0	248
			59.4	22.4	27.8	572
Supper						
Macaroni	4	101	87.2	13.2	2.4	404
Cheese (Cheddar)	½	120	Tr.	6.08	8.4	102.8
			87.2	19.28	10.8	506.8
Additional to menu						
Jam	1½	74	22.5	0.11	0.0	84.57
Sugar	2	112	59.4	Tr.	0.0	224
Cooking fat	½	262	0.0	Tr.	14.05	131
Margarine	1	226	0.0	0.1	24.2	226
Condensed whole un-sweetened milk	3	44	10.5	6.6	7.2	132
Flour	1½	101	25.25	5.12	1.12	126.2
Dried whole milk	½	150	3.14	2.1	2.4	72.85
Dried whole egg	½	164.7	Tr.	5.35	5.23	70.57
			120.8	19.38	54.2	1,037.19
Total						
Breakfast			128.6	38.55	39.84	1,008.57
Dinner			63.2	29.4	10.2	458.0
Tea			59.4	22.4	27.8	572.0
Supper			87.2	19.28	10.8	506.8
Additional to menu			120.8	19.38	54.2	1,037.2
Total			459.2	129.01	142.84	3,582.5

* The carbohydrate is expressed as monosaccharides

NOTE.—To convert individual nutrients into terms of calories the figures 3.75, 4.1, and 9.3 are used for carbohydrate, protein, and fat respectively. (McCance and Widdowson, *The Chemical Composition of Foods*, 1942)

A glance at Tables III and IV will indicate that in no case does the weight of the protein ration fall below 100 g. daily, and in most cases it is much more. Allowing 1 g. protein per kg. of body weight as adequate, it will be seen that the quantity of protein in the diet is sufficient for an airwoman of average

TABLE IV.—Carbohydrate, Protein, and Fat Content, and Calorie Values of 5 Daily Menus

Diet	Carbohydrate (g.)	Protein (g.)	Fat (g.)	Total Calorie
1	388.5	166.0	168.3	3,705
2	373.0	162.4	159.0	3,545
3	410.0	151.0	160.0	3,645
4	430.0	136.0	145.5	3,523
5	377.5	159.0	162.0	3,575

weight. That a deficiency of protein is an essential factor in the production of delayed menstruation can therefore have little foundation on fact. No conclusion can be reached as to the vitamin and salt content of the diet. We can, however, assure that if the menu is well composed and contains the allotted quantities of milk, butter, eggs, and fruit, the vitamin and salt content will suffice for normal requirements.

A Form of Therapy

The adoption of a rational basis for therapeutics depends on the accurate differentiation of the various types of amenorrhoea. A thorough clinical examination to eliminate all organic and obviously endocrine causes is essential if any success in therapy is to be expected. Prostigmin methyl sulphate has been found to be effective in the treatment of delayed menstruation by Soskin, Wachtel, and Hechter (1940), Wilkenstein, Settel (1942), and Snider (1943) in America, and by Friedmann (1944) in this country. The usual dose is 1 to 2 ml. of a 1/2000 solution injected intramuscularly on three successive mornings.

The apparent success of the above authors induced me to treat a number of airwomen suffering from menstrual delay with a parasympathetic mimetic drug. For this purpose carbaminocholine chloride (carbachol B.P.) was chosen in the form of the proprietary preparation moryl (oral),* each tablet containing 0.002 g. of active carbaminocholine. Carbaminocholine chloride is a powerful parasympathetic mimetic. Its activity is greater than that of acetylcholine, its action is more prolonged, and its effects can be inhibited by atropine sulphate.

Nine cases suitable for treatment were chosen, and the Zondek-Ashheim test was performed in each instance to eliminate the possibility of early pregnancy. Realizing that the patients might menstruate as the result of the psychological effect of any drug, five of the cases were given the carbaminocholine while the other four had a placebo containing starch, lactose, and saccharin. Neither group knew whether they were receiving the placebo or the active drug.

The first five cases were treated with 1-1 tablet of moryl (0.001-0.002 g. carbachol) t.d.s., while the other four were treated with 1 tablet placebo t.d.s. When the latter did not menstruate after 3 to 4 days' treatment the placebo was replaced by the active drug. The ages of the patients were between 19 and 30 years and the menstrual delay was from 6 days to 19 months. In seven of the nine cases the menstrual period was precipitated in 17 to 96 hours after the onset of treatment; one patient menstruated in 35 days; while the other bled after treatment with placebo only. The dosage of moryl required was 3 to 15 tablets—0.006-0.030 g. carbaminocholine chloride.

The histories of the cases are summarized in Table V. The facts in the table require further comment. (1) In Case menstruation occurred in 35 days. It is not suggested that the drug was responsible for the bleeding. Further, the succeeding period was absent. I believe that this may have been a mild example of the adipo-genital syndrome as evidenced by excessive weight and hypoplasia of the genitals. (2) In Case menstruation occurred after administration of three tablets of placebo only. There are two possible explanations: (a) the onset of the menstrual period was merely coincidental with the treatment; (b) the patient was a rather depressed individual and the interview was partly in the nature of a psychiatric examination, which may have facilitated her adjustment to her environment and so helped to precipitate the period.

It is apparent that a larger series of cases would have to be treated before any definite conclusions could be reached. How

* This drug was kindly supplied by Savory and Moore, 14 Lawrence Road, London, N.15, who also supplied the placebos in generous quantities.

TABLE I—Effects of Carbaminocholine Chloride and Placebos in 9 Patients

Age	Menstrual Defect	Treatment	Total Dose Carbaminocholine	Results	Time from Onset of Treatment to Preceding Period	Abnormal Symptoms	Success in Period
21	5 months	1 tab morlyt d.s.	0.012 g	Menstruated. Bled 5 days	96 hrs	Eyes aching	Normal
20	6 days	"	0.006 g	" " 4 "	17 hrs	"	"
25	4 months	"	0.012 g	" " 6 "	24 hrs	"	"
19	26 days	"	0.016 g	" " 3 "	60 hrs	Headaches	"
24	31 months	"	0.008 g	" " 4 "	18 hrs	"	"
21	19 "	1 tab placebo t.d.s.	12 tabs placebo	Nil	"	Nil	"
		1 tab morlyt d.s.	0.03 g	Menstruated. Bled 10 days	35 hrs	"	Abnormal
	31 days	1 tab placebo t.d.s.	3 tabs placebo	" " 5 "	24 hrs	"	Normal
19	7 months	1 tab placebo t.d.s.	12 tabs placebo	Nil	"	"	"
		1 tab morlyt d.s.	0.016 g	Menstruated. Bled 5 days	60 hrs	"	Normal
		1 tab placebo t.d.s.	12 tabs placebo	Nil	"	"	"
23	2 1/2 "	1 tab morlyt d.s.	0.018 g	Menstruated. Bled 4 days	72 hrs	Flooding	"

it would appear that carbaminocholine chloride was successful in precipitating bleeding in seven of the nine cases tested and it is therefore felt that the drug merits more extensive clinical trials in all cases of amenorrhoea in the absence of organic disease

Conclusions

To provide a satisfactory explanation for the cessation of the bleeding phase of the menstrual cycle in a healthy young woman, resulting from a sudden change in environment, is admittedly difficult. However, enough experimental data exist to allow me to postulate (with some trepidation) an interesting hypothesis which, if not yet valid, is at least in accord with fact. The following experimental evidence is at our disposal

- (1) The hypothalamus probably governs our emotional response to external environment, that response being expressed through the hypothalamic-sympathetic and parasympathetic nervous system connections (Masserman, 1941; Tucker, 1941)
- (2) Hypothalamic stimulation produces autonomic discharge, the nial effect being dependent on the preponderance of the sympathetic or parasympathetic nerve fibres (Gellhorn, 1941)
- (3) The injection of oestrone in ovariectomized animals causes a hyperaemia of the uterus and an increase in its acetylcholine content. Bleeding may depend on the presence of the latter (Reynolds, 1939)
- (4) Lutenizing hormone is released from the anterior hypophysis by an acetylcholine-like substance, liberated by the hypothalamus (Aubenhau and Soskin, 1941)

Armed with these facts, we can now see that environmental stress or psychic trauma, no matter what its origin, will activate the hypothalamus to produce adrenaline and acetylcholine. While the sympathetic fibres predominate, however, then a relative deficiency of acetylcholine will be present and thus bleeding will be suppressed, owing to either (a) a local deficiency of acetylcholine in the uterus, or (b) absence of luteal hormone and consequently of corpora lutea

One other phenomenon requiring further elucidation is the reason for the development of amenorrhoea in some and not in others when exposed to the same environment. It is a truism say that individuals differ in their reactions to the same environment. This ultimately is an expression of character, and probably depends on the degree of representation of the sympathetic and parasympathetic nervous systems in the cortex. If the two systems are represented more or less equally in the cortex, then the adrenaline/acetylcholine balance in the blood will not be disturbed on exposure to environmental change, and the menstrual cycle will remain unaffected

His conception may also be invoked to explain the cessation of the bleeding phase of the menstrual cycle in a host of other cases—e.g., in probationer nurses, on going away for a holiday, and in those who fear the onset of pregnancy, etc. The common precipitating factor in all is a complete change of environment, creation, and work, or a period of mental and emotional stress leading to overactivity of the sympathetic nervous system

The belief that the pituitary gland is "the leader of the endocrine orchestra" is perhaps not now entirely true, and it may, in fact, play "second fiddle" to the hypothalamus

Summary

The incidence of delayed menstruation in 2,312 airwomen was calculated

It was found that sedentary workers were mainly affected

The theory that protein deficiency is responsible for the amenorrhoea is disproved

Seven of the eight cases of delayed menstruation treated with carbachol B.P. menstruated while one bled with a placebo only

The possible mechanism of production of delayed menstruation is discussed

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PENICILLIN SPRAYS AND UPPER RESPIRATORY TRACT INFECTION

87

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A natural result of the increasing availability of penicillin will be its use by the public in nose and throat sprays, often on medical advice, but sometimes without it. Already there seems to be a growing belief, based mainly on random clinical results that such sprays are useful in cases of respiratory tract infection. Some direct evidence on this point may be appropriate

At the beginning of 1942 we started nose, throat, and skin cultures regularly taken from all patients and staff in the maternity department, with a view to minimizing the entry of streptococcal and staphylococcal infections and excluding carriers. Having first observed the course of bacteriological events for about a year, we put into operation a preventive routine, continuous cultural control being kept up as before. The resulting reduction in the incidence of ward sepsis we recorded in 1944. This improvement has been maintained ever since, but always at the expense of a certain number of tiresome exclusions, particularly among nurses in training and among students. Early in 1944 in the hope of getting infected individuals back to duty more quickly, frequent regular nose and throat spraying with penicillin was started. The routine adopted was to spray both sides of the nose and throat by means of an all-glass "crystal" atomizer (Rogers) for about one minute at three- to four-hourly intervals. The solution used contained penicillin (usually calcium), 1,000 units per ml. Test cultures for freedom from infection were made in the morning before the spray had been used. If a negative result was obtained spraying was stopped for two or three days and swabbing repeated to make sure. Therefore as regards the persistence of infection following

examinations in food inspection and inspection of premises, students are to keep a day-book of their practical work throughout the course and examiners are to take account of it in assessing marks.

In some ways the new courses will be more exacting than the old for students, and also for teachers, because instruction will be more demonstrational and not merely supervisory, as so much laboratory instruction tends to be. There are, however, exemptions from classes for students with appropriate clinical or public health experience, and the combination of academic study with approved part-time practical occupation, which the scheme makes possible, should provide a good training for medical officers of health. It should be clearly understood that the new system is intended to provide an adequate basic training in public health, by means of the preliminary course and certificate, for all officers wishing to work in a public health department. The limited numbers who aim at being medical officers of health will go on to the diploma; the others, presumably, will seek a higher qualification in the particular specialty in which they are engaged, whether it be child health, tuberculosis, infectious diseases, venereal diseases, or some other recognized field of public health work. It is to be hoped that employing bodies will fall into line and cease to require all entrants to the service to hold a diploma or degree in public health.

FLUORESCENT TRACERS

In this age of atomic energy much work has already been done on the use of radio-active isotopes for tracing the metabolism of compounds in the animal body. And now, following the identification of tubercle bacilli by fluorescence microscopy, it is interesting to read that the property of fluorescence is being used to trace the location of particles in tissue.

Yagoda and Donahue¹ have shown that many minerals the dust of which is toxic are also represented by natural specimens having the property of fluorescence under ultra-violet rays. The fluorescent mineral is identical with the more abundant non-fluorescent ones in gross chemical composition, hardness, density, and solubility; it differs only in containing a trace constituent held in solid solution which serves as an activator for the transformation of ultra-violet rays to visible light. The fluorescence of these substances, inhaled as a finely divided dust, persisted after being acted on by tissue fluids and reagent solutions used in the preparation and staining of thin sections. The sections of the lung on a slide could also be incinerated at 400° C. in a muffle furnace without destroying the fluorescence of the mineral dust; the fine dust particles were in fact best observed in the resulting ash pattern. Yagoda and Donahue describe experiments with three fluorescent materials: willemite, a zinc silicate with an intense green fluorescence; hyalite, a hydrated variety of amorphous-free silica with a pale-green fluorescence; and scheelite, a calcium tungstate with a fluorescence which varies from blue to yellow according to the molybdenum content. The lungs of a rabbit were insufflated with powdered willemite which passed a 100-mesh screen, and, after 18 hours, examination of the lungs and trachea under ultra-violet light showed the dust adhering as a continuous film on the mucous lining of the trachea and as scattered collections on the cut lung surface, and microscopical investi-

gation disclosed that the particles were located within the bronchi and alveoli. In the second experiment hyalite was injected subcutaneously into a rabbit, which was killed 30 days later. Sections of the nodules at the points of injection, when examined under ultra-violet rays, revealed the presence and distribution of the foreign dust particles by their characteristic pale-green fluorescence. Lastly, animals were exposed for several months to scheelite, and here fluorescence microscopy showed the particles to be located in dense deposits within the interalveolar septa, usually in the vicinity of small- to medium-sized bronchi. Finely granular, evenly distributed particles were also seen in the septa, and in lesser amounts uniformly distributed throughout the lung. Some was found in the periphery of the peribronchial lymph nodes.

This work suggests that fluorescent-tracer technique may become a valuable method of histochemical investigation of inhaled dust, particularly in laboratory investigations designed to simulate conditions in mining or industry. The fluorescent mineral may be used as the dust for investigation, or it might be added in small quantities to the non-luminous variety; or where a fluorescing specimen of identical chemical composition is not available the tracer technique might be used by adding a fluorescent inorganic preparation having density, solubility, and particle size distribution similar to those of the dust under investigation; it might be assumed that wherever a fluorescent particle was observed it was accompanied by the dust.

STUDENT HEALTH SERVICES

The Social and Preventive Medicine Committee set up by the Royal College of Physicians of London in 1942 has now presented a third interim report, giving further and closer attention to its earlier recommendation "that student health services should be available in every medical school, and that under the general supervision of the head of the department of social and preventive medicine they should be used as an instrument of teaching." No final decisions could be reached as to the medical staffing of such services, especially in regard to the provision of treatment, until more was known about a National Health Service. It was also premature, for the same reason, to set out any details of a "student health centre" of the type suggested in the committee's original report. Nevertheless the evidence, mainly from students themselves, revealed such a disquieting position that it seemed urgently necessary to bring the matter to the notice of university authorities. Moreover, though the committee originally confined itself to the narrower question of the health of medical students, it became clear that all university students must be considered. The present report therefore takes up the broad issue of health services for the undergraduate (and the resident graduate too) and gives guidance on general lines of policy without going into detailed suggestions. The evidence before the committee has convinced it that there is a serious amount of sickness among university students; that many university authorities are almost wholly indifferent to any measure of preventive medicine; that facilities for care of sick students (except those suffering from serious illness) are sadly deficient; and that matters of diet and lodgings are in some instances given only perfunctory attention from the point of view of health. The recommendations, briefly summarized, are as follows: (1) Universities should accept greater responsibility for the health of students. (2) Arrangements should be made for medical examination after entry and periodical examinations during the student's stay, to detect physical and mental disabilities and to indicate available means for

ephedrine was then given and the recording repeated after one hour (former tentative experiments had shown that the maximum effect of ephedrine is usually not reached before 50 minutes and lasts till 2 or 3 hours later). If there was no change in the vital capacity and the wheeze, and if there were no signs of intolerance—tremor, sweating, nausea—another dose was added, and the recording repeated after another hour. If necessary, the whole procedure was repeated once again. As the additional doses of ephedrine follow in hourly intervals their action is superimposed, and the effect is similar to what would have been achieved by a single large dose equal to the two or three consecutive ones. In other cases the ephedrine effect was investigated by giving a tentative dose thrice daily and recording the effect on the vital capacity before and after 2 to 3 days.

Altogether 65 patients suffering from bronchial asthma or emphysema came under observation. In 14 of them the asthma was slight; these reacted to a few small doses of ephedrine and became free from attacks and wheezing for a long interval. They were usually young—most of them adolescents, some between 20 and 30—and their vital capacity was not reduced when they were not in an attack. These cases do not present any problem so far as ephedrine dosage is concerned, and we shall therefore not deal with them here.

Of the remaining 51 patients, 14 were typical severe asthmatics of the younger (extrinsic) type. The other 37 were cases of emphysema. Most of them were over 30 and many over 40. Some had had typical bronchial asthma for many years, but the majority showed a long history of cough or repeated bronchitis, originating 5 to 10 years ago, which was followed later by breathlessness on exertion. In many of these, asthmatic attacks had developed at a late stage of their history, and were apparently not the cause of the emphysema. These 51 patients had one characteristic in common—a nearly continuous wheeze. In most of them, also, a reduction of the vital capacity, radiological signs of emphysema, and an increased reserve air were present. All therefore may be classed as emphysema, although in some of them bronchial asthma could be traced as the principal cause.

In order to compare the ephedrine effect in these 65 chest patients with its effect in other subjects we have also investigated its action in 4 normal persons and 8 patients with heart disease. There is not much change in the vital capacity after the usual dose of 1/2–1 gr. (32–65 mg.). The differences are mostly less than 100 ml., and they lie in both directions. This negative result was to be expected, as Voegtili and Verzář (1945) have shown recently that the vital capacity in normal persons is not influenced by adrenaline. It should be emphasized that all four subjects experienced slight side-effects of ephedrine—tremor and palpitations. This shows that the dosage was near the limit of what was tolerable. The same result has been obtained in 8 patients with heart disease. These patients had been in congestive failure for various reasons some time before, but showed now no external signs of failure. In none was congestion of the jugular veins present, but most of them showed a reduced vital capacity and the chest skiagrams revealed increased vascular markings. They had no bronchitis. Although ephedrine did not influence their vital capacity significantly, the side-symptoms were more pronounced in this group than in the normal subjects.

Patients with Bronchial Asthma and Emphysema

The difference in the reaction of these patients is striking. Although there are a few who feel palpitations or tremors after the usual small doses, the great majority do not, and it is surprising to see how large doses of up to 4 gr. (0.25 g.) are tolerated without any toxic effects. Even prolonged dosage of 3–3½ gr. (0.2–0.225 g.) t.d.s. has produced no ill effects in such patients (as has been found by Middleton and Chen, 1927). The effect on the bronchial spasm, as shown from the increase in vital capacity, is pronounced.

We can divide our 51 patients, according to their response to ephedrine, into four groups: (1) those who respond to doses up to 1 gr.; (2) those who respond to higher doses; (3) those who are hypersensitive to very small doses; and (4) those who are refractory or nearly so to any dosage.

(1) *Those Responding to Doses up to 1 gr.*—The vital capacity increases by 200–400 c.cm. Only 5 cases in our series of 51 reacted

in this way, which is the usual reaction seen in light asthmatics—the group we have excluded from this investigation.

(2) *Those Responding to Higher Doses.*—The accompanying table gives the results in 28 patients. In some of them the negative or

Table showing Results with Doses above 1 gr.

Case	Date	Normal Vital Capacity derived from Weight	Vital Capacity Before Ephedrine	Dose of Ephedrine	Vital Capacity With Ephedrine
		ml.	ml.	gr.	ml.
1	4/6/45	3,120	4,250	1½	4,235
1	4/6/45	3,120	4,250	1½	4,810
1	13/7/45	3,120	3,850	2½	4,860
2	27/8/45	3,065	2,985	2½	3,225
3	5/2/45	3,480	2,615	1½	2,635
3	7/2/45	3,480	2,450	2½	2,705
4	5/2/45	2,835	1,890	1½	2,495
4	7/2/45	2,695	1,845	2½	2,060
5	17/8/45	3,150	2,535	2½	3,210
6	1/9/45	2,590	1,070	2½	1,360
7	1/9/45	1,790	775	2½	1,200
8	26/11/45	2,520	1,835	1½	2,625
8	26/10/45	2,520	2,235	1½	2,950
9	6/7/45	2,030	1,760	1½	1,610
9	6/7/45	2,030	1,650	3½	1,900
10	27/8/45	2,410	2,235	2½	2,590
10	27/8/45	2,410	2,330	3½	2,900
11	26/11/45	2,875	2,445	2½	3,230
12	26/11/45	3,400	1,255	3½	1,875
13	31/8/45	2,875	1,750	4½	1,605
13	3/9/45	2,875	1,590	4½	1,735
14	22/6/45	2,660	1,415	1½	1,545
14	13/7/45	2,660	1,415	1½	1,670
14	20/7/45	2,660	1,415	2½	1,945
15	4/12/44	2,270	1,970	1½	1,955
15	11/12/44	2,270	1,970	2½	2,490
15	18/12/44	2,270	1,970	2½	2,500
16	26/10/45	2,280	2,375	1½	2,815
17	29/10/45	4,240	2,750	2½	2,805
17	2/11/45	4,240	2,750	3½	3,090
18	24/8/45	2,875	2,175	2½	2,130
18	27/8/45	2,875	2,175	2½	2,420
18	31/8/45	2,875	2,175	3½	2,550
19	4/10/45	2,275	1,120	2½	2,060
20	19/11/45	2,210	1,760	1½	1,730
20	23/11/45	2,210	1,760	1½	2,210
20	26/11/45	2,210	1,760	2½	2,625
21	14/12/45	2,950	2,715	2½	3,065
22	14/12/45	2,255	3,070	1½	3,245
22	21/1/45	3,730	3,410	2½	3,845
22	12/11/45	3,020	2,290	1½	2,640
23	24/8/45	4,665	2,710	1½	3,560
25	31/8/45	4,665	2,710	1½	3,635
26	4/11/46	2,895	2,970	3½	3,435
27	4/11/46	3,040	1,525	2½	2,620
28	22/10/45	2,410	1,730	1½	2,025

Average increase

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Experiments with suboptimal doses are given in italics.

* Effect of one single dose. † Continuous effect of 1 g. doses, usually on the third day of dosage. ‡ Inhalation treatment was given at regular intervals during the whole course. § After six days of 1½ gr. t.d.s. the vital capacity was back to 1,800 and 1,750 ml. Under 2½ gr. t.d.s. it increased again to 2,010.

very slight effect of smaller doses is given in italics beside the larger and effective doses. In the first part of the table the immediate effect of a single dose of ephedrine is recorded; in the second part the effect of continuous dosage over several days. In the 7 remaining cases of this group the clinical improvement was definite, but the effect was not recorded by the spirometer. In some of these cases, after the beneficial effect of ephedrine had been ascertained, it was continued with other treatment, especially inhalation of various substances. Breathing exercises were given in many cases throughout the whole course of treatment. In all these cases ephedrine increased the vital capacity considerably (the average was 518 ml.), and the subjective relief was great. Even an increase of 200 ml. was usually accompanied by easier breathing, and in the case of advanced emphysema the breathlessness on slight exertion improved considerably. The wheeze disappeared in some instances, in others it diminished in intensity, while in yet others it remained unchanged in spite of the subjective relief. It is quite clear from the recorded reaction of these patients to smaller doses that they were quite insensitive to them, whereas they reacted favourably to higher dosage, these latter patients being in a higher proportion than those reacting to smaller doses. It would be interesting to find whether there are special clinical characteristics for this group. While it is impossible to differentiate accurately among such a small number of patients, it can be said that the largest doses were required by patients who were in a severe asthmatic state of long duration or had severe emphysema. Patients with asthma-free intervals usually did not require high dosage, but responded to doses near 2 gr. (0.13 g.).

Acquired Ephedrine Tolerance

In the cases described above the resistance to small doses seems to be genuine, as many of them had never been treated with ephedrine and none of them recently. We have, how-

ever, watched other patients who acquired a tolerance to ephedrine.

When, for instance, a dose of 1 gr. was given thrice daily with good success it was found that after a short time—often after 3 or 4 days—the vital capacity decreased again to its original value. If the dose was then increased to $1\frac{1}{2}$ gr. (0.1 g.) the vital capacity increased again, only to lose its effect after the same interval. (An example for this—Case 28—is given at the end of the table.) In this way the amount of ephedrine had to be increased at short intervals till a dosage was reached (usually between 3 and 4 gr.) at which toxic symptoms, mostly nausea, appeared and prevented further increase. This phenomenon is clearly seen only with three daily doses where effects overlap slightly in the daytime. With two daily doses resistance is not acquired so easily, but except in the case of slight and transient attacks this dosage cannot be relied on to give relief. In such slight cases the attack is often cut off by two or three doses and the drug can be omitted again for good. In those cases, however, in which a continuous wheeze, even of a moderate degree, has developed, a long-lasting ephedrine effect is desirable, and in such cases the acquired tolerance is a great obstacle. Fortunately, the resistance is lost as quickly as it is acquired. When the primary efficient dose becomes inefficient, ephedrine can be omitted without any ill effect, and after a short while (often 3 to 4 days) the previous degree of sensitivity has been restored, and the previous dosage can be given with the same good result.

The tolerance for ephedrine develops very quickly. This could be seen when side-symptoms developed on the first day of treatment. When the first dose given to a patient was near his limit of tolerance he often complained of palpitations or tremor. If these were only very slight the dose was not reduced, and in nearly all cases the symptoms disappeared on the second day. This "first-day side-symptoms" phenomenon became very common in our experience. Similar observations have been made by Althausen and Schumacher (1927) and Hollingsworth (1927).

In the circumstances it does not seem useful to give an efficient dose of ephedrine for longer than about 4 days. Then the dose must be increased or omitted altogether. We found that the latter method is satisfactory in all cases except those which still require an uninterrupted ephedrine effect. Most cases do not, and if the ephedrine is omitted for 3 or 4 days the vital capacity decreases only a little and the condition remains subjectively unchanged. After this the previous dosage can be resumed and new improvement obtained or, at least, the former maximum vital capacity restored. The procedure can be continued for a time. Later, when the asthmatic state has been overcome, it can be discontinued, and if a new attack should afterwards occur the same routine can be employed again.

(3) *Patients Hypersensitive to Ephedrine.*—In our series 3 patients were observed who were hypersensitive to doses of less than $\frac{1}{2}$ gr. (32 mg.). If necessary these patients can be made tolerant by starting with doses of $\frac{1}{8}$ gr. (8 mg.).

(4) *Patients Refractory to Any Dosage.*—Another group of refractory cases comprises those which are not hypersensitive but hypersensitive. Doses of 1, 2, or even 3 gr. have either no influence or only a very small influence, and if the dose is further increased heavy toxic symptoms appear. In addition, small improvements, if achieved, are lost quickly through an additional acquired tolerance. Such cases are not very rare. We have seen 8 in our series of 65 cases.

Discussion

These results present the ephedrine effect as much more complicated than it has appeared till now. The individual variation of the response is greater than to most other drugs, and even in the same subject the response varies with the tolerance which may have been acquired, and possibly with the changing severity of the bronchial spasm. Whereas in slight asthmatic conditions the customary small doses are sufficient in a higher percentage of cases (according to the survey of Chen and Schmidt, 1930, about 2 out of every 3 patients seem to have improved), in our series of 51 severe cases only 5 responded to this dosage. Thirty-five patients responded well to high doses, which seem to have been employed in the past only rarely (Middleton and Chen, 1927; Christopherson and Broadbent, 1934). The remainder were either hypersensitive to the drug (3) or refractory (8).

These facts make its use difficult, and they explain why in so many cases no satisfactory results are achieved with a chance dosage. The practitioner will find it difficult to test the sensitivity to ephedrine by means of the spirometer, but in hospital the method could easily be used, and it is suggested that every patient who does not respond to the ordinary oral ephedrine doses should have his vital capacity estimated in order to find out the correct dosage. The advantage of such a procedure is great, as the proportion of improvements under ephedrine increases considerably. Therapeutic measures at our disposal in such severe cases are neither numerous nor very effective, and every possibility should be utilized. These patients, with their breathing capacity often reduced to a minimum that allows hardly any movement, will be relieved greatly by an increase in vital capacity of even 200 or 300 ml.

Compared with this possibility of a success, the side-symptoms which may appear should not act as a deterrent. The symptoms of slight overdosage are palpitations, tremor, nausea (altogether in our series we have only twice seen bladder symptoms—frequency—and once mydriasis which disturbed vision). They have never developed to a degree which was in the least dangerous to the patient, and they often disappeared spontaneously on the second day. If they did not, a slight reduction in the dosage at once led to their disappearance. The blood pressure, which was taken at frequent intervals and often daily, did not show any pathological variations under ephedrine. In these circumstances a slight overdosage can hardly be regarded as dangerous, and should be considered justifiable in view of the possibility of a success. If a practitioner who has no spirometer at his disposal finds no response whatever to doses of 1 gr. t.d.s., it is suggested that he should make use of the higher dosages as described in this paper.

Although we regard oral ephedrine in the correct dosage as very efficient in the treatment of severe cases of asthma and emphysema, it is by no means the only one, and often other drugs, or inhalation treatment and physiotherapy, have to be used instead or in combination with it. It is outside the scope of this paper to comment on these other forms of treatment in detail. It should be mentioned, however, that there is one condition in which oral ephedrine seems of little use—namely, the acute asthmatic attack. In the acute attack quick relief is necessary, and oral ephedrine requires too long to become effective. In addition, particularly high doses seem to be required which are often not tolerated. This fact makes the treatment of the severe asthmatic or emphysematous person very complicated and difficult. If one has succeeded in improving such a patient's chronic asthmatic state considerably an acute attack may intervene which requires other forms of treatment, and one will have to wait till this attack has subsided to continue with the previous regime.

Summary

While some subjects are highly sensitive to the customary doses of ephedrine ($\frac{1}{4}$ gr.—1 gr.), many patients with bronchial asthma and emphysema are insensitive to them, especially the more severe cases that are in a chronic asthmatic state.

These patients often react well to high doses (2 gr.—3 gr.) and without any toxic symptoms or signs. This is shown by the immediate increase of the vital capacity, the frequent disappearance or diminution of the rhonchi, and the subjective relief.

Ephedrine tolerance is acquired quickly. If it is given 3 or more times daily it loses its effect soon—often after 3 to 4 days. If the dose is increased then, the higher dose will have the same effect as the former small one. If a patient has become tolerant to a certain dosage, and the drug is omitted, he will regain his former response to this dosage usually after 3 to 4 days.

An intermittent treatment with the primary effective dose is therefore suggested. It may play an essential part in the rehabilitation of these patients, who usually are regarded as invalids.

Most patients were admitted under Dr. A. Morland, to whom I am indebted.

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TRANSIENT NON-SPECIFIC WASSERMANN AND KAHN REACTIONS IN A CASE OF INFECTIVE HEPATITIS

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This case and its laboratory findings are reported to show that, so far as careful investigation can indicate, falsely positive Wassermann and Kahn reactions may occur during the course of infective hepatitis and disappear during recovery. The case was one of a large series met with while working on a routine scheme for investigating jaundice and liver enlargement without jaundice which included serological tests. The other cases in the series and their laboratory investigations will be dealt with in a further communication.

Case Record

The patient, an unmarried female aged 21, suffered from nausea, heartburn, and vomiting for six days before admission, when she began to be jaundiced. Her urine was dark and she was constipated. She had not felt well for the previous four weeks and did not go to work for three weeks before admission. Four months

reaction (fixing 3 M.H.D. of complement when diluted 1 in 2) and a suspicious Kahn reaction after a fortnight, and negative reactions by both tests after 27 and 70 days; also, the examination of the cerebrospinal fluid yielded negative results. From these as well as from the lack of historical or clinical grounds one must conclude that the reactions were transient, biological, falsely positive ones. These findings stress also the necessity for carrying out quantitative serological tests, and repeating them should they be found positive, especially when there is a negative case report—in spite also of the fact that in this case two reactions were positive, which is generally accepted to mean the presence of syphilis.

Biological falsely positive reactions may occur with all tests in the absence of syphilis (because of the presence in the serum of a reagin (Kolmer) similar to that present in syphilis), in yaws 100%, leprosy 40 to 80%; malaria 12 to 20% or higher, depending on the stage, infectious mononucleosis 20%. Positive reactions may also be obtained in relapsing fever, rat bite fever 50%, possibly in Weil's disease and typhus. Furthermore, biological falsely positive reactions may occur in various acute infections including pneumonia though their incidence is probably less than 1 in 4,000 (Kolmer and Tuft, 1941). It is a widely held opinion that one can get non-specific reactions in cases of jaundice but the literature does not support this.

Table showing Results of Laboratory Investigations

No. of Days after Onset of Jaundice	R.U.C. 11b Colour Index	W.C. V. M.C.H.C.	W.D.C. 11b Colour Index	Platelets	B.S.R. 11b Colour Index	Blood Urea Nitrogen (mg/100 ml)	Van den Berg's Reaction (mg/100 ml)	Alkaline Phosphatase (King and Armstrong, Units)	Fick's A.R. Test	Formol Gel Test	Serum Proteins (Total if Albumin, Globulin, Fibrinogen, etc.)	W.R.	Kahn	Urine	Miscellaneous Investigations
1	5,100,000 95% 0.94		7,500 58% 35% 22% 2%	Normal	2	32	D = + I = 5	17	++ + +	after 3 hours	6.8% 3.1% 3.4% 0.91/1	++ + + in 1/40 dilution of serum	++ +	Protein very faint trace Urobilin — Urobilinogen — Bilirubin, + Bile salts, +	Blood sugar 80 mg/100 ml.
14	4,700,000 90% 0.95	41% 87 c μ 30°			29		D = weak + I = 0.75					— in 1/2 dilution of serum	Incom. plate negative		C.S.F. Protein, 40 mg/100 ml NaCl 680 mg/100 ml W.R., — Larvae, — Fandy, —
27						20	D = weak — I = 0.4	13	++ + +	—	8.8% 2.9% 2.6% 2.3/1	—	—		
34	4,600,000 88% 0.96														
70	4,500,000 90% 1.0	41% 87 c μ 30°	11,200 57% 38% 35% 2%	Normal	23	28	I = 0.2	8.5	++ + +	—	7.7% 4.6% 2.1% 2.7/1	—	—		

previously she was working in a factory where telephone cables were coated by a spray process but she emphasized that she herself had not come into contact with the chemicals used. Her past history revealed only a Bell's palsy two years ago. There were no history of venereal disease, no family history or recurrence of jaundice, and no probability of Weil's disease. The patient had not been abroad. Apart from the above named symptoms on admission, no abnormalities were found at the examination. Menstruation was normal, and gynaecological examination revealed no abnormalities or any signs of venereal disease. For a few days she was rather ill and dehydrated, and was still vomiting, the urine being dark and the motions clay coloured. Then she made an uneventful recovery, the jaundice fading in three weeks. The temperature, apart from a slight pyrexia of 99.8° on admission, was normal throughout her stay. In addition to the usual routine treatment for infective jaundice the patient was given haematinics and ascorbic acid. She was discharged on the 36th day after admission and was seen again, symptom free, on the 70th day.

Discussion

The Table shows that there was a strongly positive Wassermann reaction (fixing 3 M.H.D. of complement in dilutions of serum up to 1 in 40) and a positive Kahn reaction one day after the beginning of jaundice, a weakly positive Wassermann

A survey of tests conducted by Cummings *et al.* gives the following figures: neoplasms, 0 to 17%, fever (natural or induced), 0 to 2.3%, jaundice, none, pregnancy 0 to 19%, menstruation, none, acute tuberculosis, 2%. Another survey (venereal disease information, as quoted from Gradwohl, 1943) does not mention jaundice at all. Harrison (1931) and Kampmeier (1944) also refer to the widespread opinion of the occurrence of falsely positive reactions in many conditions, among them jaundice, based on the older literature, but they could not confirm these findings and relate them to errors in technique (see also Kolmer and Tuft, 1941). In this connexion the occurrence of falsely positive reactions due to smallpox vaccination seems worth mentioning (Lynch *et al.*, 1941).

Of 86 cases of the series, in which in addition to liver function tests serological tests were also performed, the reported case is the only one which gave transient positive reactions. The series included acute hepatitis, 35 cases (infective jaundice, 19, post arphenamine jaundice, 11—one died of acute necrosis of the liver: post-plasma-transfusion jaundice, 3, post malarial jaundice, 1, Weil's disease, 1), subacute hepatitis 3, obstructive jaundice, 20 (carcinomata with and without secondaries in the

liver, 17; gall-stones, 3; cirrhosis of the liver, 3; congestive heart failure, 7; amyloid disease, 3; amoebic disease, 2; carcinoma of the prostate, with secondaries of bone 1, and liver and bone 1; and miscellaneous 11.

The serum protein estimations show a disturbance of the albumin/globulin ratio one day after the jaundice began, which is also apparent from the very strongly positive Takata-Ara reaction. The high globulin value is also confirmed by the positive formol-gel test. There occurred also a flocculent turbidity after addition of water to the serum at the beginning of the protein estimation, which reminds one of the Klausner test. The later-performed investigations show a return to normality. This type of result is not uncommon in cases of hepatitis and other conditions, but one does not find positive Wassermann and Kahn reactions; thus one cannot merely on this basis explain the occurrence of the transient positive serological reactions. Do the findings in this case point to a special combination or pattern of lipid-globulin which produced the biological falsely positive Wassermann and Kahn reactions?

Summary

A case of infective hepatitis with transient biological falsely positive Wassermann and Kahn reactions is reported. Reference is made to the widespread belief that this occurs fairly often in hepatitis, but the literature does not support this opinion. Other laboratory findings discussed are those which may have some connexion with a non-specific serological reaction.

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SUCCESSFUL SURGICAL TREATMENT OF ENTERIC GROUP CARRIER

BY

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Over a period of years, up to January, 1944, sporadic cases of paratyphoid fever occurred in the Caldbeck district of Cumberland. The majority of these were among women in late pregnancy or recently confined. Between May, 1940, and December, 1943, four such cases of paratyphoid fever occurred in this area. There were one or two others among patients not belonging to this group. Certain of the cases terminated fatally.

The presence of a carrier in the district was suspected, but it was not until December, 1943, when the fourth of the cases among pregnant women occurred, that a pointer appeared indicating the possible location of a carrier. This fourth case, which terminated fatally, occurred in an adjoining village, which, while being in the area of the Caldbeck Nursing Association and within the practice of the Caldbeck doctor, was nevertheless quite distinct from Caldbeck village, and generally could be regarded as an extraneous area with little or no direct connexion with the area in which previous cases had occurred. The new common factor arising out of this fourth case was the attendance of the same doctor and the same district nurse-midwife.

Carrier's Case Record

A conference was held between the public health medical officers concerned and the practitioner. As a result investigations were carried out at the Cumberland Infirmary pathological laboratory in respect of the doctor and the district nurse, and cultures of *Bact. paratyphosum* B from the faeces and urine were obtained in the case of the nurse. The Vi and O agglutinins were negative, which is of interest in view of the belief that a chronic carrier usually has both to a high titre, and this test is frequently being used as a sieve to separate out chronic carriers, on the assumption that it is useless to examine Vi-negative cases. Investigations carried out during the

succeeding months proved the nurse to be a true chronic carrier. She has maintained throughout that she was not the source of the other cases, but was herself a victim of the disease acquired in the area. The question, however, is academic. She was suspended from the practice of midwifery, and ceased work as district nurse in the area. She entered the Carlisle Infectious Diseases Hospital for further investigation and treatment in January, 1944, and remained there as a patient until October, 1944. During the eighteen months which have elapsed since this nurse left Caldbeck no further cases of paratyphoid fever have occurred.

Dr. Felix, of the Ministry of Health laboratory, typed the *Bact. paratyphosum* B cultures by bacteriophage methods, and classified them as 3a. The cultures from the fatal case and two others which had subsequently occurred in the Caldbeck area—one being the parent of the fatal case—were, as would be expected, also 3a, proving that these were all infected by the same organism. By a fortunate chance the Cumberland Infirmary laboratory still had three other cultures of *Bact. paratyphosum* B, which had been obtained from cases that had occurred in Caldbeck, and had been dealt with in that laboratory, since 1940. These were also found to be type 3a. Of these three, one had been isolated from a puerperal case in March, 1943, which had been attended by the same nurse. The other two cases arose in 1940, both of them being in children. The cultures from cases of paratyphoid B investigated prior to 1940 were dead and could not be resuscitated. This was unfortunate, as it would have been interesting to find out if type 3a had existed in the area before the nurse took up duty in 1938.

From January, 1944, until October, 1944, the stools were examined at weekly intervals, and these always gave a profuse growth on desoxycholate media. During this period the nurse had two full courses of sulphaguanidine, which, as anticipated, had no effect on the condition. After admission to the Infectious Diseases Hospital she was x-rayed in February, 1944; her gall-bladder did not fill, indicating that some pathological condition was present. She was strongly urged to have a cholecystectomy done, but was unwilling to agree to operative treatment except as a last resort. In June, 1944, the first attempt was made to obtain a sample of her bile. A duodenal tube was passed, but owing to pylorospasm it would not enter the duodenum. While the tube was in the stomach she was x-rayed, and in spite of atropine and gastric massage it did not pass into the duodenum. Culture of the gastric juice was sterile. After giving magnesium sulphate a small quantity of bile-stained fluid was obtained. This, however, was strongly acid, and was sterile.

Dr. Felix, at this point, suggested a vaccine rich in Vi and O antigens. This was given intravenously in graduated doses in July, 1944. The patient had a considerable reaction, with a striking rise in the titre of her H and O agglutinins in the blood to 1 in 1,000 and 1 in 5,000 respectively. The Vi titre was 1 in 20. Her stools, however, remained positive. In August a duodenal tube was successfully passed. The gastric contents were negative, but the duodenal juices, after the administration of magnesium sulphate, yielded a growth of *Bact. paratyphosum* B. In September a second course of injections of intravenous vaccines was given, after which the stools were still positive, and the titre of the agglutinins in the blood remained the same. The mental condition of the patient had by this time altered. She was depressed and wept frequently, and had the impression that nothing effective in the way of treatment was being carried out. She still refused to have her gall-bladder removed, and in October, 1944, was discharged from hospital. Her stools were examined at monthly intervals from October, 1944, until March, 1945, and were consistently positive.

Early in 1945 the desirability of surgical treatment was again pressed on the nurse, and eventually she agreed to have her gall-bladder removed. In April, 1945, she was readmitted to the hospital, and Mr. J. N. Jackson Hartley, senior surgeon at the Cumberland Infirmary, removed the gall-bladder and also the appendix.

Surgical Procedure.—This consisted of cholecystectomy, appendicectomy, and freeing of ileum from the old scar. High spinal (percaïne) anaesthesia, with inhalation of cyclopropane, was given. A right paramesial incision from the ensiform process to below the umbilicus was made. The gall-bladder was about one and a half times normal size, and within the gall-bladder there was one stone about the size of the last joint of the index finger. No concretions could be felt in the hepatic and common bile ducts, and the pancreas was not indurated. The cystic duct was isolated and ligated. The gall-bladder was then dissected from the liver and, after tying the cystic vessels, the gall-bladder was removed. Though the appendix did not appear to be abnormal it was removed and the stump invaginated. The last four or five feet (1.2–1.5 m.) of ileum was inspected, but there was no evidence of a Meckel's diverticulum. The abdominal wound was closed in the usual layers without drainage.

Cultures were made from the appendix, the bile, and the gall-bladder wall. Each of these produced a rich growth of *Bact. paratyphosum* B. From the centre of the gall-stone no growth was obtained. Histologically, the gall-bladder showed a chronic

cholecystitis with ulceration. The stools have been examined many times since the operation, and on each occasion have been negative. The sample of urine taken one week after cholecystectomy was positive. The patient was found to have a cystitis, and was treated with acid sodium phosphate. The sample obtained a week later was sterile, and subsequent samples have also been sterile. A sample of serum sent two months after her cholecystectomy showed that the titre of her H agglutinins had dropped from the figure in October of 1 in 2,000 to 1 in 1,000, while the O titre had dropped from 1 in 1,000 to 1 in 500, and the Vi from 1 in 20 to negative.

Comment

The nurse made an uninterrupted recovery. Taking everything into account it has been considered safe to remove her suspension from the practice of midwifery, and she resumed duty as a district nurse in the early autumn. It is appreciated that a permanent cure cannot be taken for granted at this stage, although all the evidence points that way, and the case will be kept under close observation for a prolonged period. In this connexion, C. H. Browning and others (1933) advise post-operative examination of the faeces at frequent intervals for at least one or two years, and in a number of cases referred to in their memorandum examinations of the faeces continued for four or five years. It is interesting to note that this memorandum refers to seven cases in which the gall-bladder and appendix were removed. Of these, six were recorded as cures, and one as a failure.

The results of the surgical treatment in the present case appear to have been highly satisfactory, both as regards safeguarding the persons with whom the nurse may come into contact and, as regards the nurse herself, by preventing her from being permanently deprived of her means of livelihood.

Conclusions

Two main conclusions may be drawn from this case. (1) It supports the existing evidence that surgical treatment may succeed when medical treatment has failed. (2) During the operation for the removal of the gall-bladder the appendix should also be examined, and if its condition is in any way suspicious it should be removed.

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Medical Memoranda

A Case of Rapidly Cured Hysterical Paralysis

In my experience various hysterical symptoms are often associated with emotional disturbances in auxiliaries and do not respond well to treatment. Frank conversion hysteria is, however, rare, so the following case, which was cured in one session, may be of interest.

Pte A, aged 20, arrived at the A.T.S. reconditioning centre with her right arm in a sling, saying that it was "useless". Two months before admission she had suffered from pain in the finger-tips followed by weakness and numbness of the fingers and hand, especially of the fifth digit. She went on leave and developed measles, so she was not seen by a medical specialist till she returned to her unit one month later. A diagnosis of ulnar neuritis and radiculitis was then made. She began to suffer from fainting fits and was admitted to hospital for 10 days. Feeling and strength partially returned, but a few days before her admission to the reconditioning centre, while at home on sick leave, she found it was quite "dead".

On examination she was seen to be in good general health and of average intelligence as shown by the matrix test. She was unable to move her right hand and fingers, and had to lift the hand out of the sling. Movement at the elbow and shoulder-joints was limited. There was no muscle-wasting or trophic skin changes, and all tendon reflexes were present and equal on the two sides. Muscle tone was good and the supinated forearm, when tossed from the couch, fell back in summation instead of pronating, as is usual in flaccid paralysis. Doubtful cutaneous hypo-aesthesia was present over the ulnar border of the hand and forearm.

In view of the history and findings a diagnosis of hysterical paralysis following neuritis seemed likely, and this was supported by testing the electrical reactions of the muscles. These were perfectly normal, except that the response of the posterior interosseal to faradic stimulation was weaker on the right than on the left. The girl, who was much impressed by seeing her fingers move in response to electrical stimulation, was informed that she had lost the strength in her hand when she had neuritis and had forgotten how to use it. She was told that she could now move her fingers and was

instructed to do so. She did, and after about ten minutes' explanation and persuasion she had regained practically full movements of the whole limb. The sling was removed and she was told to go and play the piano—a pastime of which she was very fond.

Apart from a certain initial clumsiness, which wore off with use, she made a complete and immediate functional recovery. No relapse and no further hysterical symptoms developed during the month she was at the reconditioning centre, or during the next two months, as reported by her unit M.O.

The patient was evidently a very suggestible girl, and her hysterical palsy appeared to have developed after her mother had told her, while she was on sick leave, that she had "creeping paralysis." She was delighted at finding that this was not so, and did not show any signs of anxiety reaction when her hysterical symptom was removed.

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Absence of C.S.F. after Head Injury

It is well recognized that low C.S.F. pressure readings are commonly found after head injuries, but we have not seen reference to or heard of a case in which no C.S.F. could be obtained.

CASE RECORD

A trooper aged 24 was admitted to hospital at 8 a.m. on Aug. 11, 1945, having been thrown from a horse at about 7.30 a.m. He had no memory of the accident, but was quite conscious on admission. The duration of unconsciousness probably did not exceed 20 minutes. The only external signs of injury were abrasions of the upper lip and root of the nose. He complained of some headache and giddiness, not of great severity at first, and he was simply treated as a case of mild concussion. On Aug. 14, however, he complained of very severe headache and pain in the back of the neck, and on examination was found to have marked neck rigidity and a positive Kernig's sign. There were no other C.N.S. changes. Temperature 98°, pulse 60, and respirations 20. In the meantime skilograms of the skull and cervical spine had been taken and no fracture or other bony lesion was seen. Lumbar puncture was done that morning, but no fluid was obtained, though the operator was quite sure he had entered the subarachnoid space. Later in the evening he was seen again and, there being no change in his condition, it was decided to defer further attempts to examine the C.S.F. till the next day.

On the morning of Aug. 15 he was still afebrile. He was a little slow mentally, the pulse rate was 56, and the meningeal signs if anything more pronounced. It was thought that these were due to blood in the subarachnoid space. Another lumbar puncture, however, again resulted in a dry tap. Accordingly, a few hours later a cisternal puncture was done—a first attempt being made in the lying position and the second while seated. Again no fluid was obtained, though the needle was certainly in the cisterna. While the cistern puncture was proceeding in the sitting position a sucking noise was heard as if air was being drawn through the needle. Almost at once the patient announced that his headache had become much easier, and it was found that the neck rigidity had partially gone. He was then taken to the x-ray department, and films showed that air had filled both lateral ventricles and was outlining the sulci on both sides—especially the right side—proving conclusively that the needle had been in the cisterna.

Thereafter he made an uninterrupted recovery. The headache did not reappear, and the neck rigidity had passed off entirely by Aug. 17. The pulse rate had by this time risen to over 70.

A further lumbar puncture on Aug. 22 resulted in a normal-looking fluid under pressure of 165 mm and containing 1 cell per cmm and less than 10 mg of protein per 100 ml. The Queckenstedt test gave a normal response. A lumbar puncture repeated on Aug. 31 showed a normal fluid under 160 mm pressure, with 5 lymphocytes and 1 red cell per cmm., 55 mg of protein per 100 ml., and a slight increase of globulin. Unfortunately the only blood-pressure recording was done on Aug. 16, and was 130/70; but the pulse volume was good throughout, and there is no reason to suppose that the blood pressure was abnormally low following the accident.

COMMENT

As there was manifestly no block to the circulation of C.S.F. it leaves no doubt that the volume of C.S.F. present must have been so small as to be unobtainable by lumbar or cisternal tap. The fact that air was sucked into the needle shows that there was actually a negative intracranial pressure. The explanation appears to be that the secretion of C.S.F. had ceased as the result of the trauma while its absorption proceeded normally. It has been suggested that the secretion of C.S.F. following head injury may be decreased as the result of cerebral anoxia due to depression of the respiratory centre, but there was never at any time in this case evidence of either cerebral anoxia or oedema.

It is possible that post-concussional headaches may be more often due to the decrease in volume and pressure of C.S.F., in contradistinction to the usually supposed increased pressure or cerebral oedema, than is commonly realized.

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Reviews

PSYCHIATRIC OUT-PATIENT SERVICES

Neurosis and the Mental Health Services. By C. P. Blacker, M.D., F.R.C.P. Foreword by Sir Wilson Jameson, M.D., F.R.C.P. (Pp. 218. 21s.) London: Oxford University Press. 1946.

In this report to the Ministry of Health Dr. Blacker gives a very detailed account of a comprehensive survey of the psychiatric out-patient services of the country. He describes the number and the distribution of out-patient clinics and the work they are doing. He considers the question whether neurosis is on the increase, and concludes that no answer is possible yet, although absenteeism in factories, which has increased very much from before the war, is closely related to neurotic illness. There is a most interesting section on neurosis in industry, in which the opinions and the problems of industrial medical officers are discussed.

From the account of circumstances as they are Dr. Blacker passes to recommendations of what they should be, in both a short-term and a long-term programme. His proposals involve a great increase of the facilities at present available. For every million of the population 100 psychiatric beds should be provided outside the mental hospitals, the bulk of them being set apart for neurotic patients. These units might well be in general hospitals, and in hospitals with a medical school would be teaching psychiatric units. A considerable extension of out-patient facilities is proposed, for which bottlenecks in the training of psychiatrists, non-medical psychologists, psychiatric social workers, and occupational therapists would have to be dealt with. Child services are a first priority. For a population of a million there would be required ten child guidance centres, three child psychiatric clinics, a hostel for 50 unstable or difficult children, and a reception centre for the sorting and disposal of homeless and destitute children. The staff of mental hospitals must be increased and colonies for mental defectives provided on an adequate scale. A most interesting suggestion is that mental hospital psychiatrists should also be engaged in these other organizations, many of them being employed in a part-time capacity in all grades up to the highest—a measure which would help to attract the best men into psychiatry, and in the integration of psychiatry and general medicine.

The report is outstanding for its detailed factual basis and the clear vision of its proposals. It is to be hoped that it will meet with serious consideration by legislators.

PREVENTIVE MEDICINE

Preventive Medicine. By Mark F. Boyd, M.D., M.S. Seventh edition. (Pp. 591; illustrated. 27s. 6d.) Philadelphia and London: W. B. Saunders Company. 1945.

The seventh edition of Boyd's textbook on preventive medicine has been thoroughly revised and brought up to date. It is well produced, and documented with recent statistics.

The greater part of Dr. Boyd's book is devoted to the prevention of infectious diseases, individually rather than in the lump; and he deals with his subject in a sound, workmanlike manner. Under each heading he presents in succession the infective agent, the source of infection, the exit of the infective agent from the patient—and then follows the sinister career of that agent until it has established itself in another victim. This is a logical scheme, useful for quick reference. The dominant theme, and the author's special concern, lies in the study of methods of control. This matter is treated clearly and concisely, and the analysis of modern practice is valuable to the health officer and the general practitioner. Dr. Boyd has resisted the temptation to stray into the field of clinical signs and symptoms, and his book is all the better for this self-denying ordinance. It means that the student is able to concentrate his attention on strictly preventive methods.

"Public health" in the sense of environmental hygiene is introduced as part of the scheme for preventing infection rather than as a subject in its own right; and the final chapter, dealing with health administration, is hardly more than an apology for lack of time and space. The new material on nutrition and dietary deficiencies, however, is lively and interesting, and one feels that here again the author is on his own ground. He has

also provided an effective little study on demography, with special reference to statistics of sickness.

In spite of its condensation this book is a good, practical study of preventable diseases, infectious and other, and the doctor in everyday practice would profit by having it on his shelf, not too far away from his favourite guides in clinical medicine.

OPERATIONS SHOWN TO NURSES

Demonstrations of Operative Surgery for Nurses. By Hamilton Bailey, F.R.C.S. (Pp. 348; illustrated. 21s. plus 7d. postage.) Edinburgh: E. and S. Livingstone. 1945.

Mr. Hamilton Bailey was the originator of what may be called the demonstration type of book, in which common clinical signs, conditions, and manœuvres are simply described with copious illustrations, chiefly photographic, to enable the reader to form a clear visual impression comparable with that obtained from actual practice. In *Demonstrations of Operative Surgery for Nurses* he has maintained the level set in his previous books. Here the nurse will find straightforward accounts of what the surgeon is doing during the performance of most of the commoner operations, demonstrated by many different surgeons each taking an operation with which he is particularly familiar. To ensure uniformity of style the descriptions have been carefully edited by the chief author, and, as he says in his preface, should be easily within the grasp of the junior probationer.

The illustrations, many in colour, constitute the outstanding feature of the book. There are over 500 of them, carefully chosen and beautifully reproduced. A minor feature deserving a word of praise is the introduction of footnotes to tell the nurse who the surgeons are whose names appear in the text—thus when a de Pezzer catheter is mentioned the footnote reads: "Dr. de Pezzer, Assistant to Prof. Guyon, Necker Hospital, Paris. Invented the de Pezzer catheter in 1885." Too brief to be called biographies, these notes we nevertheless feel are both attractive and useful.

The general production of the book is up to Messrs. Livingstone's usual high standard.

REGIONAL EPIDEMIOLOGY

Global Epidemiology. A Geography of Disease and Sanitation. By James Stevens Simmons, M.D., Tom F. Whayne, M.D., Gaylord West Anderson, M.D., Harold MacLachlan Horack, M.D., and collaborators. Volume 1. Part 1, India and the Far East; Part 2, The Pacific Area. (Pp. 504-30s.) London: William Heinemann.

This book is based upon data collected for the use of the United States Armed Forces in the late war. Vol. I covers India, the Far East, and the Pacific area. Information is given under a series of headings. First, the geography and climate of the region under study are considered. Next, under the heading public health, one has an account of the organization (if any); then, under subheadings, accounts of water supplies, sewage disposal, insects and other animals of medical interest, poisonous plants, food and dairy products. The next main heading is medical facilities, with subheadings for hospitals, medical personnel, and medical institutions. Then one has diseases, under five subheadings—viz., diseases spread chiefly through the intestinal tract, diseases spread chiefly through the respiratory tract, diseases spread chiefly by contact, diseases spread by arthropods, miscellaneous diseases. There are a short summary and a bibliography.

From the point of view of the general reader, the descriptions of small islands—for instance, Pitcairn Island and Easter Island—are more interesting than those of vast territories, such as Australia or China. The volume should be a useful introduction to more detailed studies by students at home, who will find the bibliographies helpful.

Notes on Books

Art versus Illness, by ADRIAN HILL, is published at 10s 6d. by George Allen and Unwin. The author was a patient in a tuberculosis sanatorium and found that his morale was failing with the long days and weeks of inactivity. Thanks to his capacity for artistic expression he was able to overcome this and achieve the necessary mental attitude towards recovery. He succeeded in interesting his fellow-patients both in the appreciation of pictures and in learning to draw and paint themselves. He was able to find some degree of artistic talent in almost all those whom he approached, and claims that by

fostering this talent and arousing their interest in art he did much to hasten recovery. The present book is a useful guide to this particular form of occupational therapy. Not only will it prove of great service to those who are already artistically inclined, but many who have no idea that they possess such gifts may be found to have them and will correspondingly benefit by their exercise. The importance of treating the mind as well as the body, especially in chronic illness, is being increasingly recognized, and Mr. Adrian Hill's book admirably describes one method of achieving this end.

The St. John Ambulance Association (St. John's Gate, Clerkenwell, London, E.C.1) has issued as a 6d. pamphlet (post free 7d.) a Supplement to the 39th edition of *First Aid to the Injured*, of which 150,000 copies had been printed by the end of last year. A full revision of the main textbook will be undertaken as soon as practicable, but in view of the suggestions and criticisms received since the last edition appeared in 1937 and the knowledge gained in certain aspects of first aid by the experiences of the war, it has been decided to issue this supplement, which is partly a revision of the sections dealt with and partly additional matter.

The National Council of Social Service has published a handbook of advice and information for those who wish to give aid and comfort to old people. It has been compiled by the National Old People's Welfare Committee and gives a practical lead to organizations and private citizens on one of the subjects of to-day. In view of the inevitable increase in the proportion of old people in our community, it is urgent that public opinion be educated about their needs. It is to local and regional old people's welfare committees that the authors of this pamphlet look for co-operative social action to ensure the visiting of lonely old persons (whether living in institutions or in their own homes); to provide voluntary residential homes for able-bodied old people (perhaps by means of a housing association); to organize clubs in which men and women can find fellowship and recreation; and to build up a communal meals service or a scheme of home helps. Practical advice and information on all these are given. *Old People's Welfare* is obtainable from the N.C.S.S., 26, Bedford Square, London, W.C.1, price 1s. 6d., post free.

The October-November, 1945, issue of *L'Architecture Française* (No. 51-52) is devoted to hospital construction and is published from 41, Boulevard de Latour-Maubourg, Paris, Ville, price 150 francs. It opens with articles on "cabinets de groupe" and on the place of the hospital in a general health service by Dr. Marc Nédélec, followed by one on new tendencies in British hospital organization by Dr. R. F. Bridgman. Descriptions of new hospital buildings in Melbourne and in Sydney and the hospital at Haifa, Palestine, come next; then a long article on hospital architecture in the United States, and another on the projected medical centre at Lille. Michel Roux-Spitz writes on the renaissance of medical architecture, and A. Laborie on the hospital centre for Niort. The whole of this special number is freely illustrated with reproductions of photographs, plans, and diagrams.

Preparations and Appliances

A PLASTIC SPLINT FOR OPONENS POLLICIS PARALYSIS

MR. JOHN A. CHOLMELEY, M.B., B.S., F.R.C.S., resident surgeon, Royal National Orthopaedic Hospital, Stanmore, writes:

The efficient splinting in a case of opponens pollicis paralysis has always been a difficult procedure, as witness the variety of splints designed for this purpose, such as that of Miss Forrester-Brown and that described by Mr. J. Russell Napier (1946). In cases of paralysis following anterior poliomyelitis it is not infrequently found that residual weakness or paralysis of the opponens pollicis remains; to splint this adequately, to prevent stretching of the weakened muscle, and to improve the efficiency of the hand has been to me a difficult problem, the splint must remain in position under all conditions, it must be light and preferably inconspicuous—particularly when the paralysis is permanent—and it is desirable that it should be washable.

For some while the application of plastics to splints has been exercising our minds at the Country Branch of the Royal National Orthopaedic Hospital, and the results of the work of Scales and Herschell (1945) suggested to me that "perspex" was a suitable material from which to make an efficient splint in opponens pollicis paralysis. The design that I outlined was that of a band encircling the hand with a tongue passing between the thumb and index finger to keep the thumb in opposition whatever other movements were carried out by the wrist and fingers. It has been found possible to make such a splint of perspex or P.V.C. (polyvinyl chloride); in the case of perspex the usual thickness required is 1/8 in. (3 mm.) or 3/32 in. (2.5 mm.) and the P.V.C. is approximately 3/32 in. thick; both materials have sufficient elasticity to enable the splint to be a close fit (see Figs. 1 and 2) and yet quite easy to put on, but the

perspex is rather more rigid of the two; thus when the rest of the muscles are strong, particularly in an adult, perspex is slightly preferable. The splint is washable, permits free movement of the wrist, fingers, and the terminal phalanx of the thumb; other movements of the thumb are permitted but are somewhat restricted. When wearing the splint the patient can wash and dress himself, and it does not interfere with writing or using a typewriter. The only objections so far found in the materials used are that the present perspex obtain-

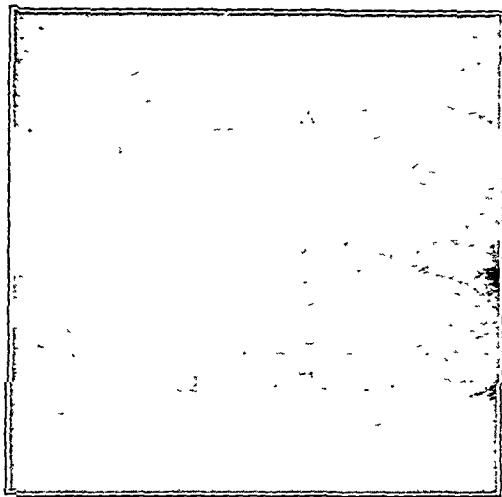


FIG. 1

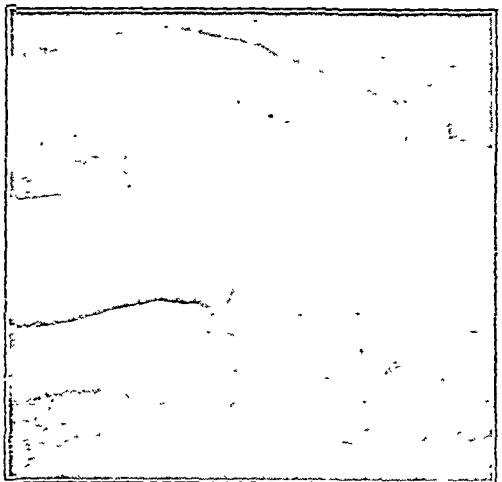


FIG. 2

able is a little too brittle to stand very rough usage and occasionally splints made of P.V.C. have cracked; however these disadvantages can be overcome and are easily outweighed by the efficiency and comfort of the splint.

I should like to express my gratitude to Mr. J. T. Scales and Mr. W. Herschell for their help, and to the latter particularly for his patience in carrying out my suggestions.

REFERENCES

- Napier, J. Russell (1946) *British Medical Journal*, 1, 15.
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COMPRESSION BANDAGES FOR VARICOSE ULCERS

Dr. R. R. FOOTE (London, W.1) has had made two special bandages for the compression treatment of conditions associated with varicose veins. One is a two-way stretch bandage easily applied and removed; the other is an elastic supporting bandage. Details of both may be obtained from the makers, John Bell and Croyden, Wigmore Street, London, W.1.

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EMERGENCY GUARANTEE FUND

As announced on another page, the Council of the British Medical Association has decided on the establishment of a new Emergency Guarantee Fund so that the profession may be financially armed in any conflict it may have with the Government over the National Health Service Bill soon to be laid before Parliament. So that any action the profession may take should not be hampered by lack of means to back it up, it is proposed that every medical man and woman on the *Register* should stand guarantor for as much as he or she can afford—but generally not less than £25. It may be that no one will be called upon to part with his money, but if the profession is to be united in action on a policy which commands the whole-hearted agreement of the majority, then it should be prepared to spare no means to make its action effective. Should there be fundamental disagreement with the principles underlying the proposals the Minister puts before Parliament, then the medical profession, constituting the key workers in the new service, will have to strive hard so to influence public opinion that the pressure of this upon Parliament will lead to the modification of those elements in the Bill to which soundly rooted objection may be taken.

The cost of this campaign will be borne from existing resources. But should Parliament prove obdurate and refuse to modify proposals in the Bill which the profession might consider to strike at the essential freedoms of medicine the doctors of this country might have to decide not to work in the new service. Such a decision would not be taken lightly, nor would such a decision mean that medical men would withhold their skill from patients in need of it. It would mean simply that the majority of doctors would continue to serve their patients outside and not inside the new service. If this happened vastly greater resources would be needed, and it is with this possibility in mind that the Council has caused the new fund to be established. It is earnestly to be hoped that everyone, whatever his political views, will make the individual guarantee asked for.

To be forearmed is to be prepared for the fight if there is to be one, and the Emergency Guarantee Fund is being established for this purpose. Whether a fight will be necessary will not be known until the contents of the Bill are revealed, until it has been possible to formulate the attitude of the doctors of this country to them, and until the final answer of Parliament is known. Each doctor will have to make up his own mind, and the task of the British Medical Association and the Negotiating Committee will be to discover what the consensus is, and then to decide in the light of this what action to take to see that the views

of the majority prevail. Although the present Government has a substantial balance of votes in the House of Commons it would presumably be reluctant to try to coerce the medical profession to accept a form of service which it considered incompatible with its honour and real interests. If the new health service is to take proper shape and is to provide for the medical needs of the people of Great Britain the Government must have the willing co-operation of the medical men working in it. It is to be hoped that the Bill will be so framed as to make this possible, and so avert a costly and bitter struggle which, whatever the outcome, will leave behind it a sense of frustration and discontent.

CUSHING'S SYNDROME

Since Cushing first described the symptom complex associated with basophil adenoma of the anterior pituitary a number of cases have been recorded with the same symptoms but with no pituitary tumour. Such cases are classified as Cushing's syndrome as distinct from Cushing's disease. A common feature of the disease and of the syndrome is cancer, adenoma, or hyperplasia of the adrenals, and many authorities¹⁻³ now regard adrenal hyperfunction as the primary cause of the condition, even if hyperplasia is not always demonstrable. Albright,² who reviews the means by which adrenal overactivity could produce the predominant symptoms, regards the cardinal feature of the syndrome as tissue deficiency, evidenced by thin skin, weak muscles, osteoporosis, and easy bruising—symptoms usually associated with a tendency to insulin-resistant diabetes and increased 17-keto-steroid excretion. His first hypothesis was that the over-secretion in the adrenal cortex was particularly of those hormones affecting sugar metabolism, so that there was increased gluconeogenesis, leading to the diabetic tendency and loss of tissue. Treatment with androgens was therefore begun to produce nitrogen retention and the deposition of muscle tissue. The results were successful: the patients became stronger and heavier, and their nitrogen, calcium, and phosphorus balances became positive. That this was due to the deposition of normal tissue was shown by the close agreement between the theoretical phosphorus retention based on the calcium retention ($\text{Ca}:\text{P}$ of bone=2.23) and nitrogen retention ($\text{N}:\text{P}$ of soft tissue=14.7) and the phosphorus retention as measured. These beneficial effects of androgen are confirmed by Perloff, Rose, and Sunderman,⁴ although they find the high nitrogen retention initially produced maintained only partially during long-continued androgen therapy.

If Albright's theory were true there should be a negative nitrogen balance with an abnormal tendency to ketosis in Cushing's syndrome, and it might be expected that uncontrolled diabetics would develop similar symptoms; but this does not happen. The nitrogen excretion under conditions of minimal nitrogen intake should still be high; in fact it is not. To circumvent these objections Albright suggests

¹ Anderson, E., Haymaker, W., and Joseph, M., *Endocrinology*, 1938, 23, 398.

² Albright, F., *Harvey Lectures*, 1943, 38, 123.

³ Kepler, E. J., *J. clin. Endocrinol.*, 1945, 5, 70.

⁴ *Arch. intern. Med.*, 1943, 72, 494.

that the hormones of the adrenal cortex affecting sugar metabolism do not stimulate catabolism but interfere with anabolism. This would explain the diminished nitrogen output in conditions of diminished intake. The author follows others in believing that there are two hormones or groups of hormones produced by the adrenal cortex—one group affecting sugar metabolism, the other growth and nitrogen metabolism (briefly referred to as S and N hormones). On the basis of various clinical and experimental findings Albright suggests that the N-hormone production is raised only slightly in Cushing's syndrome and is indicated by the increased 17-ketosteroid excretion. The rise is regarded as compensatory, and it can be reduced by giving methyl testosterone (which is not itself excreted as ketosteroid). He thinks the adreno-genital syndrome is due to an increase in N-hormone production.

Albright is well aware how many unproven links there are in his chain of deduction, and his theory is only tentative. It offers no explanation of the hypertension, and would lead one to expect changes in blood electrolytes the opposite of those in Addison's disease; but such changes have been found in only a small proportion of cases.⁵⁻⁷ However, the new theory does at least give rise to a new outlook on clinical cases and suggests new lines of investigation. This is of especial importance in such a comparatively rare disease, where large series of cases can be studied only from reports which often fail to provide the one essential detail. Albright's theory leaves the explanation of basophil-cell hyalinization open to debate, for this change in the anterior pituitary is to-day the most constant pathological finding in Cushing's syndrome, as it was when Crooke⁸ originally described it. Thompson and Eisenhardt⁹ found hyalinization present in the hypophyses in 58 of 63 cases, and the remaining 5 cases were doubtful examples of the syndrome. Does the change in the basophil cells represent a stage of cell death or a phase of cell activity? In either case it can be regarded as an effect of adrenal overactivity and at the same time as the immediate cause of at least some of the symptoms of Cushing's syndrome. If the hyalinization is degenerative then one may view it, as Kepler³ does, as a sign of compensatorily depressed corticotrophin secretion; but the basophil cells do not secrete one pituitary hormone alone, and it is unlikely that a profound change in corticotrophin secretion would leave the secretion of the other hormones unaffected. Hence the symptoms caused directly by adrenal oversecretion may be supplemented by other secondary effects. McLetchie¹⁰ believes that basophil-cell overactivity is the essential lesion in Cushing's syndrome (or disease), and that the hyalinization is a consequence of this; but as he regards the adrenal cortex and the basophil cells as members of a complex in which overactivity of either leads to overactivity of the other his interpretation does not differ widely from theories which hold an adrenal cortical lesion to be the primary cause.

SYNERGISM BETWEEN ADRENALINE AND ACETYLCHOLINE

The pharmacological effects of adrenaline and acetylcholine have a special interest because it appears to be a general law that all their sites of action are supplied with nerves capable of releasing the appropriate substance locally. New pharmacological discoveries about them, thus lead almost inevitably to new physiological knowledge. The actions and interactions of these two substances have been much studied in recent years and much new information has been obtained, largely as a result of a brilliant series of papers from the pharmacological laboratory at Oxford. An authoritative review¹ of this work by Prof. J. H. Burn will be widely welcomed.

The actions of acetylcholine can be divided into muscarine actions and nicotine actions. Most, though not all, muscarine actions resemble the effects of stimulation of parasympathetic nerves. They are antagonized directly by atropine, and indirectly by the opposite effects produced by the injection of adrenaline or by stimulation of adrenergic nerves. This much is simple and familiar, but the nicotine actions are more complicated. These are mostly actions on nerve cells or voluntary muscles, causing the initiation of impulses which are conducted over the cell with the characteristic rapid electric changes. Small doses of acetylcholine produce these impulses; larger doses eventually depress them. Prostigmin inhibits the destruction of choline esters, so that small doses of acetylcholine act as if they were larger than they really are. The stimulant action of very small doses is thus increased, and that of rather larger doses may be changed to inhibition. The action of adrenaline is superficially similar but fundamentally different. Low concentrations of adrenaline increase the stimulant action of small doses of acetylcholine, and higher concentrations of adrenaline antagonize them. These two actions may be seen as two phases in the effect of a single dose.

The synergistic action of small doses of adrenaline and acetylcholine is of fundamental interest. It has been most carefully studied in perfused sympathetic ganglia. Using this preparation E. Bülbring found that low concentrations of adrenaline increased the effect of preganglionic stimulation or of the injection of acetylcholine. She also found that the ganglion itself liberated a small amount of adrenaline when the preganglionic nerves were stimulated, in addition to the acetylcholine whose liberation was demonstrated 12 years ago. This surprising fact suggests that adrenaline, as well as acetylcholine, may play an essential part in the action of the ganglion.

Adrenaline, either injected or liberated by adrenergic nerves, also has various actions on voluntary muscles and nerves. It increases the action of acetylcholine on denervated muscles; it improves neuromuscular transmission when this is diminished by fatigue; it actually improves transmission along the trunk of a nerve. This last fact was discovered in perfusion experiments in which the nerves gradually lost their action on the muscle unless they were stimulated near the muscle, but regained it under the action of adrenaline. It was confirmed by the observation that adrenaline increases the action potentials in the nerve itself when the stimulus is submaximal. Even this effect may be an example of synergism between adrenaline and acetylcholine if the theory that acetylcholine plays a part in the transmission of impulses along a nerve is confirmed. These experiments provide part, at least, of the explanation of the action of adrenaline in diminishing muscular fatigue, and of the action of ephedrine in myasthenia gravis:

⁵McQuarrie, I., Johnson, R. M., and Ziegler, M. R., *Endocrinol.*, 1937, 21, 762.

⁶Wilson, D. M., Power, M. H., and Kepler, E. J., *J. clin. Invest.*, 1940, 19, 761.

⁷Clouston, H. E., Bennett, W. A., Power, M. H., and Kepler, E. J., *J. clin. Endocrinol.*, 1945, 5, 61.

⁸J. Path. Bact., 1935, 41, 339.

⁹J. clin. Endocrinol., 1943, 3, 445.

¹⁰J. Endocrinol., 1944, 3, 332.

¹Physiol. Rev., 1945, 25, 377.

ephedrine presumably acts by preserving the natural adrenaline of the body from destruction. Similar effects have been discovered in the spinal cord. Bülbbring and Burn perfused a dog's spinal cord with blood, and showed that the arterial injection of acetylcholine caused contraction of voluntary muscle due to impulses passing down the nerves, provided that adrenaline was present in the blood supplying the spinal cord. If there was no adrenaline there was no effect.

The explanation of these synergistic effects of adrenaline and acetylcholine is unknown. They are not due to an effect of adrenaline on cholinesterase. They are probably not due to an action on the blood supply to the muscles and nerves. It is suggested that adrenaline may improve the access of acetylcholine to its site of action by altering the permeability of a hypothetical membrane, but there is no direct evidence for this theory.

It is not possible to give here more than a brief summary of some of the more striking facts. It is clear that pharmacology has added an important new chapter to our knowledge of the workings of the body.

MORTALITY FACTORS IN ACUTE APPENDICITIS

So long as patients continue to die from appendicitis—and Prof. Grey Turner¹ reminded us in 1938 that about 3,000 people die every year from acute appendicitis in the United Kingdom—reports of appendicitis will continue to be important, but they will be important only if the results are measured against a rigid statistical yardstick. Hoerr² has published from the Peter Bent Brigham Hospital a long series of cases of acute appendicitis from which several interesting and a few important findings emerge, all bearing the hallmark of statistical significance. The series includes 2,195 case records from the period 1913–40, with a total mortality of 4.6%. None of the patients was under 12 years of age.

The first surprising feature is that there has been no significant improvement in mortality since 1913, in spite of improved technique, a better understanding of gastro-intestinal physiology, and an appreciation of the importance in peritonitis of gastro-intestinal siphonage and fluid balance. No reduction of mortality followed the introduction of sulphonamides. In the series there were 100 deaths; two of these occurred in the operating theatre, and 18 were due to extra-abdominal causes. The remaining 80 cases, in which death was due to unchecked appendicitis or its immediate abdominal complications, are specially studied. Only 13 of these 80 patients were operated upon within forty-eight hours of the onset of the disease; in 53 the appendix had perforated into the general peritoneal cavity, in 14 there were localized abscesses, and in 13 the appendix was unruptured. In 22 patients the cause of death was progressive peritonitis, and in 15 patients it was residual abscess—multiple in 11 cases, and drained at a secondary operation only in 5. The other abdominal causes of death were ileus, mechanical obstruction, pyelephlebitis, pyaemia, and anaesthetic death at a second operation. While no overwhelming advantage seemed to be derived from the McBurney incision, there was a significant difference in its favour in all cases except those of localized abscess, when in any event the best incision is that which directly overlies the abscess.

When the fatality rates of drained and undrained cases are compared no useful information is obtained, since drainage is performed as a rule in the more serious cases. Such a comparison does, however, prove useful in one respect: the fatality rate in the undrained cases

of appendicitis *with* perforation (2.4%) was less than the fatality rate in the drained cases of appendicitis *without* perforation (3.1%). Here is strong justification for the modern trend towards closure without drainage after removal of the unruptured or the recently ruptured appendix.

Hoerr's analysis serves as a warning to the surgeon against the complacent assumption that death from acute appendicitis can always be ascribed to lateness of operation; those deaths which were due to failure to drain a residual abscess argue, in these cases, a fault in post-operative management, and certain of the other deaths, Hoerr avers—and notably the 10 due to post-operative intestinal obstruction—might have been avoided.

THE LANCAS TUBERCULOSIS SCHEME

It is an achievement in any branch of medicine for one person to look back over a continuous record of success lasting 33 years in dealing with a particular problem. For long the Lancashire Tuberculosis Scheme has been synonymous with the name of Lissant Cox, and his final report, though abridged from the elaborate compilations of pre-war days, gives the material for appreciating this first-class clinical and administrative organization. After two world wars and a "financial blizzard," the Lancashire scheme is more comprehensive than ever before, and in 1934 over 30% of pulmonary cases on the register had received some form of thoracic surgery. Divided into five large areas, each with over a quarter of a million people, and now including as satellites Blackburn County Borough and the Isle of Man, the Lancashire scheme is founded on a series of tuberculosis hospitals, to which dispensaries and social services are attached. Dr. Lissant Cox points out that the White Paper proposals tend to follow a principle which has always been maintained in Lancashire—namely, that a tuberculosis officer should be at the same time hospital physician, dispensary consultant, and director of social work among his patients. Certainly the Lancashire results justify this conception of united tuberculosis work.

The war has left from 12 to 15% higher incidence of pulmonary tuberculosis over 1938, with no smaller rise in non-pulmonary disease, but these figures are less severe than in other areas. Maintenance allowances (266/T) are considered successful, so far as they go, but need improvement for chronic patients and extension to non-pulmonary disease. Dr. Lissant Cox's report is no exception to others when it speaks of the shortage of staff, both nursing and domestic, and the resulting long waiting list of over 1,000 patients. A deputation to the Ministers of Labour and of Health failed to produce an improvement, and the position is even more serious than last year, showing now a deficiency of 28%. In this connexion it is satisfactory to notice that progress has been made with a systematic supervision of nurses' health: x-ray photograph, Mantoux testing, records of weight, etc., are now a routine in all the Lancashire sanatoria, and the general improvement in the nurse's environment is being accelerated.

One most interesting feature of the report is a note of a case of avian tuberculosis in a human being, as discovered by Dr. F. C. S. Bradbury, who typed the culture in his own laboratory. This is the first such instance to be reported in this country of what must be a very rare condition. Bradbury suggests that typing of culture material should be developed further to pick up the odd avian case. This would be interesting from a research point of view, though it is at present difficult to see what bearing it would have upon clinical treatment. The Lancashire scheme costs the ratepayers over a quarter of a million pounds, or the equivalent of nearly sixpence in the pound.

¹ *British Medical Journal*, 1938, 2, 691.

² *Surgery*, 1945, 18, 305.

Lancashire is fortunate in having chosen as successor to Lissant Cox Dr. Bradbury, who unites sound clinical judgment with an extensive knowledge of the bacteriology, science, and mathematics of his calling. He becomes consulting central tuberculosis officer—a status slightly varied from that of his predecessor, as Dr. Bradbury is now administratively responsible to the county medical officer. Dr. Lissant Cox may look back with satisfaction upon his life's work, and the success of the Lancashire scheme is due chiefly to his human qualities, his correct choice of men, his enthusiasm.

NEONATAL MORTALITY IN ABERDEEN

In recent years almost half of the neonatal mortality has been due to prematurity, and it is obvious that the causes must be found and eliminated if any considerable reduction in infant mortality is to be achieved. In a recent paper Prof. Baird¹ examined the probable causes of prematurity and the influence of social and economic factors. The material consisted of hospital and nursing-home cases in the city of Aberdeen. The classification of prematurity was by weight and included all infants of $5\frac{1}{2}$ lb. (2.5 kg.) or less irrespective of the length of gestation. It is difficult to arrive at the incidence of prematurity in the general population, since the lying-in hospitals, which supply most of the data, do not give a cross-section of the community; comparison between hospitals is not less difficult, as the emergency cases admitted vary in number and have a prematurity rate of about four times that of booked cases. During the six years 1938–44 8,808 booked cases were treated in Aberdeen, and in 738 instances the labour resulted in a premature baby—i.e., 8.4% of the total deliveries. In 51.9% of the cases the cause of prematurity was unknown; in 16.1% it was due to eclamptic toxæmia, and twin pregnancy accounted for 12.4%. Of 1,920 births in nursing homes and specialists' practices 91 (4.8%) were premature. The mortality among the live-born prematures was 26% in the hospital series and 12% in the other group. The difference in survival rate is attributed by the author to the greater vitality of the infants in the latter group compared with the former, and not to differences in nursing or medical care. Eclamptic toxæmia, the most frequent obstetrical condition associated with prematurity, was twice as common in the poorer hospital group as in the well-to-do specialist group; the percentages were 8.5 and 4.4 respectively. The stature of the mother in the better economic group was greater than in the hospital group, and in both groups there was a correlation between height of mother and weight of baby. Caesarean section appears to be related to stature; this mode of delivery was practically confined to very short women. Forceps delivery does not appear to be related to stature, and was over three times more common in private practice than in hospital experience.

The recent fall in the stillbirth rate may to some extent be due to better management of pregnancy and labour, but Prof. Baird thinks it is more likely to be associated with the better nutrition of the mother. The fall in the neonatal mortality in Aberdeen—the rate in 1944 was 83% of that in 1938—was due to the large reduction in prematurity and congenital debility. Infection as a cause is still as common, but there has been an increase in other causal conditions. For example, the frequency of congenital malformation as a cause of neonatal mortality was 195% of the pre-war level. Prof. Baird considers that the diminution of neonatal mortality in Aberdeen during recent years is mainly due to the better health of the mothers as a result of improvements in diet. But he points out that it

is difficult to produce direct evidence about experiments in human nutrition, as only small numbers can be successfully dealt with in detail. The issue of supplements does not appear to have been popular; the author stated, "In many cases, however, not more than 30% of the expectant mothers take up these vitamin preparations"—that is, the orange juice, cod-liver oil, and vitamin A and D tablets provided in antenatal clinics.

EVOLUTION OF VIRUS DISEASE

F. M. Burnet's Dunham Lectures at Harvard have been published as a Harvard University Monograph entitled *Virus as Organism*.¹ They combine with instructive and well-documented fact a good deal of very interesting speculation. The author concludes in the first place that viruses must be regarded as micro-organisms, and accepts the hypothesis originally advanced by Laidlaw that they are degenerate forms of what once were larger and more independent species, probably bacteria. He next looks for the ultimate source of almost all human virus infections in diseases of animals, pointing out that man has been sufficiently gregarious for continued spread to be possible in the human host only for a few thousand years. The first known appearance in man of many virus diseases is much more recent than that: psittacosis, St. Louis encephalitis, and others have attacked man only in the present century. Derivation from animals is perhaps most clearly seen in yellow fever, the jungle reservoir of which has been brought fully to light only recently. It is tempting, since Theiler's discovery of a similar infection in mice, to assume a rodent source for poliomyelitis. The probable history of these and other virus diseases is the major theme of these lectures, but involved with it are other aspects of the host-parasite relationship. Of particular interest is a critical analysis of the epidemiology of influenza. Burnet is not encouraging on the subject of influenza vaccines; during propagation in the laboratory the virus passes from the O to the D phase, a change accompanied by a demonstrable reduction in pathogenicity, and "one has an uneasy feeling that perhaps all our current influenza laboratory work is being done with something which has ceased to be the pathogenic virus with which we ought to be primarily concerned." There also appears to be some element in influenza immunity other than the antibody content of the blood, and hence incapable of assessment.

The general impression produced by this brilliant survey is on the whole rather alarming. We are singularly defenceless against many of the viruses, and, despite the accumulated data of many years of study and all the deductive and imaginative treatment which Burnet can bring to bear on them, we scarcely know the first thing about why a virus may suddenly increase the scope of its activity. Whatever factors may be concerned, they have certainly operated under the conditions in which we are now living, and further developments may be expected, whether in the greater prevalence of recognized virus infections or in the appearance of new ones.

Prof. Adolf Lorenz, the famous Viennese orthopaedic surgeon who introduced the bloodless method of reducing congenital dislocation of the hip-joint by forcible manipulation, has died in his 93rd year.

Dr. W. S. A. Griffith, consulting physician-accoucheur to St. Bartholomew's Hospital, has died in his 92nd year.

¹ *Virus as Organism. Evolutionary and Ecological Aspects of Some Human Virus Diseases.* By Frank MacFarlane Burnet, M.D., F.R.S. (£2.00 or 11s. 6d.). Massachusetts: Harvard University Press; London: Oxford University Press.

RECURRENT DISLOCATION OF THE SHOULDER

THE JOHANNESBURG STAPLE DRIVER

BY

Sir HENEAGE OGILVIE, M.Ch., F.R.C.S.

Late Consulting Surgeon, East Africa Force

In the rejoicings over victory the first successful campaign in the cause of freedom, and one of the most dramatic military feats in the world's history, is seldom remembered. At the end of January, 1941, the East Africa Force, under Sir Alan Cunningham, forced the passage of the Juba River on the Kenya frontier. In little more than two months they advanced nearly two thousand miles over some of the most difficult country in the world—the waterless and roadless deserts of Somalia and the mountains, forests, and precipitous gorges of Abyssinia, and defeated an army enormously superior in numbers and equipment.

The East Africa Force had no British units and only a few individual officers from Britain. The soldiers were chiefly Africans, men from the Gold Coast, Sierra Leone, Nigeria, and the East African Territories, under European officers—regular soldiers or settlers. The specialist services—engineers, artillery, air corps—were for the most part South African, and South Africa also provided the spearhead of the infantry and the bulk of the medical services, to which units from Southern Rhodesia, Kenya, the Gold Coast, Nigeria, Zanzibar, Uganda, and Tanganyika were added. A more magnificent body of men it would be hard to find. The African as a soldier displays a courage that no danger can daunt and a cheerfulness that no discomfort can damp. The European bred in Africa, like his cousins in Australia and New Zealand, and his compatriots the brown trout when transplanted to the same territories, seems to develop a size, physical beauty, and stamina exceeding that of his parent stock. These men were tough; and almost the toughest thing about them was their habit of playing rugby football on fields like stretches of gravel littered with large stones. It is little wonder that habitual dislocation of the shoulder, which Bankart pointed out many years ago is seen chiefly in epileptics and rugby footballers, seemed almost an occupational injury among South Africans and Rhodesians in the Force. The number I saw was considerable. The number requiring operation during the year and a half that I was in the command was about a dozen.

This note is prompted by Surg. Cmdr. P. B. Moroney's description in the *British Medical Journal* of July 28, 1945 (p. 122), of a technique for drilling the glenoid in Bankart's operation. As he states, the essential lesion in habitual dislocation of the shoulder is a detachment of the anterior half of the glenoid ligament, leaving the glenoid surface a shallow oval facet on which the humeral head rests insecurely. The treatment is therefore replacement and reattachment of the glenoid rim. Clairmont's operation is based on faulty pathology, but it often works because of the mass of fibrous tissue which it wraps round the joint. Nicola's operation, limiting movements which should be free by an intra-articular ligament that should not be there, restrains movement and dislocation only till the ligament saws off, when the dislocation returns but not all the movement. The various bone-graft operations, judging from the skiagrams I have been shown, depend on the production of a massive osteoarthritis for their success. Glenoid reconstruction has not failed in my own cases of dislocation or those I saw in Johannesburg, and it leaves a full range of painless movement.

Surg. Cmdr. Moroney's apparatus seems a complicated way of doing a fixation that can be performed in a few minutes with the Johannesburg staple driver illustrated. This model was presented to me in 1941 by Mr. A. D. Polonsky, one of the brilliant group of orthopaedic surgeons working under F. P. Fouché at the Johannesburg General Hospital and in the traumatic service of the Mines Hospital, and was, I believe, modified by him from the model originally designed by Allen of Durban, and made in the workshops of the Department of Mines. It has been copied by Down Bros. (Fig. 1).

The application of the instrument needs no description. I used two or three staples to fix the glenoid rim, and another to reattach the coracoid. My post-operative skiagrams are all in Kenya, but the outline sketch (Fig. 2) will illustrate the position of the staples.



FIG. 1

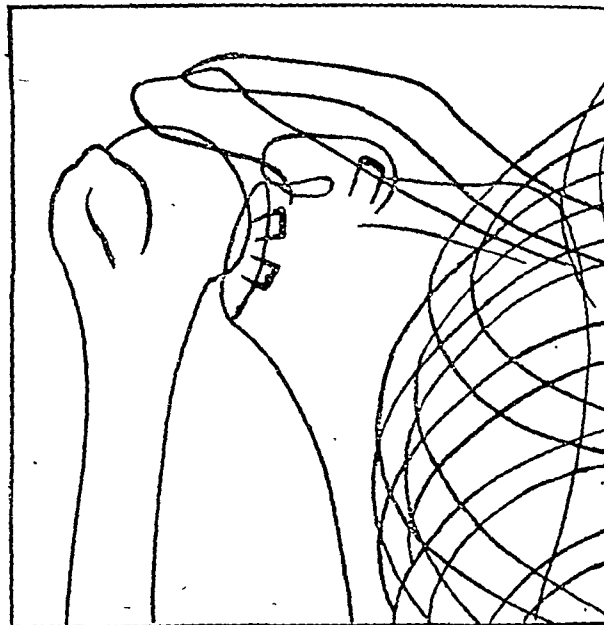


FIG. 2

N.B.—I have heard from Mr. Fouché that a later model, in which the staple is held in its socket by a hook, is now in use in Johannesburg.

WARTIME ACTIVITIES OF THE HEALTH ORGANIZATION OF THE LEAGUE

A special number of the *Chronicle of the Health Organization of the League of Nations*, the publication of which was suspended in May, 1940, has been issued¹ describing the work and difficulties experienced by the Health Organization during the past years. The return of officers to their own national service had reduced the staff of the Health Section to two doctors by the middle of 1940, and as the war went on the difficulty of communications prevented headquarters from obtaining advice from the members of the Health Committee and its technical commissioners. The result of this isolation was that the Health Section was increasingly compelled to rely on its own resources. The publication of the *Weekly Epidemiological Record* was never suspended during the war, though its field of activity was restricted. Before the war the Epidemiological Intelligence Service received data regarding infectious diseases and demographic statistics from every country in the world, with the exception of the Soviet Union, and from most large towns. From 1940 onwards no information was forthcoming from the zones of military operations, and the spread of the war to America and the Far East caused the League's Epidemiological Service to concentrate on Europe. The service was successful in obtaining data respecting epidemics and mortality from belligerent, occupied, and neutral countries; the only exceptions were the eastern front and Albania, Serbia, and (at some periods) Greece, the latter countries having been deprived of postal services with the outside world.

Biological standardization, a special feature of the work of the Health Organization, proceeded satisfactorily during the war. The Danish State Serum Institute at Copenhagen, which was entrusted with the distribution of international standard-

¹ Obtainable from Allen and Unwin, 40, Museum Street, London, W.C.1.

of sera, was cut off from many countries by the invasion of Denmark in April 1940. The Medical Research Council was approached and agreed to supply from the National Institute at Hampstead international standard sera to the laboratories in the countries which were no longer able to obtain them from Copenhagen. The National Institute had previously been responsible for the standardization of vitamins, hormones and certain medicaments. On the Health Section's initiative an international conference on the standardization of penicillin was convened in London in October, 1944, under the presidency of Sir Henry Dale. A similar field of work, the unification of the national pharmacopoeias was continued throughout the war.

Although the pre-war work was continued so far as possible and despite staff shortages particular problems arising directly out of the war were undertaken by the Health Organization. These problems covered a wide range in the medico-social field. Information about the food ration before and during the war in occupied countries, the types of vitamin deficiency disease that were most to be feared and other data on possible post-war requirements were supplied to the Inter Allied Bureau set up in London in 1942. In 1943 the Health Section co-operated with UNRRA by lending a staff to provide an epidemiological intelligence service in Washington; this staff was later taken over by UNRRA. A polyvalent glossary of communicable diseases, giving terms employed to designate them in twenty-four European languages, was prepared for the International Red Cross.

The report shows that despite adverse conditions and reductions in resources of the Health Section its pre-war activities were maintained though modified by circumstances in some instances and that the organization was successful in adapting itself to the difficulties and demands that arose out of hostilities and was able to perform very useful service.

TRAINING OF GENERAL PHYSICIANS

In October, 1945 the Council of the Royal College of Physicians of London appointed a committee of nine Fellows "to consider the question of the training required for general physicians and to report back to the Council." The committee having fulfilled its terms of reference the Council submitted the following report to the Comitia held on Jan. 31, which approved it.

Criteria for Consultants

The Council considered the criteria for consultants which had already been approved by the three Royal Colleges.

1 Consultants must have received their training at an approved hospital. Each College shall approve hospitals as suitable for training in its own branch of the profession and recognition shall be granted by the Standing Joint Committee on the nomination of the individual College concerned.

2 Consultants shall have a minimum of five years' approved training and experience after qualification.

3 Consultants must hold an approved higher degree or diploma.

4 To be approved as a consultant a candidate must hold or have held a recognized appointment to a hospital.

5 Consultants must not engage in general practice.

The Council approved them in principle as applying to general physicians but pointed out that training might be undertaken at more than one hospital. It also agreed that the consultant should have a minimum of five years' approved training and experience after qualification. This should be held to mean five years after registration.

The Council agreed that the MRCP examination should continue to be a test of the candidate's knowledge of general medicine. It was thought that it should not be taken earlier than one year after registration.

Training of Physicians in General Medicine

The Council agreed that it was essential that the required training for general physicians should be as elastic as possible within the general framework already agreed upon. It agreed that the following minima should be expected.

1 Candidates should hold a resident appointment in an approved general hospital for at least one year after registration. During six months of this period the post held should be that of house-physician. The remaining six months should be spent in another junior medical appointment such as house surgeon, house-

physician in a special hospital, or resident in one of the special departments.

2 Candidates should hold a clinical appointment such as that of registrar or chief assistant for at least two years in an approved general hospital. During this time he should be encouraged to undertake research work or to hold some additional appointment such as a demonstratorship in a department of physiology, anatomy, pathology, or biochemistry.

3 Candidates should spend at least one year in research or travel or in some non-clinical subject, such as physiology, anatomy, pathology or biochemistry.

4 No rigid requirements should be laid down for the remaining period of training. A general physician should have some knowledge of the work of special hospitals such as sanatoria, children's hospitals, mental hospitals, etc., and appointments in such hospitals should be recognized. A period of six months spent in general practice might be allowed to count as part of the five years' training.

The Council agreed that there should be no rigid order for holding these appointments and emphasized that the times suggested were minimal and not maximal.

EMERGENCY GUARANTEE FUND

The Council of the British Medical Association has decided that an Emergency Guarantee Fund shall be established. The members of the Council will be the Trustees of the Fund. It will be used at the discretion of the Trustees to further the cause of the medical profession on any major dispute which may occur between the Government and the medical profession or in connection with the proposals for a National Health Service. The Fund will be in two distinct parts: Part A and Part B. The A Fund will be for the purpose of providing the general funds from which the administrative propaganda and allied expenditure will be met. The B Fund will be used for the purposes of the A Fund and in addition within the limits of the Fund, for the compensation of individual practitioners who, because of their adherence to the cause of the profession, suffer exceptional financial hardship. The B.M.A. has guaranteed a sum of £100,000 to Fund A. The Trustees of the National Insurance Defence Trust will consider at their next meeting what their contribution to Fund B shall be.

Every member of the profession is urged to guarantee as substantial an amount as he can afford to Part B of the Fund. Normally this guarantee should be not less than £25, and it is hoped that in many cases it will be much more.

Until the Trustees so decide, the Fund will remain in the form of guarantees. If and when the Trustees deem it expedient, in the light of current events, the amounts so guaranteed, by individuals as well as bodies, will be called in and used at the Trustees' discretion in maintaining the interests and honour of the medical profession. Forms of guarantee will be circulated to the medical profession in the next few weeks.

ROCKEFELLER TRAVELLING FELLOWSHIPS

The Medical Research Council announces the resumption of the pre-war arrangement whereby it was enabled to award medical travelling fellowships generously provided by the Rockefeller Foundation of New York. For the current academic year the Council has awarded fellowships to the following:

Geoffrey Sharman Daves B.M., B.Ch., B.Sc., Department of Pharmacology, Oxford University.

John Louis Henderson M.D. MRCP Ed., first assistant, Department of Child Life and Health, Edinburgh University.

Ronald Staley Illingworth M.D. MRCP, DPH, D.Ch., late officer-in-charge of a Medical Division (fluent-col., R.A.M.C.).

Richard Mayon Mavon White, M.B., Physiological Laboratory, Armoured Fighting Vehicles School, Lulworth.

William Alexander Law, M.D. FRCS, late officer-in-charge of a Surgical Division (fluent-col., R.A.M.C.).

Nicholas Henry Martin, B.M., B.Ch., B.Sc., MRCP, late assistant director of pathology, 21 Army Group and B.A.O.R. (fluent-col., R.A.M.C.).

Robert Lawrence Richards, M.D., assistant physician, Neuro-vascular Unit, E.M.S. Hospital, Gogarburn, Edinburgh. (Drs. Henderson and Illingworth were awarded fellowships in 1939, but were unable to take them up owing to the war.)

Reports of Societies

TUBOCURARINE CHLORIDE IN ANAESTHESIA

What was described as a "milestone in anaesthesia" was discussed at a crowded meeting of the Section of Anaesthetics of the Royal Society of Medicine (about 200 were present) on March 1, with Dr. GEORGE EDWARDS in the chair. Experiences with *d*-tubocurarine chloride were described by two Liverpool workers.

Dr. T. CECIL GRAY said that it was appropriate that in this centenary year of Morton's discovery another new advance, which might prove to be equally significant, should be under discussion. Curare was a poison used by South American savages, between the Amazon and the Orinoco, for smearing on their arrows and darts in hunting and war. The origin of this "flying death," made from certain plants with other deadly ingredients, such as the poison fangs of snakes, was surrounded by esoteric magic and superstition, and very little more was known about it now than when it was discovered in 1812 by Charles Waterton, who described it in his *Wanderings in South America*. In 1935 Harold King gave the name tubocurarine to an alkaloid isolated from crude curare, and later Prof. Mackintosh of Nebraska University prepared an extract of so-called standard potency. The compound *d*-tubocurarine chloride was used in this country from 1934 in the treatment of tetanus, and in 1942 Griffiths at the Homoeopathic Hospital, Montreal, first used the drug as an aid to anaesthesia.

The speaker's colleague, Dr. John Halton, had been using it at Liverpool since November, 1944, but it was not until April, 1945, that its possibilities began to be realized. The crystallized extract, prepared by Burroughs Wellcome, had proved to be of standard potency, but the pharmacology and exact nature of the drug were as mysterious as the preparation of the crude substance. Curare had no action when taken by the mouth; hence the safety of the native who ate his prey. On subcutaneous administration the action appeared within twenty minutes, and on intravenous administration within ten seconds, taking three to four minutes to reach the maximum. Having entered the circulation, it was in part changed by the liver and in part excreted unchanged by the kidneys. In the presence of renal damage of any extent an otherwise safe dose might cause considerable embarrassment. Recent work suggested that the substance prevented the action of acetylcholine, which was produced at the neuromuscular junction, and that this was the mechanism whereby relaxation was brought about. It depressed reflexly the laryngeal and bronchial reflexes, preventing that life of the anaesthetist, spasm. It had been said that it caused contraction of the gut, but experimental evidence in animals showed that the gut was placid and inactive. The present pharmacological opinion was that the liver and kidneys were completely unaffected. The action on the heart and cardiovascular system required a full investigation. So far as the work had gone tubocurarine chloride produced no effect on the electrocardiogram in the doses used clinically. He showed the electrocardiogram of a patient. Two minutes after the injection of 0.5 g. pentothal a slight effect was to be observed on the T-wave, but the subsequent administration of 20 mg. tubocurarine chloride had no further effect or perhaps even brought the T-wave back to normal.

Production of Relaxation

The compound when first received must be sterilized. It was autoclaved at 10 lb. (4.5 kg.) pressure for twenty to thirty minutes. On no account must moisture be allowed to enter during autoclaving. At first he had favoured a very dilute solution, but a concentrated solution, containing 10 mg. to the ml. of distilled water, was now used. The compound was not in itself an anaesthetic. It was used as an adjuvant in order to obtain good relaxation. For a short procedure, such as laryngeal intubation, 15 mg. was injected, with a moderate dose, say 0.5 g., of a quickly acting barbiturate. A dose of 20 mg. was sufficient to relax the average healthy adult abdomen; the very obese might require 24 mg. The effect of this initial dose would persist for a varying time up to forty minutes. There was some cumulative effect, and subsequent doses, if these

were necessary, might be smaller. With old people an initial dose of 10 mg. was suitable.

With this compound a perfectly relaxed abdominal musculature was obtainable in a patient who was still able to respond to painful stimuli by movements of a limb. No untoward side-effects had been observed during administration. In the hands of a competent anaesthetist fully conversant with the trend of modern technique the drug was a safe one, and the results more than justified its use. The surgeon was presented with "perfect blotting-paper relaxation" at any time and quickly. Of his major cases—most of them abdominal—98% had their reflexes fully recovered at the end of the operation. After such operations as gastrectomy and cholecystectomy, patients had been able to carry out breathing exercises within half an hour of return to bed. Post-operative vomiting was lessened in quantity though not markedly in frequency. He believed that there were indications for the use of this drug in every abdominal case and in most thoracic cases. It was of special benefit with poor-risk patients.

Value in Thoracic Surgery

Dr. JOHN HALTON said that his own chief interest was in anaesthesia in relation to thoracic surgery, and it was in the course of his search for a perfect method that he was led to the use of *d*-tubocurarine. In October, 1943, he was using pentothal as the sole agent for the production of anaesthesia for thoracic work, finding the patient's recovery and the post-operative course much smoother. The use of pentothal, however, was accompanied by several disadvantages; cough and laryngeal spasm appeared with annoying frequency and sometimes led to an uncontrollable spill-over of secretion, which meant that the operation had to be postponed for that day. Moreover, each successive fractional dose, while it produced a little longer period of anaesthesia than the one before, did so at the cost of an ever-increasing length of recovery period. Later there came into his possession 100 mg. of tubocurarine chloride, of the pharmacological properties of which he was in complete ignorance, and he waited for what he judged to be clinically a suitable thoracic case. In that first case the operation lasted about one and a half hours, 1.1 g. of pentothal and 25 mg. of tubocurarine chloride were administered, and oxygen was supplied in a closed circuit throughout. He was amazed at the degree of control obtained, and the same procedure was followed in further cases with equally satisfactory results. It was not until the end of March, 1945, that he received regular supplies of the drug. The rapid induction because of the absence of spasm, and the quick recovery and trouble-free convalescence commended it to his surgical colleagues. One interesting fact was that there appeared to be a synergism between the barbiturates and the tubocurarine or between their combination and the inhalation agent. The drug itself was not an anaesthetic, and in smaller doses did not prevent movement. He gave 17.5 mg. to a conscious patient as a therapeutic measure in an attempt to cure a phantom tumour of the upper abdomen, which simulated exactly a pancreatic cyst. Some interesting facts were learned from that case, which was cured. When he gave 15 mg. of the drug and a dose of barbiturate less than that normally required to produce a motionless patient there was no reaction to painful stimuli. If any inhalation anaesthetic was administered to a patient who had already received a barbiturate and the tubocurarine an absolutely minimum amount was all that was necessary to take him to a deep plane, but whether it was correct to regard that as synergistic action the speaker was not prepared to argue.

Three Methods of Use

Dr. Halton proceeded to describe three main ways of using the compound. A mixture of 15 mg. tubocurarine chloride and 0.5 g. pentothal might be injected for such a procedure as oral endoscopy. The respiration after two or three minutes became very shallow, the jaw was completely relaxed, there was no spasm or cough when the airway was inserted, and the patient was able to tolerate straight away without distress an anaesthetic vapour strong enough to maintain the anaesthesia. The induction time was thus greatly shortened.

The next method was the use of tubocurarine chloride with intermittent barbiturate injection. This was their standard method of effecting anaesthesia. After induction small incre-

ments of 0.1 g. of the barbiturate and 2 to 4 mg. of the chloride were added at a time. If the length of the operation were such that too large a dose of the barbiturate might appear to be required the practice was to maintain a minimal amount of cyclopropane and ether. These patients showed surprisingly little alteration in the pulse rate, and even after severe abdominal operations were co-operative on return to the ward.

The third method was the intermittent fractional injection of between 15 and 30 mg. of tubocurarine during the course of ordinary inhalation anaesthesia. This was done to produce the necessary relaxation while still keeping the patient in a light plane. Whatever means was used oxygen must be supplied, preferably in a closed circuit. The drug was very rapidly eliminated. There was no evidence that it had any latent toxicity. The same held good for the barbiturates in the doses employed. Vomiting in thoracic cases was a thing of the past; in abdominal cases the incidence appeared unchanged, but the degree of severity was much lessened.

He and his colleague had given this compound in 1,040 cases. Among these, two deaths which might have been attributed to the anaesthetic had occurred. The post-mortem findings in each case showed gross myocardial damage, and this, coupled with a degree of anoxia, had probably terminated life. In the assessment of post-operative thoracic results there were many difficulties. Changed anaesthetic methods and operating techniques rendered the collection of comparative figures almost useless. With the advent of tubocurarine chloride more extensive surgery had been successfully practised in cases of the poor-risk type. Post-operative complications were very much lessened, and the bodily well-being of the patients after operation was improved beyond anything of which he had had previous experience and must be seen to be believed. This was a powerful drug and a safe drug, but it should never be used by anyone not fully conversant with the care of the apnoeic patient. Further, it should not be used in cases of extensive renal damage.

Surgeon's Testimony

Mr. C. A. WELLS said that much of this work had been done in his own department of surgery. He was sure that many people were alive to-day—patients who had survived operation—who would not have been alive or have had operation at all had it not been for this method as practised at Liverpool during the last eighteen months. The advantage in the theatre was the quick induction, the full degree of relaxation, and the very interesting warning when the anaesthetic had become a little light. There appeared to be a selective action: patients in whom the anaesthesia had become light were able to raise the knee on the table while the abdomen was still fully relaxed. When such a warning was received the anaesthesia could be deepened in a moment. On return to the ward the patients were rapidly co-operative. He had for many years believed that the end-results were facilitated very much by the patient's assistance in breathing, moving, and coughing, and these patients were able to give that assistance.

Dr. FREDERICK PRESCOTT said that in certain experiments with the drug he had found that a dose of 10 mg. intravenously had very little effect; a dose of 20 mg. paralysed the muscles of the arms, legs, and face, but had no great effect on the diaphragm; a dose of 30 mg. produced complete paralysis. This was the maximum which should be given at any one time. Experiments had also been carried out with a form of intramuscular drip, giving 1 mg. a minute; 30 mg. given in that way over half an hour had not very much effect, so that if this compound were used it should be given in a certain maximal dosage and given intravenously.

Dr. F. B. MALLINSON asked whether it was likely that soon the compound would be presented in solution. He also suggested that as this was a new drug it should not be assessed in terms of safety until the cases numbered 10,000. Deaths under chloroform anaesthesia numbered only 1 in 4,000. Dr. HARRIS asked for information about the use of the drug in genito-urinary operations. Dr. G. S. W. ORGANE spoke of the critical nature of the dose. A certain dose might produce very little obvious effect, but a slightly higher dose would produce more than was wanted. Dr. E. S. ROWBOTHAM had had an experience of 90 cases altogether. Some endeavour had been made to assess the dose, in terms of body weight, and the figure of 2.5 mg. per stone (6.2 kg.) had been arrived at for the average case. Most

of the operations were gastrectomies, and the anaesthetic result was satisfactory. Dr. C. L. HEWER mentioned the occurrence of ocular effects. Of 37 cases 19% had complained of blurring of vision lasting from a few hours to three days. The discussion was continued by Dr. A. H. GALLEY, Dr. M. D. NOSWORTHY, Dr. LOFTUS DALE, and Dr. J. W. TREVAN.

Dr. HALTON, in reply, said that the compound had been used in genito-urinary work provided that there was no definite evidence of extensive renal damage. He agreed as to the critical dosage and the narrow margin between under- and over-dose. This was a difficulty, especially in children. A warning was given when relaxation was becoming inadequate—namely, that it became a little more difficult to "aerate" the patient. Dr. GRAY said that no ocular residual symptoms had been observed in his series of cases. His attention had been called in a few cases to retention of urine, but it had always cleared up and was not considered a serious complication. In their abdominal patients they did not inject 30 mg. in a single dose.

Correspondence

Medical War Relief

SIR,—Three months have passed since the second appeal for subscriptions to the Medical War Relief Fund was published in the *Journal*. At that time the balance in the Fund was only £25,000, and it was stated that the sum of £100,000 was likely to be required during the next year.

The committee of the Fund is grateful to those who have responded promptly to the appeal; but they are only a small minority of the profession, and the total of their generous contributions, amounting to some £10,000, falls far short of the "target." As was expected three months ago, the number of applications for assistance has continued, and still continues, to increase. At the present time more money is being paid out than is coming in. The declining balance in the Fund must be greatly reinforced if the committee, in dealing with the many deserving cases which come before it, is to be able to provide really effective help without anxiety as to the claims of future applicants being prejudiced.

The objects of the Fund—the assistance of our professional colleagues who are temporarily in financial straits as a direct result of the war, and of the widows and children of those who gave their lives—cannot fail to command the sympathy of every medical practitioner. Will those who have overlooked the need please give their assistance now, either by responding to any local appeals received from their Panel Committees or B.M.A. Divisions or by sending their cheques (payable to the Medical War Relief Fund) to the honorary treasurer of the Fund at B.M.A. House, Tavistock Square, W.C.1. He gives twice who gives promptly. Generous help is needed, and it is needed now.—I am, etc.,

H. GUY DAIN,
Chairman, Medical War Relief Fund.

Thiouuracil in Hyperthyroidism

SIR,—Since reading your leading article on "Thiouuracil in Hyperthyroidism" (Dec. 18, 1943, p. 783) I have been working on this problem with my associates Drs. Tarrida and Castello. We believed, and we soon confirmed, that the theories put forward by the MacKenzies and E. B. Astwood are not sufficient to explain all the phenomena occurring in connexion with the use of thio-compounds. In our experience there does not elapse any so-called "delay or latent period," as contended by them, before the drug acts positively on the patient. Though it is true that in clinical experience some time does elapse, this does not mean that from a physio-pathological standpoint the drug fails to act right away. Since we have been able to show that the drug acts immediately, and modifies the vegetative rates, especially the basal metabolic rate, we consider it no longer logical to explain its action as pending histochemical changes in the thyroid gland, and a subsequent drop of the blood thyroxine level. The drug begins to work before all this can possibly take place, and the "latent or delay period" does not exist. This can be demonstrated quite simply. Measure the basal metabolic rate of anybody, then administer a small

dose of any thio-compound whatever, and measure again the basal metabolic rate half an hour later if the dose was given orally, or a few minutes later if it was injected. In most cases a metabolic drop is observed, the extent of which varies considerably but is generally significant. If the basal metabolic rate determination is repeated often enough, a graph can be made of the corresponding figures, in a way similar to that of glucose tests (this is by no means a hint that there exists any connexion between them, although it might be argued that in both cases we seem to deal with a biological system of agonists and antagonists). In a small number of cases an inverted, or reverse, effect is noted—i.e., a rise in the basal metabolic rate over and above the initial level. This is exceptional, yet we feel that this phenomenon, together with the rapid response, may suggest the intervention of some vegetative link.

Generally speaking, the hyperthyroid's metabolism drops most, that of normal people drops less, and the hypothyroid's least of all. Patients with neuro-vegetative instability show the most marked variations; this is to be expected.

When we observed that small doses—even smaller than those commonly used in daily treatment—were sufficient to determine ample drops in the basal metabolic rate, we deemed it worth while trying these new drugs in small doses in the treatment of our hyperthyroid patients. Results were satisfactory in a series of 23 such patients, who received total daily doses of 0.25 to 0.60 g. thiourea, or 0.07 to 0.15 g. methylthiouracil in fractionated quantities. No disturbances of the digestive tract, no hypersensitivity, and no toxic troubles were observed, and the results were as satisfactory as those with far larger doses usually employed elsewhere. Permanent stabilization of basal metabolic rates at normal figures was obtained usually after four to six weeks' treatment. Patients felt better from the end of the first week or even before. None of them showed hypothyroidism.

An alteration of carbohydrate metabolism of apparent diabetic type was favourably controlled in one case, the glycaemic type of curve being brought back to normal. Two cases showed complete arrhythmia: in one of them normal rhythm was restored, whereas the other one, which had lasted for years, could not be controlled. In no case did the goitre increase; on the contrary, it became smaller, or even totally disappeared. This is, in our opinion, one of our most noteworthy observations, together with the absolute lack of digestive troubles, of the type referred to by our colleagues on applying the usual doses of thiourea, and which affected, according to their statement, up to 25 to 33% of their cases.

Whilst, according to the MacKenzies and Astwood, the drug interferes with the thyroid hormone production in the thyroid and, it may be that it also immediately interferes with the action of thyroxine on tissues, which would explain the rapid response. Only further research will clear up this most interesting point.

The demonstration of the immediate action of the drug was based on observations carried out on more than 100 patients, among whom there were cases of hyperthyroidism, endocrine disturbances of other types, cases of general illness, and also healthy people. The number of basal metabolic rate determinations done is over 500. These results were addressed on two different occasions to the *Asociación de Endocrinología y Nutrición* at the Academy of Medical Sciences, in the first instance on June 11, 1945, under the title "Revisión de las teorías actuales sobre el mecanismo de actuación de los sulfoconjugados a la luz de experiencias propias." They were confirmed in the *Instituto de Investigaciones Médicas* at the School of Medicine, and in the Institute of Pharmacology, and various colleagues have also checked personally, in their private experience, the rapid action of thio-compounds.—I am, etc.,

Faculty of Medicine, Barcelona.

CHRISTIAN DE NOGALES.

Treatment of Amoebiasis

SIR,—I imagine that more authoritative voices than mine will have been raised in protest against the astonishingly ill-informed letter of Dr. E. Snell (Jan. 12, p. 68) on the subject of the treatment of amoebic dysentery.

In the face of all current medical opinion he states that a course of 10 gr. (0.65 g.) of emetine should be given. It cannot be too often emphasized that for the dysenteric types

of amoebiasis two, or at most three, injections of emetine are sufficient. If Dr. Snell had ever gone so far as to check up on the progress of dysenteric patients with the sigmoidoscope he would have realized the great speed with which the ulceration is healed by emetine injections. To inflict an extra unnecessary week of injections of this dangerous drug is a gross imposition on patients. If he still insists on giving a long course of emetine (which, indeed, is necessary only in amoeboma or in chronic infections of liver or lung) dare we hope that he keeps his patients in bed for at least a further week after the injections have ceased, and that he scales the dosage of emetine down for lightweight patients? Dr. Snell apparently rejects entirely the recent improvements represented by the introduction of diodoquin and penicillin.

Finally, may one suggest to Dr. Snell the use of the sigmoidoscope as a diagnostic measure as well as a test of cure, and point out that if he looks only for ulcers (as his letter suggests) he will be missing at least 80% of infections.—I am, etc.,

C. F. J. CROPPER,
Major, I.A.M.C.

Rawalpindi.

Cardiac Beriberi

SIR,—When I was a student I recollect being told that the surest way to get propelled from an examination room by *vis a tergo* was to make a diagnosis of beriberi. Time has brought us round in a full cycle, and now, judging from recent articles, it must be essential to make that diagnosis in order to stay in the room.

It appears that if any patient with heart disease is put to bed and given large doses of thiamine he will quietly get better or quietly die. In the first instance this is diagnostic of beriberi and in the second diagnostic of resistant beriberi. Here is a great advance in cardiology. Neurology has also progressed, for it is now known that any neuritic pain if treated with very large doses of thiamine for a long time will disappear or persist. Obviously, therefore, it must be due to a B₁ deficiency of either the curable or incurable type, and I see the followers of Withering and Bright are making similar profound discoveries in regard to dropsy.

These remarks are called for by a recent article in the *Journal* (Feb. 23, p. 273) in which an x-ray photograph is shown of an enlarged heart in an anaemic girl which has no resemblance to the heart in beriberi, and yet was diagnosed as such because the patient recovered in spite of injections of thiamine. Drowned in the depths of a meaningless past is the memory of those stout little girls—housemaids, wardmaids, and probationer nurses—with chlorosis who continued their hard work until finally, pale, tired, and with dilated hearts, they came to see the doctor because their output of work was falling.

In true cardiac beriberi the response to an adequate injection of thiamine is one of the most dramatic reactions seen in medicine, the patient usually feeling the effect in a few minutes, while it is objectively demonstrable in a couple of hours and obvious to the most casual observer in a day. Therefore in thiamine we have a most valuable aid to diagnosis, for if no result is seen in a day then the diagnosis of cardiac beriberi is either wrong or incomplete: frequently incomplete, for beriberi can complicate any heart lesion as well as the dilatation so common in anaemia, whatever the cause. This dilatation in those doing hard physical work seemed to cause my students more difficulty in their differential diagnosis than any other cardiac disorders, but any doubt can be quickly resolved by a therapeutic test.—I am, etc.,

London, S.W.1.

R. BRUNEL HAWES.

Effect of Blast on the Ear

SIR,—The letter of Lieut.-Col. J. F. Birrell (Feb. 23, p. 292) calls for further comment. His communication brings up three points: the lack of equipment of the British Army otologist, the impracticability of reviewing soldiers exposed to blast effects, and the impossibility of examining men under 40 years of age prior to their discharge from the Army.

I knew that my British colleagues were handicapped in the accurate assessment of their hearing tests in the two theatres of war in which I served—the Middle East and the Central Mediterranean Commands—but I am astounded to learn that such a state exists in the United Kingdom.

where one would expect to find facilities for full investigations. It would appear that a systematic study of blast deafness has not been attempted by a research unit of the R.A.M.C., apart from the efforts of individual otologists, who, however can do little by themselves while on active service. This contrasts unfavourably with the useful otological research which has been conducted with energy by the E.N.T. staff of the Central Medical Establishment of the Royal Air Force. Surely our electrical engineers, who have done so much in other fields, would be able to construct, and calibrate, a suitable audiometer, obviating the necessity for importing these instruments from the U.S.A.? In a recent discussion at the Royal Society of Medicine Mr Daggitt mentioned that an instrument had been made for him by R.E.M.E. from disused radio parts. Not only is such a procedure practical, but the cost of construction should not be prohibitive.

Under present conditions I agree that it would not be possible for otologists on active service, and in this country, to carry out the investigations suggested in the two groups of men, but this negative attitude is no excuse for a failure to do so should the necessity arise at a future date. A reorganization of the otological services would be called for, necessitating adequate equipment and staff. In my opinion it is not necessary to have an otologist as the audiometrician. I myself trained two orderlies—highly intelligent young men—in the use of this instrument, and when I was satisfied with their proficiency they carried out these investigations, referring any difficult cases, such as those with possible psychological exaggeration, to me. This saved an enormous amount of time. It should not be impossible to find other suitable men to train for this work. A view which I hold strongly is the need for the establishment of a school of audiometry, with the power to issue a certificate of proficiency in this part of our work. These trained audiometricians would be of invaluable assistance to the busy otologist in civilian as well as in wartime practice. On the clinical side, an excellent opportunity for becoming familiar with normal and abnormal otoscopic appearances would be afforded to young doctors who would be attached to the E.N.T. specialist as E.N.T. "trainees." Any difficulties encountered would be referred to the trained specialist. Such a scheme should not be difficult or impracticable to organize in time of war.

As a matter of personal opinion, I feel that men with traumatic deafness should not be returned to the line, and I consider that it is the duty of the otologist to protect his patient from possible preventable deafness. When this was explained in a straightforward way to my patients I had no difficulty in convincing these men that it was in their best interests that they be graded for base duties only, despite their desire to return to their old units. We all know the old adage, "Prevention is better than cure." How much better is it, then, when there is no cure as in the case of some patients with high-grade nerve deafness?

In conclusion, I submit, Sir, that it is not impracticable to carry out the procedures I have suggested in the future—I am etc.,

London W 8

F. BOYES KORKIS
E.N.T. Specialist 2 N Z E F

Loss of Vision following Haemorrhage

SIR,—None of your correspondents has stressed the fact that in order to produce this condition it is almost essential for the haemorrhage to be a recurrent one. Hence the reason why, although thousands of all ages were bled white, so few cases have been recorded in the two great wars.

In the old days repeated blood letting was a well known cause of this type of blindness, and Moliere, with his usual cynicism towards the medical profession, tells the story of a young man who, for some trifling malaise, was bled time and again. Eventually the young man complained that his sight was getting misty. The "fool doctor," however persisted repeated the performance and the young man went quite blind.

Another point of interest is that the patient may say that the black out (like the curtain of the ancient Roman theatre) came from below upwards. In after-years eliciting this history may, in a case of obscure optic atrophy, be of diagnostic importance—I am, etc.,

London W 1

EUGENE WOLFF.

Third-generation Syphilis

SIR,—I note in the *Journal* of Oct. 27, 1945 (p. 585), which has just reached me, that Dr. C. C. Wedderburn points out that the case of third generation syphilis I reported in the *Journal* of Aug. 11 is lacking in conclusive evidence. That the mother herself is a congenital syphilitic can be concluded from the fact that she denies any extramarital intercourse, and I think one must accept her word for that. Should this, however, not be acceptable as evidence one must consider the time of possible infection. The elder daughter shows no signs of congenital syphilis, so it is reasonable to assume that it was after her birth. If this were so, and we accept the mother's statement that she has not had any antisyphilitic treatment, would not one expect to find some signs of congenital syphilis in the youngest child, who, in fact, shows no signs?

Dr. Wedderburn also mentions the fact that the mother's present age was not included in the report. I cannot see that this is relevant, but it is 40—I am etc.,

Singapore

C. J. V. HELLIWELL,
Surg. Lt.-Col., R.N.V.R.

Acute Pancreatitis

SIR—I was much interested in Mr. Norman Godfrey's article on acute pancreatitis (Feb. 9, p. 203). This condition is associated with a very high mortality (50%), and is notorious for the fact that in most cases the abdomen is opened for some other condition. Surgical treatment usually consists of a laparotomy with drainage of the abdominal cavity or lesser sac and with or without cholecystectomy. The following case, I think, be of interest as the result suggests that a more conservative method of treatment might be associated with an appreciable lowering of the mortality rate.

A married woman aged 34, a Gibraltarian refugee, was admitted to the E.M.S. Hospital, Barking, at 1.20 p.m. on Feb. 19, 1941, complaining of severe abdominal pain which had started 7 days previously but had considerably worsened during the two days prior to admission. The pain was of a spasmodic nature and situated chiefly in the upper abdomen, although sometimes referred to the interscapular region. She had had no bowel action for a week and had vomited several times in the previous three days. Two enemata were given, without result, in the two days before admission. There was nothing relevant in the medical history except a few mild attacks of colicky epigastric pain during the previous two years, following an attack of jaundice at Gibraltar.

Examination on admission showed a very obese, nervous woman, slightly cyanotic and dehydrated with a dry, furred tongue, central distension of the abdomen with visible peristalsis, marked tenderness in epigastrium, right hypochondrium, and right iliac fossa. There was guarding of both recti but no rigidity. BP 155/70, T 100°, P 100, R 24. Enemata were given without result and diagnosis of intestinal obstruction due to gall-stones was made, the cyanosis being attributed to respiratory difficulty resulting from the marked abdominal distension and general obese condition of the patient.

Morphine 1/6 gr (11 mg.) was given and gastric lavage with a Ryle's tube started immediately, while an intravenous glucose saline drip was set up. An exploratory laparotomy was carried out through a right paramedian incision at 8 p.m. on Feb. 19 under gas, oxygen, and ether anaesthesia. The presence of fatty necrosis and blood stained fluid in the peritoneal cavity left no doubt as to the diagnosis of acute pancreatitis, which was further confirmed by the gush of blood stained fluid that escaped when a finger was passed through the foramen of Winslow into the lesser sac. The pancreas was felt to be hard and swollen, while the gall bladder was pale, distended and contained stones. Some fluid was removed from the abdomen by a sucker, but as the patient was now practically moribund the abdomen was rapidly closed without drainage. The whole procedure took about 15 minutes and the patient, after being given an injection of 1 ml. of nile hamide was returned to the ward. A grave prognosis was given to the patient's relatives. As a somewhat forlorn hope soluble protosil was added to the intravenous glucose-saline solution which she was receiving and by 10 a.m. the following morning Feb. 20, she had had 10 ampoules of pronal and her general condition was greatly improved. Being now able to take fluids she was put on a course of sulphapyridine, and 26 hours after the operation to everyone's surprise, she was looking very much better and beginning to take notice, after which, except for a slight daily rise of temperature until the fifth day, she made an uneventful recovery, getting up on March 10 and being discharged on March 21. She had altogether 23 g. of sulphapyridine. The diastolic index of urine on Feb. 20 was 500 units.

Six months later cholecystectomy was performed and a number of stones of mixed type removed. No trace of the preceding pancreatitis was seen during this operation and the pancreas felt quite normal. This case was followed up, and when the patient was last seen, on June 9, 1943, she was perfectly fit and gaining weight.

It seems to me that the recovery in this severe case of acute pancreatitis cannot unreasonably be ascribed to sulphonamide therapy, as the operation consisted merely of opening and closing the abdomen, without drainage and without removing much of the fluid contents. This case strongly supports the infective theory of the causation of acute pancreatitis, and it is tempting to suggest that in future the use of penicillin in this condition may have a considerable effect in reducing its high mortality.—I am, etc.,

Ronkswood Hospital, Worcester.

HIREN DE.

Overdose of Ephedrine

SIR,—I think the following case may be of interest, and perhaps some of your readers may be able to give me some information on the subject.

A woman patient of mine of long standing took a large amount of ephedrine suicidally. She was a chronic asthmatic, and fortunately had nothing more toxic to hand. She had been through an emotional disturbance and took this hoping that it would stop her heart. I cannot be sure how much she took. She thinks it was "about 40" 1/2-grain (32-mg.) tablets. In my experience the numbers taken are apt to be exaggerated, but it is certain that she took much more than the proper single dose. I saw her an hour afterwards, and she was comfortable, complained of nothing but nausea (she had had mustard and water and black coffee), and she had no urgent symptoms. Her pulse was 108, of fairly good volume, respirations normal, colour normal, and the only obvious abnormality was dilatation and fixation of both pupils. I could find no record of poisoning by adrenaline or ephedrine. My edition of *Martindale* says of ephedrine hydrochloride: "1 gr. [65 mg.] has been known to produce toxic phenomena"; while of ephedrine sulphate it says: "Maximum daily dose said to be 4½ gr. [292 mg.]." This patient thinks she must have taken about 20 gr. (1.3 g.). She must have taken much more than 4½ gr. anyhow.

I stayed in the house from 10.35 a.m. till 2 p.m., during which time she vomited twice, bringing up a quantity of coffee-coloured fluid. As there were no urgent symptoms I adopted an expectant attitude. I did not wash out the stomach, and when I left she was comfortable, and the only abnormality was the dilated pupils not reacting to light or accommodation, though she said she could see normally, and she was able to count fingers correctly. I met her husband next day, and he said she was completely recovered.

It would be interesting to know if there are any other records of overdosage with ephedrine, and if so what effects were observed and what antidotes should be used. I presume that gastric lavage and vasodilators would be indicated. But I was anxious to avoid a stomach tube in this case, if possible, from knowledge of the patient, and it actually proved to be unnecessary. While no urgent symptoms of any kind occurred, one might, I suppose, expect marked cardiac depression following over-stimulation, but this does not seem to have happened.—I am, etc.,

Nanyuki, Kenya Colony

G. DUNDERDALE.

Overdose of Pethidine

SIR,—This description of what would appear to be a case of pethidine overdose may be of interest.

A male patient, employed as a company secretary, aged 53 years, who suffered from regional ileitis was told to take two tablets of pethidine every four hours for its relief. On Dec. 28, 1945, he took a first dose, and by Jan. 1, 1946, he had taken a total of 36 tablets. On that evening he had what he described as a "brutal" headache and went to bed, his only other complaint being that he felt sweaty. His temperature was normal and he slept well. On Jan. 2 he still had a headache, but he went to work. I saw him at 11 a.m., complaining of headache and feeling sweaty. His temperature and pulse rate were normal, and a blood slide was negative for malaria parasites.

He drove home to luncheon as usual, and had actually started his meal when he was overcome with a prickly sensation all over his body, head, and limbs. He went into the next room, and a minute or two later he had an attack of amblyopia, which lasted a minute or two. His wife, who was with him, saw him go "very white and then very purple." On recovering his sight he went to lie down. He had a sensation of "pins and needles" across his chest and in his feet and hands. I saw him half an hour later and found him

a brilliant boiled lobster colour all over. He complained of irritation in the parts previously affected with "pins and needles." His temperature and pulse rate were normal. He showed rapid improvement after the subcutaneous injection of 1 in 1,000 adrenaline 10 ml (0.6 ml.). Three hours later he was quite normal.

—I am, etc.,

Nairobi

J. R. GREGORY.

Non-absorption of Mepacrine

SIR,—I have seen tablets of atebirin passed apparently unchanged in the stools. The patient was a Tamil woman and admittedly had slight diarrhoea, but it would be interesting to know whether the frequency of such an occurrence has been investigated, and whether it might have been the cause of non-absorption of mepacrine in Dr. John Yudkin's case (Feb. 23, p. 271). It has been my custom to prescribe mepacrine tablets crushed.—I am, etc.,

Tunbridge Wells.

J. G. REED.

Homosexuality

SIR,—Like many of your correspondents, I was moved to something like indignation over the case in which the repetition of a moral offence led to a sentence of fourteen years' penal servitude. A simple reaction would be to say that our law is out of date and that the sentence is comparable with the old custom of confining a lunatic with chains. Yet, we may ask, is not medicine also a little out of date, and are we not in addition rather led by prejudice in our attitude to sexual aberration?

All will agree that the public must be protected, and many will feel that the offender, too, ought to be guarded against his own abnormality. Sometimes a psychiatrist may perhaps achieve a permanent cure of homosexuality provided that the patient himself is willing to co-operate with sufficient determination. But there will be a residue of these subjects for whom psychology is not a therapeutic foundation on which we can securely rest. Besides such aetiological factors as an unfortunate early environment or chance coincidences in the past, we have to consider the hormones on which our sexual psychology is largely based. A research into this matter is surely desirable. Meanwhile the worst case possible can be easily cured by castration. In this way we can certainly protect both the public and the patient, at the same time inflicting on the latter a minimum of hardship. This admirable remedy is at present disregarded merely because both medicine and law remain ignorant and prejudiced against its advantages when put to a proper therapeutic use.—I am, etc.,

Marlborough.

HAROLD BURROWS.

SIR,—One can agree with your correspondents that imprisonment, for first offenders at any rate, is not helpful treatment for the homosexual or his victim. The latter's interests and those of the public are best served by a cure of the homosexual, if this is possible.

I think your correspondents forget the severity of the law in dealing with other habitual offenders against society. The burglar or housebreaker who is caught loitering on or near enclosed premises with intent—that is, with a jemmy or other tools of the burglar's trade in his possession—is severely dealt with by the stipendiary, though no crime has been committed.

Do other experts agree with the opinion of Dr. E. A. Bennet, expressed in his letter (Feb. 23, p. 289), that the homosexual's victim suffers little from his experience? This is hard to believe, but comforting if true.

Is the severity of the law and its officers in these cases not due to an old but dying tradition—the necessity for stamping out rigorously all abnormal sexual practices which prevent the true function of sex—i.e., the procreation of the race? History shows terrible examples of the fate of peoples who blinded themselves to this truth. Agreed that it is an anachronism that it should survive in the criminal court, in these days of widespread sexual promiscuity in the youth of both sexes, easy divorce by the law, etc.

In the particular example quoted in recent letters a scout-master was prosecuted. He had had two previous convictions for homosexual crimes. Surely some discretion and common sense should be used in the appointment of officers in control

of youth organizations of both sexes. The very acceptance by this individual of a position as scoutmaster puts him on the same plane as the burglar "with intent." He knew that his position of trust, honour, and responsibility gave him scope for his vice—for ugly vice it is to me, and many others, whatever the view of experts.—I am, etc.,

Batley Works

JOHN J. FITZPATRICK.

SIR.—The writers of the letters on homosexuality exhibit the same type of mental process as those who sign reprieve petitions for murderers—i.e., infinite pity for the criminal, and little, if any, for the victim. It is pertinent to inquire if Dr. E. A. Bennet has any sons of his own, and if they had been "unfortunate enough to have been on terms of sexual intimacy with a homosexual man" would he show the same complacency that he does with regard to other people's children? How does Dr. Bennet know that the victims of homosexual practice suffer no psychological trauma? The revolting statement that "there are other factors in such relationships, and that sexual activity may play a minor part in a friendship which often has in it much of value," is just obscene balderdash.

The British public has cause for gratitude that buggers—I prefer the Biblical name—frequently receive the sentence they deserve at the hands of a judiciary that places importance on the protection of young people's morals, and it is comforting to know that the boys of Edinburgh are safe for fourteen years from the salacious attacks of at least one of these perverts. The late Sir Horace Avory is reported to have said that it would be a bad day for this country when the administration of justice is handed over to gentlemen from Harley Street. His Lordship must have been a student of the correspondence columns of the *B.M.J.*—I am, etc.,

Leamington Spa

W. LUNLEY.

Homosexuality and the Law

SIR.—The medico-legal aspect of homosexuality is once more arousing medical interest, and surely it is high time that some modification of the existing law was made in respect of homosexual offenders. Much has been written on the subject, but unfortunately its value tends to be lessened by the divergence of views expressed as to its causation and, more important, its treatment. These views are determined not only by the facts but by the bias of the observer. No considered opinion can surely be given on the question of punishment for homosexual offences until there is more clarification of the two important aspects of aetiology and treatment.

Regarding aetiology, certain general observations may be made. As in other forms of instability, there are constitutional and environmental factors, the weighting of which is often difficult to arrive at as they tend to be interdependent, early environmental difficulties so often being due to instability in the parents. However this may be, there is always some disturbance of the normal child-parent relationship, with, in the case of males, an over-attachment to the mother. This has been interpreted in various ways, such as the Oedipus complex of Freud; but, whatever its interpretation, it is almost always present. Indeed, Magnus Hirschfeld, who admits no particular psychiatric allegiance and who has probably had greater experience of homosexuals than any other authority, states that he has not seen a case of male homosexuality where there was not this emotional overdependence on the mother. A corresponding estrangement in the father relationship is nearly always present—the harsh, cruel, disinterested, emotionally inhibited, or drunken father frequently figuring in case histories. These clinical facts, whatever their interpretation, are easily verifiable by anyone who has taken case histories of male homosexuals. There are frequently other indications of instability in the homosexual—either he tends to break society or society tends to break him, resulting respectively in psychopathy or in neurosis. In the latter case the homosexual urge tends to remain repressed and therefore unrecognized, and the neurosis is the result of an underlying emotional conflict. Although complete emotional development leads to heterosexuality, this is an ideal which is probably achieved less often than is popularly supposed, and unrecognized and therefore inadequately dealt-with homosexual tendencies are present in many people. They may result, for instance, in impotence,

alcoholism, Don Juanism, and may even determine the choice of occupation.

Seeing that homosexuality may be constitutionally and environmentally determined, what is the position when the question of punishment arises? It may be held that, as a heterosexual is liable to punishment if he fails to control his sexual urges, so, too, should be the homosexual. There is, however, this important difference: that, whereas the normal person has some outlet for his sexual impulses, these are not available to the homosexual. No doubt the public interest demands some form of deterrent, but, in considering this, due attention should be paid to causation and the possibility of treatment. Psychiatric opinion differs as to the efficacy of the latter, and certain it is that, unless treatment is genuinely sought—and often it is not—it is likely to be a waste of time on the part of all concerned. Even in those seeking treatment it is unlikely that anything short of a time-consuming reductive analysis will be effective. Probably the best solution would be a period of preventive detention in a special institution for sexual inverts. Here could be concentrated such specialized treatment as is available, and some of the newer and more progressive methods involving groups could be tried out. At any rate, such an institution would provide material for intensive research, and from this it is hoped a better solution of this social problem might emerge.—I am, etc.,

Stamley

B. C. GILSEN.

Homosexuality or Sodomy

SIR.—I was called by the prosecution at the Dorchester Assizes in the early years of this century for a case of this foul disease. The case came under a new indictment following the Oscar Wilde case. The utmost penalty involved was two years' hard labour. Actually the man received a sentence of three months. Why has this indictment been altered? Incidentally the charge was for "the dreadful crime of buggery." According to the teaching of the late Sir Thomas Stevenson the indictment was wrong—it should have been "sodomy" as applied man to man, "buggery" man to beast. To my mind "sodomy" (a good old English word) is far preferable to "homosexuality." Reference to Taylor's *Medical Jurisprudence* will find the meticulous care of the distinction of the above two words.—I am, etc.,

Bournemouth

C. EDWARDS.

Physical Therapy in Mental Disorder

SIR.—There is much good sense in Dr. T. H. B. Gladstone's letter (Feb. 2, p. 179), but his wisdom is vitiated by so many illogical conclusions that his contribution can serve only to increase still further the difficulty of arriving at a balanced judgment on this complex question.

Let us at once concede many of Dr. Gladstone's points. Electro-convulsive therapy and prefrontal leucotomy are relatively new methods, frankly empirical, with after-effects which are not yet completely known; already they have been applied injudiciously by a certain number of under-experienced or over-enthusiastic practitioners. The same can now be said of much gastric surgery in the 'twenties, and of the more recent indiscriminate use of the sulphonamides. (Incidentally, which of these tragedies has been relatively the more frequent: fatal agranulocytosis through the injudicious use of the sulphonamides, or the crippling of potentially creative genius through misguided leucotomy?) On the credit side it is indisputable that a large number of chronic mental hospital patients have by now been relieved of horrible and hopeless distress and restored to some measure of social efficiency through the use of these particular methods, empirical as they may be.

What alternative does Dr. Gladstone advocate? He admits that full use is not being made of psychological methods in most mental hospitals, and himself supplies the reason. It is not due to negligence or ignorance on the part of the medical staffs; the total number of available psychotherapists, of whatever degree of competence or energy, is quite inadequate to deal with the volume of patients who need help of some sort, even if we allow that a purely psychological technique is useful, or even applicable, in all these cases. The assumption would by no means be conceded by all experienced psychologists (vide Dr. H. Crichton-Miller, Jan. 19, p. 103). While awaiting the

desired recruits to their ranks are the existing psychiatrists to do their rounds, as Dr. Frank (p. 104) says, "in an awestruck trance," animated only by the tenuous hope of detecting an occasional Tolstoy or Picasso emerging from his chrysalis of obstinate melancholia or paranoid schizophrenia? Or are they to devote their time to the intensive psychotherapy of 10% of their patients and ignore the 90% remaining under their care?

The methods of E.C.T. and prefrontal leucotomy cannot be dropped out of hand at the bidding of prejudice. Their legitimate sphere can be delimited only on the results of conscientious trial and careful observation by the numerous skilled clinicians who are now doing their best to evaluate them. Included among these observers are many reputable surgeons, as well as clinical psychiatrists of proved reliability.

For this reason I shall welcome the publication of Dr. Frank's 230 leucotomy results, and shall be surprised indeed if his series reveals even one possibility of a creative genius having had his frontal lobes mutilated during a "short mental illness." An ill wind has swept Europe of late years, but British psychiatrists may well feel that good has come to us from the presence of Dr. Jan Frank as an active worker in our ranks. Those who know of his past training and personal philosophy rest satisfied that his clinical judgment is informed by long experience, deep study, and broad humanity, and I am confident that at all events none of his patients has been subjected to ill-considered or excessive use of the electric switch or the leucotome.

"Far too often the mental hospital doctor is below the level of many of his patients in general culture and intelligence" is an opinion frequently expressed by the patients, but, coming from Dr. Gladstone, the assertion seems so extravagant that one feels it could do no mischief did not one know the present tendency of the popular press.—I am, etc.,

London, S.W.1.

H. N. BRADBROOKE.

SIR,—As a very junior A.M.O., a mere doorkeeper in the house of the Spanish Inquisition, it would be presumptuous, even were it not futile, to quote the literature refuting Dr. Learoyd's moving appeal (Feb. 16, p. 251) for liberty of the individual. I have seen agitated melancholics and depressives suffering indescribable mental agony and begging for death transformed in a few days into happy human beings, when formerly their suffering lasted for months, as shown by their old case notes. Against this it is hard to balance hours, even of "fear and dread."

With chronic schizophrenics, still unfortunately as incurable the majority of medical complaints, the problem is admittedly clear. True some are enabled to go home for occasional visits several days, but is this justification for forcibly transforming them from crouching impulsive beings, liable to smash all the windows or their fellow-patients, and coming on the scene can one with a clear conscience forcibly stitch up their gaping wounds? To drug them would be unthinkable, and, alas, one is no longer permitted to chain them to the walls. In locking them up at all grave fundamental issues are raised. I appeal to Dr. Learoyd for further guidance on these delicate and perplexing matters.—I am, etc.,

Netherne Hospital, Coulsdon

J. A. SINDELL.

"Leucotomy"

SIR,—I think there must be many readers of the *Journal* who, like myself, would be very interested to have a clear description of this new operation styled "leucotomy," and a full explanation of its purpose and an account of its after-effects. I have attempted to get some information from medical colleagues, but find they can tell me very little.

In Dr. Reitman's article (Feb. 16, p. 235) one section presents several words of which I confess to being quite ignorant; but I have a comforting feeling that there are many others in a like predicament. Thus we have "dysmetria," "astereognosis," "apraxia," and "perseveration." None of these is to be found in the *Concise Oxford Dictionary*. "Ataxia" is to be found, but not "apraxia." One can guess fairly well at "perseveration," but would think a simple and plainer word, to be found

in any dictionary, might have sufficed. "Negativist" is a dictionary word; not so "negativistic." "Hallucinated" is, to me at least, an awkward-sounding word, but we have to admit that the dictionary does allow the verb "hallucinate." Presumably all the other words have been coined for use in the new science or art of psychiatry, which seems to be acquiring almost an esoteric quality. If so, then let us have a special dictionary to which we may turn for information. But strangest of all is the word "leucotomy" itself. Most "tomies" are self-explanatory, such as "gastrotony," "nephrotomy," etc., but "cutting the white" is anything but self-explanatory. "White what?" one naturally asks.

It seems a severe operation to attempt on purely empirical grounds. As to possible after-effects, one is struck by the shortness of the time that often elapses between the operation and the discharge of the patient. Surely all these cases need the most careful "follow-up" for years.—I am, etc.,

Tunbridge Wells.

E. WEATHERHEAD.

*A *Dictionary of Psychology*, edited by Howard C. Warren, of Princeton University, was published in this country in 1935 by George Allen and Unwin, Ltd. It contains some, but not all, of the words noted by Dr. Weatherhead. "Leucotomy" had not then been coined. This is defined in *Dorland's Medical Dictionary* as the operation of cutting the white matter in the oval centre of the frontal lobe of the brain.—ED., B.M.J.

Effect on Troops of the "V" Weapon Bombardment of Antwerp

SIR,—By a curious coincidence, the first patient I saw after reading Capt. A. G. Freeman's "Effect on Troops of the 'V' Weapon Bombardment of Antwerp" (Jan. 12, p. 58) presented a similar picture to that described. In response to my semi-facetious query, "Have you ever been to Antwerp?" I was somewhat taken aback at receiving an affirmative (as well as gratified by his obvious respect for my clinical acumen). Capt. Freeman may be interested to hear the later history of this case, eight months after removal of the exciting cause.

The patient is an N.C.O. in the R.A.S.C., aged 23 years, with 3½ years' service, who had landed in France in June, 1944, and had been well up in forward areas, with only occasional rests, until cessation of hostilities. He has been in West Africa for three months.

He is now complaining of a feeling of "flatness," and is slack and listless during the day and excessively tired in the evenings. He is nervous and "jumpy," is particularly affected by sudden noises, and sleeps badly, tending to wake and remain awake in the small hours of the morning. As an example, he mentioned that on one occasion he had retired early and was asleep when his room-mate entered, slamming the door noisily. He awoke in an acute state of fear and was unable to get to sleep again that night. He suffers from frontal headaches, boring through to back of head, and not substantially relieved by large doses of aspirin. The tremor of his hands is such that he avoids lighting a cigarette in public for fear of being "ragged." He spoke jerkily, with marked twitching of the face and tremor of head and neck, and kept his hands hidden behind his back, but seemed considerably relieved to be telling his story.

His symptoms had first arisen in August, 1944, but cleared until January, 1945, at which time he was in the Antwerp area. He had reported sick and been given some medicine, after which he had improved considerably. Since then he had had recurrences lasting as a rule some three to four weeks. Surprisingly, he had had such a recurrence while on leave in England after cessation of hostilities. At this first interview he was reassured strongly and given a bromide mixture. As he was working in an office within a very noisy workshop, by arrangement with his C.O. he was transferred to more suitable employment. One week later he was much improved and stated that he was sleeping better. When last seen a week after this he felt so much better as to express the opinion that further medicine was unnecessary.

It was interesting to note his rapid response to sympathy, explanation, and improvement of working conditions, but it still remains to be seen whether his symptoms will again recur.—I am, etc.,

Accra, Gold Coast.

B. STONE.
Capt. R.A.M.C.

Lay versus Medical Administration

SIR.—Sir Frederick Menzies's letter (Feb 16, p 251) will be welcomed and endorsed by every experienced medical officer of health. The national health scheme should provide this country with the best health service in the world if it is wisely conceived and efficiently administered. There is no question that the doctors can give competent attention to the sick at home or in hospital if their efforts are not frustrated and obstructed. There are sound reasons as Sir Frederick shows, why the chief administrative officers of the regional organizations should be medical men, and there can be no excuse for filling these appointments by lay officers, and particularly by lawyers. That medical men are competent administrators was proved by the success of the Ministry's E.M.S. Hospital Scheme, which was managed by medical men in co-operation with a few civil servants. Endless trouble and friction will ensue if the chief administrative officer is chosen because he is a member of the legal profession. The training for that profession is the one least calculated to make a good business manager or administrator, and it is amazing that local authorities, which nowadays are among the biggest businesses in the country, have failed to realize this, or when they know it have been unable to get out of the rut. When a public legal service is imposed on us, will it be suggested that the chief administrative officers should be medical men?—I am, etc.

REPORT 117

J. FAIRLEY

Motive in Medical Demobilization

SIR.—Dr Estcourt (Feb 23, p 295) argues that, because (as he thinks) the "mass demobilization"—I thank him for that word—of doctors would have suited the Government better if it had been deferred until the summer, the motive which I ascribed to them—namely, a desire to get an immediate and large recruitment of doctors for the State service—is negatived. May I submit arguments in support of my explanation of this particular timing?

Mr Bevan is obviously faced with an immense volume of resistance offered by the vast majority of the medical profession to his proposals. Your admirable leader in the *Journal* of Feb 2 underlines and stimulates this opposition.

Mr Bevan will, no doubt, have noted the cardinal mistake made by the Minister of Education in attempting "to make the Education Act work" without first securing an adequate reserve of teachers. The expedient adopted by the Minister to meet this deficiency was to admit to the national schools a vast number, estimated at about half the total required, of new recruits, who will attain the status of "qualified teachers" after a period of training from one quarter to one-half of that hitherto exacted for such qualification. Mr Bevan obviously cannot follow this precedent, but when he meets Parliament in two or three weeks with a Bill which will call for at least three times as many doctors as are now available he will be in a much stronger position than his colleague, the Minister of Education, if he can declare, as he obviously hopes to do, that he has "in the bag" some thousands of doctors suddenly released from the Forces, where they have been subjected for six years to continuous unilateral Socialist propaganda in which a State medical service has been a primary objective.

There have been five Ministers of Health in the past five years. Mr Bevan may, quite legitimately, yearn to put upon the Statute Book, before he in turn gets moved on in due course, a vast health measure which has been for fifteen years a primary objective of the Socialist Party and which will bear his name. It is Dr Estcourt not I who calls this a "dirty motive" but I have little doubt that this manoeuvre will be acclaimed by his enthusiastic supporters as a characteristically "clever" Party scoop—I am, etc.

House of Commons

E. GRAHAM LITTLE.

A Fundamental Principle

SIR—I am a laywoman, unconnected with the medical profession in any way except occasionally as a patient, but I read the *Journal* because I like it, and I have been following the recent correspondence about the N.H.I. with interest. I must confess that my impressions are not at all the same as Dr J. H. Wilson's (Feb 23, p 295). There have been many letters

from doctors, in this and other connexions, showing "real concern for the welfare of the people"—i.e., their patients. I have no doubt that many reforms are desirable in connexion with our present medical system, but when doctors resent the threat of interference in the form of ignorant and pettifogging dictatorship and niggling regulations regarding their work they are quite right. Independence of judgment and of initiative, freedom of action and personal responsibility are essential to the exercise of any of the professions, but these are just the qualities which are proverbially anathema in the Civil Service, which is generally so busily treading elaborate mazes marked out with red tape that there is not much energy or appetite left for real work. To remove the scope for the exercise of these qualities in any profession is to induce that sense of frustration which expresses itself first in anger and resentment and finally in boredom and apathy.

In this connexion I recall an observation I have heard made regarding recruitment for the Colonial Medical Service, a State service—that it does not as a rule attract the best men because the frequent transfer from district to district prevents them from taking the same interest in their work as men settled in one place can have. Enthusiasm is killed because the work begun continually has to be dropped. This applies also to school teachers in the Colonial Service.

One possible effect on patients of a compulsory health scheme where people are determined to get their money's worth and have no inducement *not* to imagine themselves more sick than they really are, has not, I think, been mentioned. This is the calling out of doctors at unreasonable times and for absurdly trivial reasons. I saw something of this in internment in Singapore recently, where the doctors gave their services free. We were a camp of about 500 women and children of all nationalities and races, increasing ultimately to 1,200, with six women doctors, mostly members of the Malayan Medical Service. They were frequently called for peremptorily at the most unreasonable times for absurdly trifling reasons and often had to put up with a good deal of rudeness from people who seemed to find their sense of importance greatly inflated by having a doctor thus at their beck and call. Nevertheless, under the immense handicaps which our prison conditions imposed they carried out their work as conscientiously and devotedly as possible and, what anyone who has been a prisoner will probably agree was still more creditable, with all the sympathy and pleasant manners which one expects from a doctor under normal conditions. We had very few women in the camp of any education or administrative ability, and, in addition to their medical work, two of the doctors—Dr Elinor Hopkins and Dr Cicely Williams—were at different times camp commandant. Dr Williams, who, under a temporary sympathetic Japanese regime which wanted to improve our diet, was taken out of camp to write a report on the food along with one or two doctors from the men's camp, was later removed from camp by the Japanese Gestapo on suspicion of contacts made with the local people during this period and spent five months in a Gestapo prison. Dr Patricia Elliott, in face of considerable opposition which included, I am sorry to say, some English women, persuaded the camp to elect a child welfare committee, part of whose work was to prevent the lower-class Eurasian mothers from brutally beating and otherwise ill treating their children.

I mention these facts only because they afford an instance of doctors' devotion to their work and their public spirit generally under especially difficult and unpleasant circumstances. Without deifying the medical profession in any way, I cannot subscribe to Dr Wilson's criticisms. I think he is too hard upon the great body of his colleagues. And as regards slum patients it is to be hoped that the Government will not forget that the first essential to improving the health is to abolish the slums. All else is merely palliative—I am, etc.

Kingham Oxford

MARY THOMAS

General Practitioners and Hospital Practice

SIR.—During the last six or seven years there has developed a wider conception of the hospital's sphere of work, a conception which had begun to form in many minds before the war. No longer are we content to regard the hospital as a place in which the patient is nursed through the serious part of an illness, and which takes little interest in him after recovery.

until he falls ill again. A careful follow-up in association with all the social welfare organizations is demanded in the interests of the patient and the community. It is thus evident that not only patients but hospitals need rehabilitation.

The widely prevalent idea that by centralizing hospital work in large institutions one will achieve the best medical results is fallacious, tending to stultify local effort and lessen the interest of the community in the hospital and so reduce the hospital's educative value. It seems to me that in reorganizing medical services the first consideration, contrary to the general opinion, should be improvement of the general practitioner service, which forms the first line of defence against illness. The more efficient this is the less need there will be for hospital treatment, and such cases as eventually do need such treatment will reach the hospital at a stage where they are likely to receive maximum benefit. There are many things that should and can be done to improve the general practitioner service, but probably the most important is that the G.P. should be more closely connected with the work of the hospital in his area. This could be achieved by offering clinical assistantships to G.P.s willing to serve, these to be held for a limited period by men selected from a rota.

Dr. S. Goldwater, in an article on "The Hospital, the Family Doctor, and the Patient" in *The Hospital in Modern Society*, writes:

"The physician who enjoys a proper institutional association avoids the danger of becoming careless and superficial in his clinical methods. Nothing is more indispensable to the success of any effort to restore the general practitioner to a central place in medical practice than the creation of right relations between the family doctor and the hospital. Recognition of the need of a hospital connexion for every practitioner should be a controlling factor in all community hospital organizations, for a practitioner cannot do his job competently unless he enjoys the advantages of a healthy stimulating environment."

The cry is now for centralization of cases in large institutions, where every means of diagnosis and treatment is available, but a little thought should convince one that along with certain advantages there are definite disadvantages—physical and psychological—in such plans. The influence of the psychological factor is such that treatment demanding distant separation from relatives and friends may, and often does, yield less satisfactory results than less perfect, but nevertheless good, treatment nearer home. Moreover, centralized treatment in large institutions tends to deaden the communities' altruistic efforts, which will always be necessary for the development of a really satisfactory national medical service.

Bringing the general practitioner into closer association with the hospital not only will benefit him more than any of the projected refresher courses but will in turn benefit the consultant by giving him a wider outlook, and—a not unimportant consideration—lead to a more frequent call for his services in the home to the benefit of the patient. This association will be difficult to effect if there is over-centralization of hospitals whereby the latter are removed too far from the areas in which large numbers of G.P.s practise. For their education and that of the community a good case can be made out for the retention of the smaller hospitals.—I am, etc.,

London, W.8.

HAROLD SANGUINETTI.

Chartered Society of Physiotherapy

SIR.—The plea put forward by the Chairman of Council of the Chartered Society of Physiotherapy (March 2, p. 335) for a closer co-operation between physiotherapists and the medical profession is deserving of strong support. The maintenance of the present acknowledged high ethical standard of the members of the Chartered Society is likely to become more difficult unless that co-operation be improved.

On the medical side it is to be regretted that many practising doctors and most medical students are not well informed as to modern physiotherapeutic techniques; this should be corrected by including some demonstrations and lectures on the subject in the medical curriculum.

Physiotherapists on their side should take every opportunity of showing doctors the scope and value of their methods, and multiply their points of contact with the medical profession. The Council of the B.M.A. recently had to deplore the severance

of one important link when the Chartered Society voluntarily withdrew from the Board of Registration of Medical Auxiliaries. It is to be hoped that the new medical service will provide closer links between doctors and physiotherapists.—I am, etc.,

London, W.1.

V. ZACHARY COPE.

Anaesthesia

SIR.—Dr. W. A. Bellamy's letter (Feb. 16, p. 252) betrays an attitude of mind not uncommon to many who find it easy to preface their remarks by the phrase "twenty years ago." One begins to suspect a reluctance on their part to admit the inevitability of progress. Surely our students are taught according to the ideas of their teachers, and they by virtue of their knowledge and experience are best fitted to advise as to the curriculum.

The plain fact is that the "good enough" in anaesthetics or any other branch of medicine will not satisfy those who seek to reach higher standards. The soldier to-day is not asked to become proficient in the use of bow and arrow ere he is taught the intricacies of the machine-gun. Let us treble the trappings, tubes, taps, and turncocks if by doing so we may reduce the mortality by the merest fraction. Might we not greatly improve the morbidity rate in our efforts? The death rate is surely not the only criterion. Avertin, originally introduced as a general anaesthetic, proved too deadly an agent but found a useful place as a basal anaesthetic. If the pundits now seek to prove its undesirability as such we must be broad-minded enough to entertain opinions, though these may run contrary to our own. Let professional conscience be our guide.

Who, for one moment, would suggest that the art of anaesthesia is a "mysterious cult," etc.? To practise the art, however, requires effort and a willingness to learn and understand how difficulties may be avoided and overcome, also an obligation to admit one's faults in any technique, no matter how cherished that may be, should other and more observant eyes detect such faults. Twenty years after or forty years after, let us never be too old to learn.—I am, etc.,

Salisbury.

A. D. H. SIMPSON.

The Services

I.M.S. Dinner

The annual dinner of the Indian Medical Service is being revived this year. It will be held at the Connaught Rooms, Great Queen Street, W.C., on June 19. Major-Gen. Sir E. W. C. Bradfield will preside, and applications for tickets may be sent to Major-Gen. R. H. Candy, c/o Grindlay and Co., Ltd., 54, Parliament Street, S.W.1.

Col. (Local Brig.) D. Fettes, O.B.E., late R.A.M.C., has been appointed Honorary Surgeon to the King in succession to Major-Gen. D. C. Monro, C.B., C.B.E., late R.A.M.C., retired.

Surg. Cmdr. R. W. H. Tincker, R.N.V.R., has been awarded the R.N.V.R. Officers' decoration.

Surg. Lieut.-Cmdr. H. G. Singer, R.N., has been mentioned in dispatches for good services while a prisoner of war.

The following appointments and mentions in dispatches have been announced in recognition of gallant and distinguished services in the field:

C.B.E. (Military Division).—Brig. (Temp.) W. M. Cameron, O.B.E., R.A.M.C.

M.B.E. (Military Division).—Capt. G. Forrest-Hay, R.A.M.C. Mentioned in Dispatches.—Major (Temp.) D. E. O'Connor-Cuffey and Capt. G. F. A. Caldwell, R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Killed.—Capts. Patrick James O'Flynn and Bernard Sidman, R.A.M.C.

Died.—Major A. P. Barnard, R.A.M.C.; Major W. Bornshin, I.M.S.

Previously reported missing, now reported killed.—Lieut. A. E. Lewis, I.A.M.C.

Previously reported missing, now reported died of wounds.—Capt. S. S. Kirtane, I.M.S.

Previously reported missing, now reported died while a prisoner of war.—Capt. Godwin Lionel Robbins Tapsall, I.M.S.

Wounded.—Capt. S. Bradshaw, Lieut. A. R. Brailsford, Capt. Marguerite E. M. Day, Capt. H. W. Holland, R.A.M.C.; Capt. I. S. Dalson, I.A.M.C.

Obituary

J G PORTER-PHILLIPS, M.D., F.R.C.P.

We announce with regret the death on Feb 24 of Dr John George Porter Phillips for many years physician superintendent of Bethlem Royal Hospital and physician for and lecturer in psychological medicine at St Bartholomew's Hospital.

Son of the late Robert Phillips, he was born in India, at Darjeeling, on June 28, 1877, and was educated at Brighton, at University College, London, and at Guy's Hospital. He graduated M.B., B.S. London in 1907 and, after holding house appointments, won the Gaskell gold medal and prize in psychology and psychological medicine in 1911, he took the M.R.C.P. in 1914 and was elected F.R.C.P. in 1922. From 1910 onwards Porter Phillips contributed a number of valuable papers on medical psychology, noteworthy among these being an address to the Hunterian Society in 1922 on "Insanity and its Relation to Criminal Law," and a paper in the *Lancet* on "The Early Treatment of Mental Disorder: A Critical Survey of Out-patient Clinics." Soon after his appointment as head of the Bethlem Hospital on its old site in Kennington he became lecturer in mental pathology at the London School of Medicine for Women, before then he had been the principal medical officer to King Edward School, Witley. During his very long membership of the Royal Medical Psychological Association he acted for a time as educational secretary and as examiner for its diploma, he also examined in mental diseases for the Royal College of Physicians and at the Royal Army Medical College. His appointment to the senior staff of St Bartholomew's brought him into human touch with a long succession of students who attended his lectures and clinics there and also visited the Bethlem Hospital.

J.G.H. writes: Dr Porter Phillips was a handsome man with a charming manner and a sympathetic attitude which made him very popular with his patients. He was always dignified, and his calm distinguished bearing gave confidence to worried people, so that for many years he had a large consulting practice. Bethlem was his greatest interest and he was responsible for many advances and innovations there. In 1922 he started in Lambeth one of the first psychiatric out-patient departments in the metropolis. In 1930, when the new Bethlem Hospital at Monks Orchard was opened, many of the improvements which it possessed were his suggestions.

One of his interests was a dining club composed of medical men who had worked at Bethlem, this had quite a large membership since the hospital has for many years had house physicians who were appointed for six months, many of these remained in psychiatry and, before the war, enjoyed coming to London for an annual reunion. He was responsible for the production of a hospital magazine and was himself a contributor to it. The war and the alteration in the manner of living came as a great change to him, but he remained at his post beyond the ordinary retiring age, until the end of 1944, when he was made a governor of the hospital. He will be mourned by a large number who have known him. He leaves a widow, two married daughters, and a son.

JOHN DAVIS BARRIS, M.B., F.R.C.P. F.R.C.S., F.R.C.O.G.

All St Bartholomew's men will learn with great regret of the death of Dr John Barris, which took place in the hospital on Saturday, Feb 23.

John Barris was born in 1879 and in 1898 he entered Caius College, Cambridge, where he received an honours degree in Arts in 1901. As an undergraduate at Cambridge he took an active part in boxing and other sports. He then came to St Bartholomew's Hospital, and while still a student was awarded the Shuter Scholarship. He qualified in 1905, and in 1908 was chosen for the Luther Holden Research Scholarship. At this time he was a member of the junior staff and in this capacity he served as house surgeon to Mr W. Bruce Clark and then in turn midwifery assistant to Sir Francis Champneys and Dr W. S. A. Griffith. After that he served as tutor to the department from 1909, the year in which he obtained the F.R.C.S.

to 1913, when he was elected to the staff of the hospital. During the first German War he served with the R.A.M.C. in France. In 1925 he was elected F.R.C.P. and became senior physician accoucheur and head of the department, which post he held until he retired in 1939 under the age limit. He was then made consulting physician accoucheur and a governor of the hospital. When war broke out he immediately volunteered to help again in the department and worked at St. Albans until 1945.

John Barris was a born teacher, and in this respect showed himself a worthy successor to Herbert Williamson. He had a wonderful fund of patience and never tired in his efforts to drive home the details of sound midwifery. He was a member of the Obstetric and Gynaecological Section of the Royal Society of Medicine, and in 1938 was nominated as president of the Section, but he decided to refuse the honour because he was not in sufficiently good health to devote his best work to it. He was joint author of several textbooks, including *Midwifery by Ten Teachers*, and also *Diseases of Women by Ten Teachers*.

In 1909 he married Margaret Morris and they had three daughters. Throughout his career at St. Bartholomew's Barris was intensely keen about the hospital rugby football club, and was its president for twelve or more years. Many of his best house surgeons were also the best rugby players for the hospital. Barris was an exceedingly modest person, and much that he did for the hospital went unrecorded. His kindness and good temper were proverbial and he was never known to lose his calmness even in the greatest emergency. There never was a man who was more loyal to his junior colleagues, by whom he will be sadly missed.

M.D.

Surg. Lieut. J. B. Gurney Smith, R.N.V.R., writes

As an old obstetric student of Barris's may I pay tribute to a very revered teacher. Of all my clinical instructors, I feel none excelled Dr Barris as a teacher. His lectures and ward rounds were invariably a sheer delight, and one never came away without feeling inspired. His painstaking preparation of his lectures was self-evident, and those who heard it will not soon forget his discourse on breech presentation. Perhaps two of his most marked qualities were his humanity and his devotion to Barris. How often on his round in Martha Ward would he say, "Gentlemen, we are not considering a case of fibroids, but a woman who has a fibroid." To hear him talk to a patient was an impressive example of the authentic clinical approach. To be one of his clinical clerks was indeed an education and a privilege. In my first term as a pre-clinical student he was president of the Students Union. His welcoming address to its freshmen at the Students Union social, in which he extolled the grandeur of the hospital into whose life we were just entering, still lives in my mind. His reference to the famous "Square" with its celebrated fountain as "the soul of Barris's" was I felt, a peculiarly apt phrase. His ready smile, his slow gait, and his courteous dignified manner all left an indelible impression on the mind.

SIR UPENDRANATH BRAHMACHARI, M.D.

By the death on Feb 6 in Calcutta of Sir Upendranath Brahmachari at the age of 70, Bengal has lost one of her most distinguished Indian medical graduates. He was educated at the Hooghly College, where he obtained high honours in mathematics on taking the B.A. degree of Calcutta University in 1893, he entered the Calcutta Medical College after taking a degree in chemistry in 1894 and passed the M.D. examination in 1898, with the first place in medicine and surgery. This led to his early selection as a teacher in the Dacca Medical School and subsequently as lecturer in medicine at the Campbell Medical School. There he worked for nearly twenty years and built up a reputation as a physician and research worker with a lucrative practice. He retired in 1927 after having been physician to the Carmichael Medical College Hospital.

He will best be remembered for his researches on the treatment of kala azar, for after tartar emetic, a trivalent antimony compound, had been proved by Italians and by workers in India to be a reliable cure for kala azar Sir Upendra turned his attention to pentavalent antimony compounds and found that urea-stibamine was more reliable and rapid in its action than potassium and sodium tartrates. Search for pentavalent compounds was at the same time being carried on by European chemists, the most successful of which was found, a work in the Calcutta School of Tropical Medicine, to be most basic.

Kala-azar was still prevalent in Assam, where the medical authorities used urea-stibamine on a large scale with marked success. Later Sir Upendra introduced the intramuscular use of neostibene. His clinical acumen was shown in his being the first to describe dermal leishmaniasis. In 1928 he published a book on kala-azar, and in 1940 two volumes entitled *Gleanings from my Researches*, together with very numerous papers and articles and addresses. He was knighted in 1934.

As a result of these researches honours followed thick and fast; of these the following are the more important. He served for long as Dean of the Faculty of Medicine, University of Calcutta. At different times he was president of the Indian Science Congress, of the Asiatic Society of Bengal, the Indian Chemical Society, the Society of Biological Chemists, India, of the Medical Research Section of the Indian Science Congress, and of the Board of Studies in Medicine, Calcutta University. During the recent war he held office in the Indian Red Cross Society, and became the first Indian chairman of its Bengal branch; he was also a vice-president of the St. John Ambulance Association, Bengal Centre. He served on the Board of Industries, Bengal, and on the Board of Trustees of the Indian Museum. At one time he was honorary assistant surgeon to the Viceroy. He received medals for his researches from Calcutta University, the Calcutta School of Tropical Medicine and Hygiene, and the Royal Asiatic Society of Bengal, and the Kaisar-i-Hind gold medal. Thus the promise afforded by the outstanding successes of his academic career was amply fulfilled by the proficiency he showed throughout his long medical service, aided by indefatigable energy and perseverance, which was crowned by his discoveries regarding the treatment of kala-azar. His successes have rarely been equalled, and never surpassed, by his Indian contemporaries, and his example will be a stimulus to his fellow-countrymen in labouring for the good of vast but poor races of India shortly to be committed to a fuller extent than ever to their care.

Dr. H. P. LIE, of leprosy fame, died on Dec. 17, 1945, the day before he was due to celebrate his 83rd birthday. He was for many years the understudy of Dr. Armauer Hansen, who discovered the bacillus of leprosy in 1873 and who, on his death in 1911, was succeeded by Lie as the administrative head of the leprosy services in Norway. Lie lived up to his favourite rule: "As we are a small nation, quality must take the place of quantity." The quality of Lie's work was such that he became a universally recognized authority on leprosy, and it fell to his lot to organize the International Leprosy Congress, presided over by Armauer Hansen and held in Bergen in 1909. In spite of the many claims made on him at home and abroad in connexion with leprosy, Lie found time to serve on the Municipal Council of Bergen, to promote the scientific work in the Bergen Museum, and to preside over the Norwegian Society for the Promotion of Science. He was also an associate editor of several scientific publications.

The death took place on Jan. 12 of Col. MICHAEL J. WHELTON at the Mount Vernon Hospital, Middlesex. Born in 1892 at Cork, where he received his early education, he entered University College, Cork, and graduated in 1916 with first-class honours. After a year at hospital work in London he joined the R.F.C., served in France, and later was posted with the Army of Occupation on the Rhine. In 1920 he entered the R.A.M.C., graduated M.D. in 1926, and took the D.P.H. in 1928. He served in India, China, Egypt, and Palestine, and again in France in 1939-40. In 1942, though already having had treatment for the malady which later proved fatal, he went to North Africa in command of the 70th British General Hospital, and working ceaselessly in Africa, Sicily, and Italy, was an inspiration to his colleagues and was justly honoured by his superiors and mentioned in dispatches. Ill-health made a return to London for treatment imperative in July, 1945. W.M.C. writes: Col. Whelton commanded the 70th General Hospital in Africa, Sicily, and Italy with the same simple naturalness which he put into every part of his life. What mattered to him was the man and not the uniform he wore, and many will remember with gratefulness his sympathetic understanding. He abhorred pomposity and laziness, but no one was quicker to recognize genuine endeavour and skill. His one thought was the good of the unit and the efficiency of the service it gave, and, compared with these, Army regulations were of minor importance. His knowledge of tropical medicine and his enthusiasm for hygiene were of great value in the unit. He was a man of genuine kindness and he was a loyal friend.

Dr. JOHN ALEXANDER PRINGLE, honorary ophthalmic surgeon to the Kent and Canterbury Hospital, who died at Epsom on Feb. 12, was born at Aughnacloy, Co. Tyrone, in 1882, and was educated at Coleraine Academy, at the Royal Academy, Belfast, and at Trinity College, Dublin. He graduated in medicine in 1905, and proceeded M.D. of Dublin University in 1908 after holding house appointments in Dublin and at the Bristol Eye Hospital. Coming to London he worked as chief assistant at Moorfields and senior ophthalmic assistant at St. Mary's Hospital, and later settled at Canterbury. During the war of 1914-18 he was officer in charge of the ophthalmic centre at Rouen, and then ophthalmic surgeon to the 4th Army, B.E.F., and afterwards held the same post in the British Army of the Rhine. On returning to civil life he became eye surgeon to the Ministry of Pensions for the Canterbury District and to the local education authority; he was also consulting ophthalmic surgeon to the Herne Bay Hospital and to Princess Mary's Hospital for Children at Margate.

Medical Notes in Parliament

Medical Examination for Industrial Injuries

On Feb. 18 the House of Commons discussed the National Insurance (Industrial Injuries) Bill after its amendment in a standing committee. On Clause 25 (obligations of claimants and beneficiaries) Mr. DOUGLAS moved to omit the provision that the injured person must accept the treatment appropriate to the relevant injury or loss of faculty. He said that as the clause was drafted the Minister was given power to make regulations determining the treatment appropriate, and would presumably have power to make regulations obliging an injured person to attend before a doctor whom the Minister chose. That doctor would prescribe a course of treatment. By a later part of this clause the Minister had power to oblige the injured person to observe that course of treatment, and in subsequent clauses to deprive the injured man of benefits if he did not have the course of treatment prescribed. The Minister further had power to make regulations which would impose upon the claimant a liability to pay £10 a day for every day during which he refused this treatment. The definition of treatment included surgical treatment and amputations and could also include inoculation.

Mr. HOUSE, seconding the amendment, said the B.M.A. was seeking freedom of choice for the patient as between one registered medical practitioner and another and also freedom of choice for doctors to enter Government service or private practice. Mr. House asked that the injured workman should have freedom of choice to attend either a registered medical practitioner or an unorthodox practitioner such as an osteopath, naturopath, herbalist, or others. He spoke as a layman who had benefited by "nature healing." Unorthodox practitioners were prepared to deal effectively and in an organized manner with quacks. He and his friends only wished those unorthodox medical practitioners to be recognized who could comply with whatever standard qualifications the Minister might lay down.

Mr. PAGET said the Workmen's Compensation Act contained a similar provision to that which was now challenged. Under that Act the doctors of insurance companies used to go into the witness box and say: "This man will be cured by operation." In the large majority of cases in which, in his practice under the Act, he had known the man to submit himself to operation the medical advice turned out to be quite wrong.

THE OBJECTIVE OF EXAMINATION

The SOLICITOR-GENERAL (Sir Frank Soskice) said the penalty clause of the Bill empowered the Minister to make it an offence not to comply with the regulations. The Minister never intended to prepare a regulation which would make it an offence punishable by the criminal law for any workman to fail to comply with directions given under a regulation. The Government proposed to accept on a later clause an amendment which would provide that it should be an offence not to comply with a regulation other than one requiring a workman to submit to medical treatment. The proposal in the clause under discussion was simply that when a workman submitted himself to medical examination the first object of that examination should be to determine the effect of the relevant injury. The second object would be to enable the Ministry's doctor to try to make up his mind what treatment would be appropriate to the injury. That was a primary purpose of all medical examinations. If the man without reasonable cause refused to accept the advice of the doctor all that could happen to him would be that he forfeited his right to benefit. If a workman held strongly the opinions voiced by Mr. House the insurance officer to whom the case could be referred might take the view that such opinions were a reason-

able cause. The regulations which the Minister proposed to make must be submitted to the Industrial Injuries Advisory Council, which would include experts qualified to judge of these matters. The Solicitor-General submitted that the injuries with which the Bill would deal were, in the majority of cases, diseases that were known or the causes of which would not give rise to a great deal of medical controversy. He asked the House to reject the amendment.

Dr. H. B. MORGAN said a great deal of the antimedical prejudice was the aftermath of conditions when workmen in the past had been examined by a particular set of doctors whose object had always been to see whether the man was malingering or whether he was trying to prove that his physical injury or disease was due to an accident when the Ministry of Pensions held that it was not. Hitherto assessment of disability resulting from disease or accident had not been taught in British medical schools, but even if what had been said was true, the workman was entitled to the best professional medical treatment he could get. No untried treatment was sufficient. Dr. Morgan failed to see why any scheme to which all workers contributed should not lay down regulations for the appropriate treatment for every individual on a broad scale. If the Minister of National Insurance secured the right type of medical man to do this work he would confer great benefits on the workmen. Dr. Morgan hoped there would be machinery to secure the right type of doctor.

THE "COMPENSATION DOCTOR"

Mr. JAMES GRIFFITHS, replying to the discussion, said that in the past a man receiving an injury was asked by the employer to attend at a certain place to be examined by a man who was known as a "compensation doctor," partly or fully employed by insurance companies and others and not strictly employed for purely medical purposes. Under the present Bill the Government took power to enable the medical officer acting for the Ministry to require the man to be examined in order to suggest and advise proper treatment. Obviously the Ministry would have its own doctors and the man would have his doctor, and there would be consultation between the two. Most of the cases concerned would be of physical injuries or industrial diseases. For the first time in a workmen's compensation Act it would be the concern of the Government to see not only that a man received what he was entitled to receive but also that he was encouraged and advised to secure treatment.

Dr. MORGAN asked where, pending the development of a National Health Service, the Minister would find rehabilitation centres for the men whom he intended to compel to have certain treatment. Mr. GRIFFITHS replied that the Government could not provide a full scheme at present. In the meantime they had a miners' rehabilitation centre in South Wales.

Sir HENRY MORRIS-JONES said that at present a man could appeal to a judge of a court of law who had two medical men as assessors. Under the proposal before the House the man who disagreed with the Government's doctor about treatment prescribed must appeal to an insurance officer—a layman—who would have to decide a purely medical issue.

The amendment was negatived.

Mr. DOUGLAS moved to leave out the provision that an injured man for whom treatment had been prescribed should be bound to observe "any prescribed rules of behaviour." He pointed out that acceptance of this amendment would still leave the condition that the man was "not to behave in any manner calculated to retard his recovery." The Solicitor-General said he could not accept the amendment, claiming that a subsequent amendment put down by the Government would meet the point. Later, after some discussion, he announced that the Government had decided to accept it.

When the debate was resumed on Feb. 19 Mr. GRIFFITHS, on Clause 56 (special provision as to certain respiratory diseases), moved to substitute six for three months as the period during which a man who was certain to become disabled if he remained at work could be suspended by a medical board from employment in a coal mine. He said everything should be done to prevent men staying in the mines after the onset of pneumoconiosis or silicosis. Six months itself was a short enough period.

Dr. BARNETT STROSS said those interested in the subject were happy to have this extension. However, if they waited until the first stage of silicosis was well established and then gave six months' entitlement they would not do much. The Minister must see that the periodical medical examinations were frequent and thorough enough to enable men to be withdrawn at a very early stage. The men should come out in what the South Africans used to call the "ante-primary stage." Dr. MORGAN advocated no limitation of time to either three or six months. Men should receive payment if regarded as fit for suspension until they were rehabilitated to the extent of finding other jobs at which they could work.

Mr. JAMES GRIFFITHS said that all the Government was doing was dependent on the completely new and successful health service. There must be "periodical examination of the men all the time." That would be done as soon as possible, but it could not be done now.

Dr. MORGAN appealed for the power of certification to be extended to cases of men suffering from pneumoconiosis through dust caused in foundries. He said this had not been accepted by the Government on the ground of insufficient evidence. Mr. GRIFFITHS said power had been granted to a board to decide this problem. He could not accept responsibility for the suspension of men.

The amendment moved by Mr. Griffiths was accepted. After further discussion and amendment the report stage was then completed.

Medical Recruitment

Asked by Mr. ALLIGHAN on Feb. 26 what had been the distribution of recruits to the medical branches of the three Services since June 18, 1945, Mr. BEVAN said the totals were: Navy (to Feb. 25) 105, Army (to Jan. 31) 433, R.A.F. (to Jan. 31) 33.

Col. STODDART-SCOTT on Feb. 28 asked Mr. Bevan to distribute to the R.A.F. a larger number of medical recruits so that demobilization would not remain ten groups behind the Army. Mr. BEVAN said he was aware of the delay in demobilization of medical officers from the R.A.F. The allocation of doctors to the R.A.F. had been reviewed on the previous day by the Medical Personnel (Priority) Committee. He promised to consider the matter in the light of any recommendations the committee might make.

University Grants

Mr. DALTON announced on Feb. 22 that he proposed to ask Parliament to vote £9,450,000 for grants to the universities for 1946-7. This was £3,800,000 more than had been voted for 1945-6. It included a further £2,250,000 for capital grants, a re-vote of £1,200,000 which had not been spent, and an additional £100,000 for dental education. He had told the University Grants Committee that he would be prepared, if good cause were shown, to ask Parliament to vote even larger capital sums.

On the same date Mr. GLENVILLE HALL stated that the constitution of the University Grants Committee was as follows: Sir Walter Moberly (chairman), Prof. W. E. Collinson, Sir Charles Darwin, Miss Margery Fry, Sir Robert Greig, Sir Peter Innes, Sir Frederic Kenyon, Prof. P. S. Noble, Prof. G. W. Pickering, Prof. Andrew Robertson, Sir Edward Salisbury, Prof. J. C. Spence, Prof. R. H. Tawney, and Sir Henry Tizard. The members were not appointed in a representative capacity, but the committee was so constituted as to include persons with special qualifications and experience in the main fields of university activity.

Hospital Accommodation in Scotland

Mr. Westwood told Major Guy Lloyd on Feb. 26 that action on the observations contained in the recent survey of Scottish hospitals by the Department of Health for Scotland would generally have to await the reorganization of the health services as a whole. The first concern of the local authorities responsible for tuberculosis and infectious diseases would be to remedy shortages of nursing staff, so that all the accommodation already available could be used.

Harvard Field Hospital Unit

On Feb. 25 Major J. Morrison asked the Minister of Health if, in view of the difficult housing situation in Salisbury, he would arrange for the Hubbard hospital buildings recently vacated by the U.S. Army to be made available as temporary accommodation. Mr. BEVAN assumed that Major Morrison referred to the Harvard Field Hospital Unit, which was generously presented to Britain during the war by the American Red Cross and Harvard University for the purpose of research into the prevention of infectious diseases. Mr. Bevan said he intended this should continue to be used for purposes allied to that of the original gift.

Ambulance Ships.—Two vessels fitted as ambulance transports are engaged in transport of sick and wounded Service men to the United Kingdom. Mr. LAWSON on Feb. 26 refused to accept the suggestion that the degree of comfort and the facilities provided on these ships were inadequate for the purpose. He added that hospital ships were still used for the transport of the more seriously ill patients. He pointed out that it was not the normal peacetime practice to carry invalids in hospital ships, as the numbers were too small.

Dental Benefit.—The Dental Benefit Council, which is representative of dentists and approved societies, will meet on Feb. 14 and will consider an application for a revision of the scale of fees.

prescribed by the Dental Benefit Regulations. Mr. James Griffiths hopes that in the result a solution will be found of the difficulties arising out of the refusal of certain dentists to undertake work on the basis of the present scale of fees. The question of resuming regular meetings of the council will also be considered.

Hospital Domestic Labour.—When asked on Feb. 21 about a shortage of domestic workers at Colindale Hospital, Mr. ISAACS said the British Hospitals Association and other hospital associations had contributed to building up standards for this work which should encourage further recruitment. An understanding about wages and working conditions had been put into force. Until the Ministry saw how a publicity scheme for encouraging people to take up these duties was working he was not going to arrange wholesale importation of domestic workers from the Continent.

Tuberculosis Invalids from the Navy.—Between September, 1939, and January, 1946, 8,144 officers and ratings, including Royal Marines, were finally invalided out of the Royal Navy on account of pulmonary tuberculosis.

Hot-water Bottles.—Sir STAFFORD CRIPPS said on Feb. 18 that retailers had no authority to demand medical certificates before supplying hot-water bottles. But if, in the opinion of the patient's doctor, a rubber hot-water bottle was necessary for purposes of treatment, it was desirable that a medical certificate should be given some priority. Certificates should be issued only on that ground.

The Aged and Extra Milk.—Sir Ben Smith will not authorize doctors to issue certificates for extra milk for old people not suffering from specific illnesses. The Special Diets Advisory Committee of the Medical Research Council advises him that there are no nutritional grounds for allowing extra milk to old people. He has arranged for repatriated civilian prisoners of war who were suffering from malnutrition to be allowed extra milk.

Notes in Brief

Up to the end of December last pensions had been granted in about 3,000 cases of psychosis and 1,000 of epilepsy accepted as attributable to or aggravated by service in the war. In addition awards had been made in about 27,000 cases of psychoneurosis and other nervous disorders.

Calcium in the form of creta praeparata is added to flour at the rate of 7 oz. of calcium to 280 lb. of flour.

The Minister of Food states that he has made arrangements for people suffering from coeliac disease to be able to get ample and regular supplies of dried bananas. His medical advisers inform him that these are as suitable for such patients as fresh bananas. He does not propose to make any special arrangements for them to get fresh bananas. It would not in any case be possible to guarantee regular supplies.

The report of the Electro-acoustics Committee on Hearing Aids is being prepared. It is hoped to publish it in the near future.

The Minister of Supply, Mr. Wilmot, is doing all he can to help manufacturers to secure skilled labour for manufacture of surgical apparatus such as spinal jacks.

There is no prospect of soap rationing ending at an early date.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a Congregation on March 1 the Senate resolved to confer the degree of Master of Arts, *honoris causa*, upon Arthur Leslie Banks, M.D.Lond., Principal Regional Medical Officer of the Ministry of Health. The recommendations of the Council of the Senate for the establishment of a professorship of radiotherapeutics were approved, and also for an additional payment to the Regius Professor of Physic for work in connexion with the organization of the School of Clinical Medicine.

The Board of Management of the Frank Edward Elmore Fund will shortly award a studentship for research, open to male graduates of any university in any country, who were born at any place within the British Empire, other than Scotland. The student appointed will work in the Department of Medicine at Cambridge, under the direction of the Regius Professor of Physic, commencing salary £400 a year, the appointment being for two years in the first instance. Further information may be had from the Regius Professor of Physic, Department of Medicine, University of Cambridge, to whom applications, with three testimonials, a statement of previous appointments, and copies of published papers, should be sent so as to reach him by March 22.

The following candidates have been examined and approved for the degree of M.Chir.: A. G. Leacock, G. C. Martin, B. H. Page.

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

THIRD M.B., B.S.—J. C. Millichip (with honours and distinguished in surgery), Daphne S. A. Anderson, H. Annamunthodo, E. R. Arnold, R. J. Aspinall, P. T. Ballantyne, J. C. Batten, A. J. Beale, D. W. Beynon, Margaret J. Blair, L. W. Bland, Pattie E. Bradfield, Catherine M. P. Bradstreet, P. E. Brown,

G. H. Carrick, H. E. A. Carson, P. T. Chopping, C. I. Cooling, B. S. Cooper, W. D. Corfield, J. C. Crook, Naami Datta, E. T. De Mel, H. G. Dixon, C. J. Don, F. R. Ellis, Norah C. Elphinstone, Rosemary F. Evans, Elizabeth P. E. Everard, A. Feldman, H. Fishbone, A. Folkson, S. L. Gauntlett, Jean M. Gilbert, Beryl M. Goetzee, L. S. Goodhardt, W. P. D. Green, W. P. Gurrass, D. O. Haines, Audrey Hanson, Elizabeth J. Harman, P. C. Harris, T. A. Harrison, A. Hollman, T. G. Hooson, Edith C. C. Hörburger, J. R. F. Innes, H. C. W. James, B. W. Jaslowitz, R. C. Jennings, K. S. Jones, J. W. Jordan, P. K. S. Joynton, D. L. Kerr, I. W. Kerr, Catherine M. R. Kirkpatrick, J. M. Kodicek, T. Koonvisal, E. Kupfer, E. T. Lay, Elizabeth J. Lee, B. Lewis, S. Lewis, O. C. J. Lippold, Anne Maguire, L. V. Martin, D. T. Methuen, J. B. Musgrove, Rosemarie D. Newhouse, J. K. Oates, D. J. O'Brien, H. Parkes, Liliane Parkinson, T. D. Parsons, I. C. L. Patch, I. A. W. Peck, G. F. Penny, J. H. S. Pettit, G. D. Powell, D. E. Pugh, S. S. Raphael, Rosalind B. Reiss, A. T. Richardson, L. Roodyn, M. L. Sacks, A. H. Saddler, M. E. Samrah, T. A. L. Scott, G. C. W. Sharpe, C. S. Shaw, L. Silverstone, E. R. Simpson, S. R. Sims, Mary E. Smith, K. A. Sowden, D. G. H. Sylvester, B. E. R. Symonds, Edith Taylor, E. H. Taylor, Mary J. L. Taylor, G. I. Tewfik, Vivian M. N. Usborne, Brenda D. van Leuven, J. D. Wallace, J. G. Watt, P. Westcombe, M. J. Whelan, J. B. Wild, J. M. Wilks, N. A. F. Young, D. M. Zausmer.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL

The Sydney Ringer Memorial Lecture will be delivered by Prof. J. Z. Young, F.R.S., in the Lecture Theatre of the University College Hospital Medical School (University Street, Gower Street, W.C.) on Tuesday, March 12, at 4.30 p.m. His subject is "Effects of Use and Disuse on Nerve and Muscle." The lecture is open to all qualified practitioners and medical students.

UNIVERSITY OF MANCHESTER

The following appointments are announced: *Lecturer in Medical Neurology*, G. G. E. Smyth, M.D. *Lecturer in Neurosurgery*, R. T. Johnson, M.B., F.R.C.S. *Lecturer in Surgery*, R. L. Holt, M.D., F.R.C.S. *Demonstrator in Experimental Physiology*, M. G. Saunders, M.B., Ch.B. *Lecturers in Preventive Medicine*, C. Metcalfe Brown, M.D., D.P.H., and F. R. Marshall, M.D., D.P.H. *Lecturers in Industrial Health*, F. H. King, M.D., A. T. Jones, M.D., D.P.H., M. W. Goldblatt, M.D. *Assistant Director of the Routine Section in the Department of Bacteriology*, H. W. Clegg, M.D., D.P.H.

UNIVERSITY OF EDINBURGH

At the February meeting of the University Court, with the Principal, Sir John Fraser, presiding, it was announced that the Cameron Prize in Therapeutics for 1946 had been awarded to Prof. A. Szent-Györgyi, of the University of Szeged, Hungary, in recognition of his eminent contributions to knowledge of vitamin C.

Robert James Kellar, M.B.E., M.B., Ch.B., F.R.C.S.Ed., F.R.C.O.G., has been appointed to the Chair of Midwifery.

UNIVERSITY OF DUBLIN

The Senate of Dublin University has announced its intention to confer a number of honorary degrees, including the Sc.D. on Sir Alexander Fleming, F.R.S., professor of bacteriology at St. Mary's Hospital Medical School, and Prof. Eric K. Rideal, D.Sc., F.R.S., of the chair of colloid science at Cambridge University; and the M.D. on Sir Herbert Eason, F.R.C.S., President of the General Medical Council.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The following letter dated Feb. 14 (John Hunter's birthday) has been received by the President of the Royal College of Surgeons from Sir William H. Collins:

"I have been disturbed for some time because it seemed to me that possibly financial considerations were preventing the Royal College of Physicians transferring their headquarters to Lincoln's Inn Fields. In order to help to remove any such difficulty which may be standing in the way of the establishment of a Medical Academic Centre in London, I am making a further gift of £100,000 to the Royal College of Surgeons to provide increased endowment for the Scientific Departments. The gift is made on condition that the Council offers all the sites and property which they own to the east of the College and which are not required for the extension of the Royal College of Surgeons as a free gift to the Royal College of Physicians. The offer by the Royal College of Surgeons must be conditional on the site being used for a new building for the Royal College of Physicians and must be kept open for at least twelve months."

The Council of the College has accepted with extreme gratitude the conditions laid down and has made a formal offer of the site to the Royal College of Physicians in accordance with Sir William Collins's wish.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At a quarterly meeting of the College held on Feb. 5, with the President, Dr. D. M. Lyon, in the chair, Dr. D. M. F. Batty (Edinburgh), Dr. J. Halliday Groom (Edinburgh), Dr. G. A. G. Peterkin (Edinburgh), Dr. James Innes (Edinburgh), Dr. Angus MacNiven (Glasgow), and Dr. J. S. Fulton (Glasgow) were introduced and took their seats as Fellows of the College.

Dr. B. S. Bindra (Karachi, India) and Dr. O. Olbrich (Edinburgh) were elected Fellows of the College.

No. 7

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Feb. 16.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland. Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 125 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland. A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	73	5	26	—	3	73	9	27	7	2
Deaths	—	2	—	—	—	—	1	—	—	—
Diphtheria	489	23	115	58	17	427	18	129	91	18
Deaths	5	—	2	—	1	9	—	1	—	1
Dysentery	255	14	41	—	1	357	33	140	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute	2	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	38	8	3	—	53	10	4	—
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	—	—	—	23	—	—	—	—	9	—
Deaths	50	6	10	9	2	62	8	4	17	9
Measles*	1,489	353	192	58	4	19,167	640	421	22	116
Deaths	2	—	—	—	—	16	1	—	—	—
Ophthalmia neonatorum	74	5	16	1	—	53	1	16	—	1
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	—	—	—	—	—	1	2(B)	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza	1,387	79	68	37	6	1,206	75	19	12	13
Deaths (from 'influenza')	220	34	22	9	10	55	11	8	4	1
Pneumonia, primary	—	—	424	28	—	—	317	20	17	15
Deaths	72	—	18	22	—	47	—	—	—	—
Polio-encephalitis, acute	2	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute	9	—	—	—	—	1	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	2	18	—	—	—	2	19	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia†	147	10	18	—	1	149	5	12	2	1
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	1,303	90	204	25	40	1,497	47	197	8	44
Deaths	1	—	—	2	—	2	—	—	—	—
Smallpox	4†	2	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	5	1	2	9	—	11	3	5	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough*	1,329	112	91	26	5	1,530	76	151	53	12
Deaths	8	—	2	—	—	14	2	2	2	2
Deaths (0-1 year)	408	58	82	32	19	456	39	55	45	44
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	5,961	940	744	247	200	6,014	909	815	276	189
Annual death rate (per 1,000 persons living)	—	—	16.4	15.8	—	—	18.5	17.8	—	—
Live births	7,579	1,095	949	462	267	6,907	764	835	340	257
Annual rate per 1,000 persons living	—	—	19.1	29.6	—	—	16.7	21.9	—	—
Stillbirths	251	39	37	—	—	210	13	28	—	—
Rate per 1,000 total births (including stillborn)	—	—	38	—	—	—	32	—	—	—

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ 1 case imported.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales the chief features of the returns were the large decreases in acute pneumonia, scarlet fever, and dysentery, of 445, 102, and 82, respectively. The only diseases with an increased incidence were measles, with 278 more cases, and whooping-cough, with 76 more.

Acute pneumonia was less prevalent in most areas of the country, the only exception being a slight rise in Lancashire. The fall in scarlet fever was mainly contributed by two areas—Lancashire and London—with 58 and 34 fewer cases, respectively. The only variations of note in the returns of diphtheria were reported from Wales; in Glamorganshire the cases rose from 14 to 28, and in a local outbreak in Carmarthenshire, Llandilo U.D., the cases increased from 3 to 18. Measles is only prevalent in four counties—Lancashire, London, Norfolk, and Suffolk. The notifications in these counties amounted to almost three-quarters of the total for the country.

The outbreak of dysentery in Leicestershire continued to diminish, only 23 cases being reported during the week. Other large returns for dysentery were: Lancashire 44, Warwickshire 27, London 14, Northamptonshire 13, Yorks West Riding 12, Bedfordshire 11, Northumberland 11.

The births recorded in the first seven weeks of the year in the great towns show a substantial rise on those of the corresponding period of last year—50,899 against 47,844. Despite the increase in births, the number of infant deaths are fewer—3,243, compared with 3,520.

Two liners have recently arrived from Bombay with smallpox cases aboard—the *Duchess of Richmond* with 4 cases, and the *Georgic* with 1. (According to a Press statement of March 6, the *Georgic* case is one of chickenpox.) Another case of smallpox has been confirmed in the Tilbury area; so far there have been 5 cases, with 2 deaths.

In Scotland the only diseases with a larger incidence were scarlet fever, with 26 more cases, and whooping-cough, with 22 more. A decrease was recorded for acute primary pneumonia of 104, measles 29, diphtheria 25, and dysentery 24.

In Eire measles notifications decreased further, from 85 to 57. Notifications of diphtheria rose by 16, while whooping-cough fell by 23.

Vital Statistics, 1945

The provisional returns for England and Wales for 1945 show a decline in the birth rate, the rate for the year being 16.1 per 1,000, compared with 7.5 and 16.2 for the two preceding years. Stillbirths represented 2.8% of the total births—the lowest rate ever recorded. The general death rate was 11.4—a new low record. The previous lowest death rate was 11.5 in 1942.

Typhoid in Germany

Each week in the British zone 70 Germans are dying of typhoid fever, according to the recent medical survey.

Bovine Tuberculosis

The incidence of bovine tuberculosis is unknown, and indirect estimation based on non-pulmonary tuberculosis is generally used for comparative purposes. Non-pulmonary tuberculosis is not a highly satisfactory index since many cases are of human origin, although, on the other hand, some cases of pulmonary tuberculosis are of bovine origin. For children under 5 years of age it has been found by laboratory examination that abdominal tuberculosis is nearly always of bovine origin. These deaths therefore give the best indication of the prevalence of bovine disease for comparative purposes. The following table sets out the trend of the death rates for degree of urbanization.

Death Rates from Abdominal Tuberculosis per 1,000,000
Children under 5 Years of Age in Each Area
(Actual Number of Deaths in Parentheses)

	1921	1930	1938	1944
London (administrative county)	136 (51)	24 (8)	12 (3)	6 (1)
County boroughs	137 (490)	137 (166)	63 (57)	32 (37)
Urban districts	366 (370)	134 (139)	77 (69)	42 (42)
Rural districts	252 (176)	92 (57)	63 (31)	60 (37)

The death rates have continuously declined in each area, but the figures supplied by the Registrar-General, the first of their kind, show a striking difference between areas. The rate for London in 1944 was only one-tenth of that in rural districts. In 1944 the rate for London was only one-twenty-third, and that for the rural districts one-fourth, of the 1921 level. A factor of importance is pasteurization of milk. Before 1923 no milk was pasteurized under licence, though in London and a few

larger towns some was "flush" heated, particularly in hot weather to prevent souring. By 1938 over 50% of the milk consumed in county boroughs was pasteurized, and over 98% in London.

Week Ending February 23

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,307, whooping-cough 1,632, diphtheria 510, measles 1,587, acute pneumonia 1,125, cerebrospinal fever 71, dysentery 406, paratyphoid 4, typhoid 7. One case of smallpox was imported. Deaths from influenza in the great towns numbered 141.

Medical News

A meeting of the Middlesex County Medical Society will be held at the West Middlesex County Hospital, Isleworth, on Tuesday, March 12, at 3.30 p.m.

The next meeting of the Food Group of the Society of Chemical Industry will be held in the rooms of the Chemical Society, Burlington House, Piccadilly, W., on Wednesday, March 13, at 6.30 p.m., when papers will be read on phosphatase activity as an index of heat damage in cereals, on the absorption of aneurin (vitamin B₁) on sand, and on the effect of tinplate and of lacquered surfaces on the oxidative deterioration of butterfat. Members may introduce friends personally.

The following radiological meetings will be held in London this month. Thursday, March 14, 8 p.m., British Institute of Radiology (32, Welbeck Street, W.), presidential address by Dr. L. H. Clark, "Hospital Physics"; Friday, March 15, 2.30 p.m., Therapy Section Meeting of Faculty of Radiologists at Royal College of Surgeons of England (Lincoln's Inn Fields, W.C.), discussion on "Orbital Tumours" to be opened by Mr. Harvey Jackson, Mr. H. B. Stallard, and Dr. John Raban; Friday, March 15, 8 p.m., meeting of Radiology Section of Royal Society of Medicine at 1, Wimpole Street, W., paper by Prof. A. Lacassagne, of Paris. The annual meeting of the Faculty of Radiologists will be held at Glasgow on Friday and Saturday, June 28 and 29.

The annual general meeting of the Institute of Almoners will be held at 6 p.m. on Friday, March 15, in the Great Hall of B.M.A. House, Tavistock Square, when Sir Ernest Rock Carling, F.R.C.S., will give an address.

The Tuberculosis Association will meet at 26, Portland Place, London, W., on Friday, March 15. The Council meeting at 3.30 p.m. is to be followed by an ordinary meeting at 5 p.m., when papers on design and equipment of the modern chest clinic and of the modern sanatorium will be read. At 8 p.m. Dr. Philip Ellman and F. Ridehalgh will open a discussion on "The Changing Chest Clinic." On March 16 a special meeting at the Essex County Hospital at Black Notley begins at noon with demonstrations in the wards. At 2 p.m. in the King Edward VII Memorial Hall the speakers will be Dr. W. A. Bullough, Dr. Raymond Cohen, Mr. R. Reid, Dr. Franklin G. Wood, and Dr. M. C. Wilkinson.

Dr. C. P. Blacker will speak on "Galton's Outlook on Religion" at a members' meeting of the Eugenics Society to be held on March 19, at 5.30 p.m., at the rooms of the Royal Society, Burlington House, W.1.

Dr. Kenneth Tallerman will lecture on some medical conditions in childhood to the Association of Austrian Doctors in Great Britain on Friday, March 15, at 7.30 p.m. at 69, Greencroft Gardens, N.W. (near Finchley Road station).

The North-West London Branch of the English New Education Fellowship announces a public lecture on "Penicillin: Its History, Present Uses, and Possibilities," by Mr. A. L. Bacharach, M.A., F.R.I.C., on Wednesday, March 27, at 7.45 p.m. in the Hall, Hendon County School, Golders Rise, Hendon, N.W.4. Chairman: Dr. A. F. Adamson, medical officer of health, Hendon. The meeting is open to all members of the public.

A group of settlements in Bethnal Green is running a series of short vacation courses under the title "Discover Your Neighbour," for professional workers in training (including doctors, lawyers, teachers, and probation officers). The object is to provide a broad general picture of the social field with only a restricted part of which the professional person will be directly concerned; and to emphasize the need for an understanding of the human factor involved. It consists mainly of practical assignments (in shops, factories, and so forth) bringing students into everyday contact with the life of the neighbourhood, of discussions and tutorials to supplement particular observations. The next course runs from March 27 to April 17. Further information is available from the Vice-Head, Oxford House, Mape Street, Bethnal Green, E.2.

The N.W. London Blood Supply Depot, Slough, and N.E. London Blood Supply Depot, Luton, are amalgamating, and from March 11 will operate as the North London Blood Supply Depot, in the charge of Dr. J. V. Shone, at Shaftesbury Avenue, East Barnet, Herts (tel.: Barnet 0165). Dr. J. V. Shone has been in joint charge of the N.W. and N.E. London Blood Supply Depots for some months.

The Royal Medical Foundation of Epsom College announces that the Conjoint Committee will award in May next a "Cheyne" annuity of £35 per annum to the spinster daughter of a medical man. Candidates must be Protestants, fully 65 years of age, whose income does not exceed £120 per annum irrespective of help from the Royal Medical Benevolent Fund. There is also vacant a "Dr. T. W. Thomas" annuity of at least £25 for a spinster daughter of a medical man in necessitous circumstances who has attained the age of 40 years. Forms of application may be obtained from the secretary, at the Secretary's Office, Epsom College, Surrey, and must be completed and returned by April 18.

Six Norwegian scientists are visiting this country under the auspices of the British Council to meet British scientists and visit universities, scientific institutions, and factories. The leader of the party is Dr. G. H. Monrad-Krohn, professor of medicine, and physician in charge of the Neurological University Clinic, Oslo.

An urgent appeal to join the Civil Nursing Reserve as emergency members is made by the Department of Health for Scotland in a letter on behalf of the Secretary of State addressed to people who have ceased to be active nurses because of marriage or other reasons. Emergency members called on for service will receive salary and emoluments at the rates currently applicable to members of the Civil Nursing Reserve; they will also be provided with uniforms. Volunteers may enrol for either whole- or part-time service, and will be accepted for service in their own district if they cannot volunteer for mobile service. Inquiries should be addressed to the Chief Nursing Officer, Department of Health for Scotland, St. Andrew's House, Edinburgh.

Sir Heneage Ogilvie, K.B.E., M.Ch., F.R.C.S., has been appointed editor of the *Practitioner* in succession to Dr. Alan Moncrieff, F.R.C.P., who has resigned on his appointment to the Nuffield chair of child health in the University of London. Sir H. Ogilvie, who received his knighthood in the New Year Honours list for distinguished services during the war, is surgeon to Guy's Hospital, a Vice-President of the Royal College of Surgeons, honorary major-general and consultant surgeon to the British Army. Prof. Moncrieff has been senior editor of the *Practitioner* since 1943, when he succeeded the late Sir Humphry Rolleston, Bt. Dr. William A. R. Thomson, who joined the *Practitioner* in 1944, will continue as associate editor.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Atiology Westcent, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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B.M.A. SCOTTISH OFFICE: 7, Drumshough Gardens, Edinburgh.

ANY QUESTIONS?

Biochemistry of Epilepsy

Q.—Is there any literature on the biochemistry of epilepsy, particularly with regard to the serum calcium, phosphorus, and phosphatase? Can hyperinsulinism cause epileptic fits?

A.—The idea that some biochemical abnormality may underlie epilepsy is at first sight so plausible that exhaustive investigations have been carried out on epileptics. We know that the liability to attacks may be influenced by changes in the acid-base equilibrium of the body, and by variations in the blood sugar, and by alterations in water concentration in the tissues. But this does not mean that any of these is the primary abnormality, and no constant biochemical change has ever been found in epileptics. Hyperinsulinism may certainly cause epileptic attacks, but spontaneous hyperinsulinism is a condition nosologically distinct from epilepsy. A full account of biochemical investigations on epileptics will be found in "Epilepsy," by W. G. Lennox and S. Cobb (*Medicine*, 1928; 7, 105). It is there stated that blood calcium, serum phosphorus, and blood phosphatase

have all been found to be normal in epileptics by various investigators. Softening of the bones has not, so far as I know, been observed in epileptics. To be significant the observations would need to be compared with a control made on a group of non-epileptics of similar ages living in similar conditions.

Transmission of Syphilis

Q—*A man contracted syphilis at 19 was apparently cured married and had one child. The child was born when the father was 31 and is now quite well aged 7. When the father was 33 he began to get symptoms which have since proved to be those of G.P.I. There is no question of the man having contracted syphilis after his child was born. His wife is quite well and her W.R. is negative. Is there any possibility of the child being able to pass on syphilis to any children she may have?*

A—There is no fear of the girl conveying syphilis to any children she may have. Presumably the father's syphilis dated back some eleven years before he was married, thus, together with the fact that he apparently had a good deal of treatment, would guarantee that he would not pass the disease on to his wife. Her negative serum reaction is another piece of evidence that she did not contract syphilis. It is now almost universally held that a syphilitic father cannot beget a congenital syphilitic child without infecting the mother. For confirmation the child's blood might be submitted to Wassermann and/or Kahn tests, but this does not seem necessary.

Sleepiness and Obesity

Q—*A woman aged 40 with two children has suffered for the past twelve months with attacks of sleepiness (which do not resemble narcolepsy). She is obese. Is this likely to be due to an endocrine dysfunction? What line of treatment should be adopted?*

A—Pathological sleep with obesity suggests a disturbance of the pituitary-hypothalamic mechanism. Pituitary dysfunction causing a decrease in activity of the gland will result in hypersomnia and obesity, well illustrated in Dickens's Fat Boy. This decreased activity may be due to one of several causes, one of which is adenoma of the inactive chromophobe cells of the pituitary. Tumours and other lesions in the region of the third ventricle of the brain will also give these symptoms, and they are perhaps more likely to be well marked in the absence of other symptoms when due to such a lesion than when due to a disorder of the pituitary gland itself. It is therefore desirable to try to discover by neurological and radiological examination whether the endocrine dysfunction responsible for the symptoms has a local and gross cause. If it has not, medical treatment may be tried. Although direct replacement therapy might be expected to give excellent results, in most cases this is not so, and symptomatic treatment with amphetamine (benzedrine) and thyroid will probably be the most beneficial.

Oily Seborrhoea

Q—*Can you please tell me the treatment for a greasy scalp?*

A—Oily seborrhoea is more difficult to remedy than the dry variety, in which some form of greasy application can be used as a substitute for a natural deficiency. In oily seborrhoea the following hair lotion may be tried: tannic acid 10 gr (0.65 g), resorcin 4 gr (0.25 g), spirit of rosemary or industrial spirit 1 dr (3.5 ml), and water to 1 oz (28.4 ml). This application is unsuitable for white or grey hair, because of its staining qualities. It is significant that in women a permanent wave usually checks the greasy (oily) state for some months.

Duties of a House-governor

Q—*What is the office of "house governor" in a general hospital? Who or what does he govern? What are the usual qualifications required of such a person? What are his duties and responsibilities?*

A—The chief administrative officer of a voluntary hospital is variously described as house governor, secretary superintendent, or secretary, and he corresponds in business life to a general manager. All matters concerning the hospital reach the chief executive committee through him, and all instructions given by that committee should be communicated to various departments by him. He is the committee's chief executive officer. He is usually required to have had considerable experience in hospital administration, and generally holds membership of the Institute of Hospital Administrators. The chief executive officer is not only the channel through which approach to the committee of management is made by anyone, medical or lay, in matters of administrative importance, but he is also responsible for the guidance of the committee in matters such as building, construction and finance.

Training is usually through the medium of the junior posts in hospital service, but lately King Edward's Hospital Fund for London has inaugurated a small number of bursaries. Examinations are conducted by the Institute of Hospital Administrators and include, among other subjects, law, secretarial duties, accountancy, and a knowledge of purchasing supplies and of hospital construction. At present, recommendations have been published by the British Hospitals Association for a scale of salaries which may be used at the discretion of individual hospitals.

Aphthous Ulceration of Mouth

Q—*An edentulous woman has aphthous ulcers, which recur in crops. She has been treated with large doses of vitamins B and C, and local antiseptics to her mouth, the most successful of which is 1% gentian violet (aqueous). Her digestion is poor. Is any other treatment indicated?*

A—Aphthous ulceration of the mouth can be an extremely intractable condition, and several suggestions for treatment have appeared in these columns (cf. *Journal*, April 22, 1944, p. 579). The following additional suggestions are made in the present case. Penicillin lozenges sometimes help by clearing up secondary infection. The association of aphthous stomatitis with sprue and diarrhoea disturbances suggests that there is sometimes a nutritional deficiency in these cases, and recent work indicates that the substance lacking may be related to, or identical with, the active principle of liver extract. It would therefore be a justifiable expedient to try the effect on this lady of a course of intramuscular injections of liver extract—say 4 ml of a crude extract on alternate days.

Removing Wax from the Ears

Q—*For removing wax from the ears glycerin and carbolic drops are rather tedious in use, is there a better solvent which works in a few minutes and which can be used with safety as often as required?*

A—A solvent at once harmless and always readily available is liquid paraffin, which can be used just as suggested. An alternative is ether soap.

Treatment of Blushing

Q—*Can you suggest any treatment for blushing?*

A—Apart from a possible autonomic instability, blushing is most commonly the result of psychological causes. Blushing obviously implies shame and inferiority, the cause of this may be entirely repressed and unknown. The child who has a sense of superiority and receives a bad snub may develop a "conditioned reflex," so that whenever he is wanting to shine he is immediately seized with the inferiority complex and blushes. An interesting feature about neurotic blushing is that we find that it is not merely the blush of shame but the flush of anger, and it is as much due to a repressed aggression as a repressed feeling of shame. To cure it radically the discovery of the causes with the release of the emotions is necessary. In some cases atropine is of value, not only in affecting the end results, but because in many cases a vicious circle has been set up: the patient does not blush because he feels shame, even unconsciously, but feels shame that he blushes. To get rid of the end result of the blushing may break this vicious circle, no longer fearing the blushing, he regains confidence, and no longer blushes.

Thoracoplasty

Q—*What is the present position of thoracoplasty in the treatment of pulmonary tuberculosis?*

A—Thoracoplasty is at present occupying an increasingly important position in the treatment of pulmonary tuberculosis. This is largely due to advances in operative technique and to improved after care. The modern operation of carefully graded rib resection, combined with apicectomy, is much less severe than the older Sauerbruch operation or its modifications, it has a lower mortality, can be used in the treatment of earlier disease, and closes tuberculous cavities more efficiently and certainly. Many authorities now recommend primary thoracoplasty as the treatment of choice for patients with unilateral, localized, grossly cavitated apical disease. Improvements in after-care have done much to reduce post-operative deformity and render the operation a much less mutilating procedure than it used to be. As a full account of the indications for thoracoplasty cannot be given here, the inquirer is referred to a series of papers by Price Thomas which deal with the theory, technique, and results of the modern operation (*Brit J Tuberc.*, 1942, 36, 4 and 109, 1943, 37, 2).

Renal Function Tests

Q—*Fishberg suggests that the "water-concentration test" is the most delicate of all tests for renal function. As it is so simple, the question arises whether it shows impairment the more laborious tests such as the urea clearance should also be done. What are the accepted renal function tests to-day?*

A—Reference to A. M. Fishberg's *Hypertension and Nephritis* (1939) does not make it clear what the questioner means by the "water-concentration test," but the book contains an excellent assessment of many accepted renal function tests, on which the following reply is largely based.

One of the most delicate signs of impairment of renal function is inability to produce a concentrated urine. This is most simply tested by observing the specific gravity of the urine in the first few specimens following a twelve-hour overnight fast: the maximum specific gravity should be 1026 or over, but a figure of 1020 is usually regarded as adequate. Urinary volume must be considered with the concentrating ability, because in some conditions—for example, dehydration—there may be an inadequate blood flow

through the kidneys; functional impairment of the kidney may then be evidenced by a fall in urinary volume with a very high specific gravity. If the specific gravity of the urine can rise to 1020 or over, and the twenty-four-hour volume is 600 ml. or more, then there is no significant impairment of renal function and more elaborate and expensive tests are unnecessary.

If the above criteria are not satisfied, renal function is impaired. The next step then is to determine if the impairment is severe enough to cause retention in the blood of potential urinary constituents. This information is most conveniently given by estimation of the blood urea; it is not given by the urinary volume and maximum specific gravity tests. Van Slyke's urea clearance test is the most popular of the clearance tests. It can detect early impairment of renal function, and is a useful method of following progress. There are many other useful tests of renal function, and the choice is often a matter of personal preference and experience; selection and interpretation must always be made in relation to the clinical condition of the patient.

Disease and Personality Types

Q.—In the "New Statesman and Nation" it was stated that research (apparently American) has established, among other things, that high blood pressure, coronary insufficiency, gastric ulcer, or asthma and hay-fever, are usually associated with specific types of personality, and that the sufferer from coronary disease is likely to be one who has a basic conflict with authority. Can we hear more about this?

A.—It is impossible to answer this question in the space available. A large amount of research work of the type mentioned has been done, the effect of which is to show that patients suffering from various constitutional physical disorders do tend, on the average, to differ from controls in personality make-up. This does not mean that they are exclusively of one type, or that they are to be considered abnormal. These types of personality are frequently differently assessed by different observers, so that the picture of the typical sufferer from, say, gastric ulcer drawn by one expert will differ in material points from that drawn by another. The evidence regarding the incidence of particular types of psychological stress—e.g., that suggesting that coronary subjects have a conflict with authority—is often rather shaky. The commonest fault is that evidence is not given that similar conflicts are not as frequent in sufferers from other diseases.

Storage of Drugs

Q.—Is it safe to use ether and chloroform, ampoules of morphine and of strychnine, and capsules containing barbiturates, after six years' storage?

A.—It is not really possible to give a general reply to this question, as the condition of the drugs will depend generally on the conditions of storage over this period, and in certain cases will depend on the drugs themselves. For example, certain drugs will have kept perfectly if stored in well-closed containers in the dark, and in a dry atmosphere at a moderate temperature. On the other hand, a drug such as digitalis, even if stored under the most ideal conditions, will have lost all its potency long before now, while other drugs will be quite all right even if stored under the most varied conditions for long periods.

Regarding the specific items mentioned, the ampoules of strychnine should be all right, and the capsules containing dry powders of the barbiturates should also be all right, provided they have been kept perfectly dry. To be on the safe side, however, it would be advisable not to use either of the anaesthetics or the ampoules of morphine.

LETTERS, NOTES, ETC.

Delayed Resolution and Pneumonia

Dr. THOMAS ANDERSON (Glasgow) writes: I have been accustomed to read with interest the "Any Questions?" feature of your *Journal*, especially on matters outside my own particular province. I had assumed that the answers were authoritative, and that though differences of opinion might well exist, still, the answer was one expert's point of view based upon authentic experience. The reply on delayed resolution and pneumonia (Feb. 9, p. 225) has, however, undermined my confidence, for it seems to draw some unwarranted conclusions and to contain serious inaccuracies. To begin with, I do not think there is any evidence to support the accuracy of the first two sentences. Lipiodol will enter the area involved in an apparently normal manner. Small pockets of pus have not been an underlying cause in my own cases. After all, empyema now only occurs in some 3 to 4% of cases. Sentence three is somewhat difficult to follow. How can one recognize a condition early when, by its name, it is a late complication? The advice offered in the second part of this sentence is surely unwise, for delayed resolution is non-bacterial, so that a course of sulphonamides or penicillin will be of no avail, since neither of these materials will alter a non-bacterial pathological process. Sentence four is a matter of opinion and, of course, the writer is entitled to hold it. I have not, however, found such measures helpful in a fairly large number of cases. Sentence five is also one with which I cannot quarrel, for it must

depend on clinical judgment of a method of treatment I have not tried. But the really extraordinary sentence is the last. "There is no real evidence." Is there any evidence at all? "If the former is used correctly." What is the correct method of using either drug which prevents delayed resolution? So far as pneumonia in Glasgow is concerned, delay in resolution is now the commonest complication of this disease. Serial x-rays have been studied in my own unit over a number of years and leave no room for doubt that, especially in those over the age of 40, the complication (defined as consolidation clinically and radiologically proved after the 35th day of illness) is exceedingly common. The exact cause can be a matter of discussion, but surely the views expressed in a recent article in the *Lancet* (Anderson, T., and Ferguson, M. S., 1945, 2, 805) cannot just be waved aside? My purpose in writing, however, is not in any sense to push forward opposing views. It is to suggest that the answer given brushes aside as of little importance a problem which is a very serious one, and that it contains inaccuracies on matters of fact.

First Aid for Cresol Burns

Dr. A. E. P. MARTIN (Leeds) writes: In "Any Questions?" on Feb. 2 (p. 191) in advice for first aid for cresol burns it is suggested that only washing with water and covering with sterile cloths is required before dispatch to hospital. If any large area of the body is covered with phenol or cresol (hot or cold) serious liver damage is likely after such treatment. The best treatment I know is washing with a jet of alcohol or acetone until the skin appears no longer white but slightly reddened. If this is done within a few minutes or so nothing more need be done with cold phenol or cresol. I suggest that all works dealing with these substances should have a large alcohol wash-bottle ready as an essential part of first-aid equipment.

Plastic Surgery in Yugoslavia

At the request of the Yugoslav Government U.N.R.R.A. arranged a preliminary visit of Sir Harold Gillies to that country last summer. Following his recommendations, arrangements were made by U.N.R.R.A. for a team of British plastic surgeons to visit Belgrade to demonstrate to the Yugoslav surgeons the latest methods in plastic repair of the mutilations and injuries suffered by the Yugoslav people in the war. The authorities placed at their disposal the most modern hospital in Belgrade of 120 beds, which has, fortunately, escaped damage during the heavy bombing of the city. Already a number of operations have been carried out under the direction of Mr. James Cuthbert and Dr. Robert Shackleton. The work of the British team has been highly appreciated and the results have been seen by Marshal Tito, who recently visited the hospital with the British Ambassador. After expressing his gratitude, the Marshal remarked: "I have never seen this most important work before." Such co-operation in the human art of healing should do much to cement the bonds existing between the two countries. It is understood that the Yugoslav authorities have asked U.N.R.R.A. if arrangements could be made for the British team to extend their stay.

Auscultatory Percussion

THREE FINAL-YEAR STUDENTS of Edinburgh University write: With reference to Mr. L. R. C. Agnew's note (Jan. 19, p. 116) we suspect that the results obtained are to a certain extent subjectively influenced. A simple experiment will prove this conclusively. If the reader will place his stethoscope on the patient's sternum, as recommended by Mr. Agnew, and scrape with the forefinger towards the chest-piece with his eyes shut he will probably find a marked change in intensity of the sound produced on reaching any point lying on a circle at a certain distance from the chest-piece. If he scrapes hard enough he may even detect a second circle at a similar distance beyond the first. Both these circles will clearly be seen to have no relation to the cardiac outline. A similar experiment carried out on the thigh will demonstrate these same changes in intensity. By varying the intensity of the scrape it will be found possible to vary the distance from the chest-piece at which the change occurs. We therefore suggest that the practitioner unconsciously alters the intensity of the scrape to fit in with his preconceived notions. We would like to add, however, that it is possible in at least some subjects to demarcate the lower border of the liver by auscultatory percussion using the blind method as here: in addition to a change of intensity, there is a change of quality—namely, from tympanicity to dullness.

"Coccygodynia" or "Prostatalgia"?

"ANOTHER VICTIM" writes: As a sufferer myself, I think I can help Dr. T. Astley Cooper (Feb. 2, p. 192) to solve his problem. But first I would correct the diagnosis, which I am sure is inaccurate. My own diagnosis would be "prostatalgia" if the term were admissible. In my experience the pain almost invariably has followed sexual intercourse. Chilling of the perineum may cause it. There feels to be something of spasm in the pain, which may be agonizing. Relief comes, in any case, after a period, but is immensely expedited by applying heat to the perineum. The passage of flatus is, I believe, irrelevant. Modesty compels me to request anonymity.

LONDON SATURDAY MARCH 16 1946

PENICILLIN IN SUBACUTE BACTERIAL ENDOCARDITIS

REPORT TO THE MEDICAL RESEARCH COUNCIL ON 147 PATIENTS TREATED IN 14 CENTRES APPOINTED BY THE PENICILLIN CLINICAL TRIALS COMMITTEE

BY

Prof. RONALD V. CHRISTIE, M.D., D.Sc., F.R.C.P.

Secretary of the Committee

Only 18 months ago few patients suffering from bacterial endocarditis had been treated with penicillin in this country, and the results both here and in the U.S.A. were far from encouraging. Early in 1945 reports were received from America which suggested that better results might be obtained with larger doses given for longer periods. An attempt to determine the best system of dosage was clearly indicated, both to save life and to prevent wastage of a valuable drug still in short supply. Since subacute bacterial endocarditis is an uncommon disease, it was decided that this could be best achieved by a co-ordinated effort, and in February, 1945, an announcement was made in this *Journal* of the formation of research centres at Belfast, Bristol, Edinburgh, Leeds, Liverpool, London (St. Mary's, Middlesex, and St. Bartholomew's Hospitals), Manchester, and Sheffield. In April four further centres were formed, in Birmingham, Cardiff, Glasgow, and Newcastle. The response to this announcement can be gauged from the fact that by the end of September, 1945, the treatment of 147 patients had been completed. Since that date many more have been treated, but these will be included in a later report, as a adequate follow-up is essential in assessing the results of the treatment of this disease.

Therapeutic Results

Penicillin was given either by three-hourly injection or by continuous intramuscular infusion. No difference in the therapeutic results could be demonstrated, and opinion on the merits of these two methods is divided. Most are agreed, however, that both methods should be available if the treatment of subacute bacterial endocarditis is to be undertaken.

In the first group to be treated the dose was planned to show the relative importance of duration of treatment and the total amount of penicillin given. An answer to this question is given in Table I, which summarizes the results in 46 patients, all of

TABLE I—Patients receiving a Total of 5 million Units of Penicillin, given in Courses lasting 5, 10, and 20 Days

Dose	Died	Relapsed	"Cured"	Average Follow-up
1 mega unit for 5 days ..	6 (13%)	14 (70%)	0	—
5 mega unit for 10 days	7 (14%)	5 (25%)	3 (25%)	217 days
25 mega unit for 20 days	4 (3%)	3 (21%)	7 (50%)	249 "

Figures in brackets in Tables I-IV represent number of patients in whom stage was only approximately as stated.

whom received 5 mega (million) units of penicillin but over different periods of time: 20 patients were given 1 mega unit a day for five days, and all relapsed or died; 12 received 0.5 mega unit a day for 10 days, and of these 3 were apparently cured; 14 were given 0.25 mega unit a day for 20 days, and of these 7 have remained well. These patients have been under observation for over 6 months, and since relapses, if they occur, most invariably take place within 6 weeks of treatment (Table V) the conclusion appears to be justified that, within these limits of dosage, the duration of treatment is of much greater importance than the total amount of penicillin given: increased dosage is no substitute for prolonged treatment.

The results of treatment in a further series of 66 patients are shown in Table II; all received penicillin for 28 days, but the

TABLE II.—Patients Treated for 28 Days with a Daily Dose of 0.1, 0.25, and 0.5 Mega Unit

Dose	Died	Relapsed	"Cured"	Average Follow-up
0.1 mega unit a day	3 (3%)	5 (11%)	6 (43%)	198 days
0.25 mega unit a day	13 (5%)	4 (3%)	17 (50%)	117 "
0.5 mega unit a day	7 (39%)	0	11 (61%)	114 "

dose was varied, one group receiving 0.1 mega unit a day, another 0.25 mega unit a day, and another 0.5 mega unit a day. In the first group 43% recovered, in the second group 50%, and in the third group 61% have remained cured after an average follow-up of 4 months. It should not be forgotten that, no matter how effective penicillin may prove to be in the treatment of this disease, a significant death rate will remain from causes such as heart failure, uraemia, and major emboli. These deaths, many of which occurred during treatment, have little or no bearing on the efficacy of penicillin, and when this is borne in mind the therapeutic results shown in Table II are all the more remarkable—11 out of 18 patients receiving 0.5 mega unit a day for 28 days have remained cured. In only 1 of the 7 patients who died was there any evidence that the penicillin had failed to control the septicaemia, and the infecting organism in this case was more than 32 times as resistant to penicillin as the standard Oxford staphylococcus. For previously untreated patients 0.5 mega unit a day for 28 days seems to be a most satisfactory system of dosage.

Another small group of 12 patients received 0.5 mega unit a day for 21 days; of these, 1 died, 2 relapsed, and 9 have remained well after an average follow-up of 244 days.

Lastly, there were 11 patients who received a system of dosage which did not fall into any of the categories described above: 5 of these died, 1 relapsed, and 5 have remained well for an average period of 172 days.

Effect of Inadequate Treatment

It is of considerable practical importance to know whether inadequate treatment, as well as wasting time and penicillin, is prejudicial to later success. The results of treatment in patients who had already received a short course of penicillin are given in Table III. A comparison of this table with Tables I and II

TABLE III—Patients Previously Treated with a Short Course of Penicillin, of 5-10 Days' Duration

Dose	Died	Relapsed	"Cured"	Average Follow-up
1 mega unit for 5 days ..	0	1	0	—
0.5 mega unit for 10 days	0	0	2	220 days
0.1 mega unit for 28 days	0	2	1	232 "
0.25 mega unit for 20 days	4 (3%)	1 (1%)	3 (3%)	260 "
0.25 mega unit for 28 days	0	3 (2%)	6 (4%)	162 "
0.5 mega unit for 28 days	0	0	3	175 "
Total ..	4 (15%)	7 (27%)	15 (58%)	

does not suggest that previous treatment with a short course is prejudicial to later success in the patients who survive.

The results of treatment in patients who had already received a long course of penicillin are given in Table IV. A comparison

TABLE IV.—Patients Previously Treated with a Course of Penicillin of 20–28 Days' Duration

Dose	Died	Relapsed	"Cured"	Average Follow-up
1 mega unit for 5 days	0	1	0	—
0.5 mega unit for 10 days	0	1	0	—
0.1 mega unit for 28 days	0	0	1 (1)	214 days
0.25 mega unit for 20 days	1 (1)	1 (1)	1 (1)	200 "
0.25 mega unit for 28 days	2	3	2	107 "
0.5 mega unit for 20 days	0	1 (1)	0	—
0.5 mega unit for 28 days	2	6	4	134 "
Total	5 (19%)	13 (50%)	8 (31%)	

of this table with Tables I and II shows that if a patient does not respond to a long course of treatment he is less likely to respond to a second course. There are two possible explanations. Lack of response to the first course may indicate natural resistance to penicillin therapy, so that this forms a selected group of resistant cases. Alternatively, the explanation may be that an ineffectual course of treatment may increase the resistance to penicillin.

Repeated estimations of the resistance of the infecting organisms to penicillin were made in this series, but no convincing evidence of changes in sensitivity was found. Sixteen patients received more than one long course (20 days or more) of treatment, and in only two of these was there any evidence of a change in sensitivity; in both there was a threefold increase in resistance to penicillin as measured by the ordinary dilution methods. Clinical evidence bearing on the question of acquired resistance to penicillin is also meagre, and is confined to two small groups. The first group was of 7 patients in whom septicaemia was uncontrolled during treatment; in 2 it was uncontrolled from the start, but in the other 5 the infection had been previously controlled by a similar or smaller daily dose of penicillin, suggesting that resistance to penicillin had increased; in all of these 5 patients the first course, which seemed at the time to be effective, involved a daily dose of only 0.1 to 0.25 mega unit. In the second group there were 5 patients who relapsed after a second long course of penicillin; in all, the dosage of penicillin was greater in the second than in the first course, and yet the interval before relapse was decreased rather than increased.

This evidence is, to say the least, not incompatible with acquired resistance to penicillin. Delay in controlling the infection also exposes the patient to the many dangerous complications of this disease, and it is therefore safer, from the patient's point of view, to assume that inadequate treatment is prejudicial to later success.

Relapses

Short courses of treatment, of 10 days or less, are usually followed by relapse within a few days. Even after long courses most relapses occur within 30 days of cessation of treatment, and relapse after 50 days is extremely rare (Table V). The con-

TABLE V.—Relapses after Treatment

Interval between Treatment and Relapse	Relapse After Treatment Lasting 20 Days or More	Relapse After Treatment Lasting 10 Days or Less
0–10 days	14	17
11–20 "	7	3
21–30 "	6	2
31–40 "	0	1
41–50 "	2	0
51–60 "	0	1
Over 60 "	1 (130 days)	

clusions drawn from Tables I–IV, in which the period of follow-up varied from 107 to 260 days, are therefore not unreasonable. There is still, of course, the chance of reinfection, but this was proved in only one patient of this series; this patient relapsed, and *Streptococcus faecalis* was recovered from the blood 161 days after apparent cure from an infection with *Str. viridans*.

The treatment of relapses presents a special and often difficult problem. Of 16 patients who relapsed after a course of penicillin which lasted longer than 20 days, all but 4 relapsed or died after a second course which was either more prolonged

or of higher dosage than the first. Four patients have received more than two long courses of penicillin, but only one of these has finally responded: she relapsed after 0.5 mega unit for 10 days, again after 0.1 mega unit for 28 days, and again after 0.5 mega unit for 28 days, but has now remained well for 60 days after a fourth course of 0.5 mega unit a day for 42 days. It is this system of dosage—0.5 mega unit a day for 6 or 8 weeks—that we propose usually to adopt in patients who have relapsed.

The Infecting Organism

Of the 147 patients included in this series 146 were infected with streptococci and one with a strain of *Haemophilus influenzae* which was almost completely resistant to penicillin. Of the streptococci 136 are described as *Str. viridans*, 8 as a non-haemolytic streptococcus, 1 as an anaerobic streptococcus, and 1 as a micro-aerophilic streptococcus. The sensitivity to penicillin was measured by the ordinary dilution methods and compared with the standard Oxford staphylococcus. To facilitate tabulation this has been expressed as a coefficient of resistance, and it is clear from Table VI that there is a surprising

TABLE VI.—A Comparison of the Results of Treatment with the Sensitivity of the Organism to Penicillin. (Resistance is expressed as a multiple of the resistance of the standard Oxford staphylococcus.) None of these patients had previously been given a long course of treatment

Dose		Coefficient of Resistance to Penicillin				
		1 or Less	2	3–5	8–10	32–64
0.1 mega unit a day for 28 days	Died	1	2			
	Relapsed	6	1			
	Cured	6			1	
0.25 mega unit a day for 20 days	Died	1		2		
	Relapsed	4				
	Cured	7	1	1		
0.25 mega unit a day for 28 days	Died	6	2	2		
	Relapsed	3	1	1		
	Cured	14	3	2	1	
0.5 mega unit a day for 20 days	Died				1	
	Relapsed		1	1		
	Cured	4	2	1		1
0.5 mega unit a day for 28 days	Died	3	1			2
	Relapsed					
	Cured	8	3	2	1	
Total	Died	11	5	4	1	2
	Relapsed	13	3	2		
	Cured	39	9	6	3	1

lack of correlation between this coefficient and the results of treatment. There were 16 patients infected with comparatively insensitive streptococci having a coefficient of resistance between 3 and 10; 5 of these have died, 9 have been apparently cured, and only 2 have relapsed. These results compare favourably with those in patients infected with more sensitive organisms. There were three patients infected with streptococci more than 32 times as resistant as the Oxford staphylococcus, and this degree of insensitivity may be of therapeutic significance. One of these three was cured after receiving 0.5 mega unit a day for 21 days, but in the other two septicaemia remained uncontrolled while they were receiving 0.5 mega unit a day, and both ultimately died. A fourth patient was infected with an extremely resistant strain of *H. influenzae*, and he relapsed 6 days after receiving 0.5 mega unit a day for 23 days.

These results suggest that the resistance of the organism to penicillin as measured by ordinary titration methods is of no clinical significance within a wide range. Only when the organism was more than 10 times as resistant as the Oxford staphylococcus did this measurement appear to be of therapeutic and prognostic importance. This unexpected result may only reflect some inherent inaccuracy in the methods employed in measuring sensitivity, but this does not affect its clinical importance, since these methods are in general use.

Comments

Of the 147 patients treated in this series, 50 have died and 81 have been apparently cured, but it should not be forgotten that the systems of dosage at first used were inadequate. Of the remaining 16 patients, some are still under treatment and in a few treatment has been discontinued for one reason or another.

This report is concerned only with evidence which has a bearing on the treatment of subacute bacterial endocarditis. It

is expected that a more complete analysis of these and other patients treated within the scope of this investigation will be made at a later date

Summary

The results here reported provide further evidence of the therapeutic value of penicillin in subacute bacterial endocarditis

If the administration of penicillin is continued for 10 days or more almost any system of dosage will occasionally produce excellent results. Relapse is, however, more likely to occur if treatment is not both prolonged and intensive

From the evidence available it is safer to assume that inadequate treatment is prejudicial to later success

In previously untreated patients 0.5 m.m.g. unit a day for 28 days has given better results than any other system of dosage employed

The resistance of the infecting organisms as measured by ordinary titration methods appeared to be of no clinical importance within a wide range. Only when the organism was more than 10 times as resistant as the standard test staphylococcus did this measurement appear to be of therapeutic and prognostic significance

This report is submitted on behalf of a large number of workers who have taken part in this investigation in the fourteen research centres appointed by the Penicillin Clinical Trials Committee.

TREATMENT OF SUBACUTE BACTERIAL ENDOCARDITIS BY PENICILLIN PRELIMINARY REPORT ON 18 CASES

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In February, 1945, we were invited by the Medical Research Council to form one of the centres for investigating the value of penicillin for the treatment of subacute bacterial endocarditis. Since February we have treated 18 cases. All our patients have had penicillin with no heparin, and each case has been given 480,000 units daily by intramuscular injections—60,000 units every three hours, night and day. In the first four months this dosage was continued for 21 days—total, 10 million units—and in every case the blood was rendered sterile almost at once, and the temperature usually settled down within a few days of starting treatment. Two cases relapsed, necessitating a further course of penicillin, so it was decided at the beginning of June to give a course of 28 days instead of 21—total, 13.5 million units—as suggested at a meeting of the Endocarditis Research Committee. Since this plan was adopted we have had no more relapses.

In all our cases streptococci of the *viridans* type had been obtained from the blood, and treatment began only after bacteraemia had been confirmed by positive blood cultures. The only therapeutic measures adopted besides the penicillin were iron or liver preparations for the anaemia and in two cases blood transfusion, vitamin C, and, in one instance, sodium salicylate, antiphlogistine for the relief of localized pain, and mersalyl and digitalis for such cases as showed evidence of congestive failure.

Of these 18 patients four have died, but of these four only one can be considered a failure to respond to penicillin. No. 256 died from cerebral embolism two days after penicillin injections were begun; No. 342 died as a result of a rupture of one of the cusps of the aortic valve; No. 363 died from haemorrhage from enlarged vessels in the oesophagus, which were caused by cirrhosis hepatis; No. 361 failed to show any response to penicillin, and died from pulmonary infarction.

Of the remaining 14 cases two have manifested signs of congestive heart failure. One of these was one of the two cases which relapsed after the 21-days course of penicillin; it has responded well to rest and mersalyl, and now shows no signs of congestive failure. The other case shows early signs of con-

gestive failure, but has refused to come into hospital for further treatment. This patient is still free from infection of the blood. During the course of treatment with penicillin in this case the haemoglobin level fell to 18% as a result of haematemesis.

Thirteen patients have remained free from infection, and have left hospital and are apparently well. One is still in hospital. He has completed his course of penicillin, and shows negative blood cultures but has not yet got a sufficiently stable cardiac mechanism to warrant a claim of uninterrupted convalescence.

No. of Days Treated	No. of Cases	No. Died	No. Relapsed and Re-treated for a further 28 Days	Days Free from Recurrence					
				30-100	100-150	150-200	200-250	250-300	Over 300
21	9	1*	2	3	1	3	1	4	2
28	11†	3							

* This was No. 256, who died on the second day of the course
† Including the two which failed on the 21-days course

Case Summaries

Case 245—Female aged 12. Admitted 23/1/45. After tooth extraction, two weeks previously, had felt unwell, anorexia, fever, sweats, temperature 103°, pulse 120, apical systolic murmur; haemoglobin (Hb) 83%, basal sedimentation rate (B.S.R.) 20 mm/hr. Treated as rheumatic carditis up to 16/2/45, when temperature started swinging again with profuse sweats; two blood cultures positive 23/2/45: Began course of penicillin. Temperature normal, only slight sweats, blood culture negative. 1/3/45: Osler's nodes on fingers, scanty red cells in urine. 11/3/45: Central abdominal pain, temperature 102°, pulse 140; subsided in 3 days; probably small mesenteric embolus. 16/3/45: Penicillin discontinued 5/4/45. Started to get up 30/5/45: Hb 112%; B.S.R. 5 mm/hr. a few red cells in urine. 1/6/45: Discharged to convalescent home. Has been seen on several occasions since then. Remained fit, now back at school.

Case 249—Male aged 29. Admitted 23/2/45. Known congenital heart since age of 2, rheumatic fever at age of 13. Seven months' history of malaise, lassitude, pain in the chest, sweating, swollen ankles, in the same period lost 3 st. (19 kg) in weight. Clubbing of fingers, spleen palpable; to-and-fro murmurs, maximal in third and fourth interspaces 1/2 in. (1.3 cm) from sternum; basal crepitations, blood culture positive on two occasions, moderate red cells in urine, Hb 70%, B.S.R. 40 mm/hr. 25/2/45: Started penicillin 28/2/45. Pain in right side of chest; small pulmonary infarct. Blood culture negative 2/3/45. Temperature normal. 8/3/45: Marked improvement, appetite good, still occasional night sweats. 13/3/45: Penicillin discontinued. 19/3/45: Positive blood culture. One tooth removed under general anaesthesia; covered by 48 hours' penicillin, 60,000 units three-hourly. Culture of roots revealed *Str. viridans*. Remaining teeth removed in four sessions, covered by penicillin 13/6/45: Discharged. Has been seen on many occasions since, the last on 2/11/45. Now back at work as a salesman; 2 st. (12.7 kg) increase in weight; heart unchanged; slight dyspnoea on effort; Hb 106%; B.S.R. 5 mm/hr.

Case 273—Female aged 26. Admitted 16/3/45. Gave a history of rheumatic fever at age of 7. She had suffered from mild cerebral embolism six weeks before admission and had a swinging temperature, with red cells in urine, aphasia, and oedema of ankles. Cafe-au-lait colour, extremely pale. Aortic and mitral lesions; nominal aphasia. Hb 36%; B.S.R. 32 mm/hr; positive blood culture 21/3/45: Started course of penicillin. 26/3/45: No response to iron or liver preparations; 3 pints (1.7 litres) blood transfusion. Occult blood strongly positive. 5/4/45: Haematemesis—30 oz. (0.85 litre), necessitating further transfusion. Hb only 18%. 7/4/45: Small haematemesis. Patient collapsed; pulse irregular, 3 pints concentrated red cells given. Still profuse red cells in urine. 12/4/45: Occult blood still positive. 13/4/45: Discontinued penicillin 17/4/45: Hb 46%; macroscopic haematuria. Heart unchanged; spleen palpable; rales at both bases; profuse red cells in urine. 25/4/45: Frank haematuria; blood cultures remained negative; Hb 52%; B.S.R. 30 mm/hr. 22/6/45: Discharged to convalescent home. Has been seen as an out-patient from time to time, remained well until recently, when some oedema of the ankles developed, for which she has refused treatment. Hb 82%; B.S.R. 8 mm/hr.

Case 289—Female aged 21. Admitted 14/4/45. Two months' history of oedema of ankles and lassitude. Rheumatic fever at age of 8. Night sweats; pain in left lower chest. Very pale; rapid pulse; mitral stenosis; spleen palpable; red cells in urine; Hb 63%. B.S.R. 30 mm/hr.; blood cultures positive. 16/4/45: Started penicillin. 18/4/45: Temperature normal. 9/5/45: Discontinued

penicillin. 11/6/45: Getting up. Hb 94%; scanty red cells in urine; remaining afebrile; blood cultures negative. 18/6/45: Evening temperature 99-100° for several days; blood culture positive on two occasions; tip of spleen palpable. 26/6/45: Further course of penicillin started. 17/7/45: Penicillin discontinued—total 23 million units. 30/7/45: Remained afebrile, with negative blood cultures. 14/8/45: Discharged to convalescent home; Hb 98%; B.S.R. 15 mm./hr. 8/10/45: Readmitted to hospital for treatment of congestive failure. 14/11/45: Good response to treatment. 2/12/45: Discharged. No evidence of heart failure.

Case 293.—Female aged 46. Admitted 14/7/45. Goitre removed at age of 20. Pain in back and legs; occasional sweats. Mitral systolic murmur; petechial spots on hands; café-au-lait colour. Hb 62%; B.S.R. 22 mm./hr.; red cells in urine; positive blood cultures. 19/4/45: Started penicillin. 23/4/45: Temperature normal; appetite improved. 9/5/45: Discontinued penicillin. Still red cells in urine; Osler's node on right hand. 6/7/45: Discharged to convalescent home. 2/11/45: Seen as out-patient; Hb 104%; B.S.R. 3 mm./hr. Doing her own housework with no ill effects.

Case 295.—Male aged 30. Admitted 20/4/45. Rheumatic fever at age of 9. Four weeks' history of pain in left ankle; 10 days acutely ill—fever, rigors, low delirium, confused, irrational, with slow slurred speech. Apical systolic murmur; Hb 90%; B.S.R. 25 mm./hr.; red cells in urine; positive blood culture. 21/4/45: Cerebral embolus resulting in right hemiplegia and aphasia. 22/4/45: Started penicillin. 27/4/45: Some improvement in facial palsy. 13/5/45: Discontinued penicillin. 25/5/45: Speech improved; some movement possible in limbs; blood cultures negative. 4/6/45: Evening temperature raised; two positive blood cultures. 6/6/45: Evening temperature of 101°; further positive blood culture; second course of penicillin. 11/6/45: Four doubtful teeth removed under general anaesthesia. 14/6/45: Still raised evening temperature. 4/7/45: Discontinued penicillin—total, 23 million units. Blood cultures negative; massage and exercises to paralysed limbs. 24/7/45: Getting up in a chair. 27/8/45: Discharged to convalescent home. Blood cultures negative; afebrile; Hb 93%; B.S.R. 16 mm./hr.; walking with a stick. 2/12/45: Seen as an out-patient; gained 2 st. (12.7 kg.) in weight; heart unchanged; no evidence of failure; Hb 108%; B.S.R. 3 mm./hr.

Case 300.—Female aged 40. Admitted 26/4/45. Rheumatic fever at age of 20. Three months' history of loss of appetite, loss of weight, palpitations, tender spots on fingers. Petechial spots and splinter haemorrhages; aortic and mitral lesions; spleen palpable; red cells in urine; Hb 73%; B.S.R. 35 mm./hr.; several positive blood cultures. 28/4/45: Started penicillin. 11/5/45: Slight evening pyrexia; blood culture negative; splinter haemorrhage; red cells in urine. 19/5/45: Discontinued penicillin. 28/5/45: Pain in right shoulder and right arm. 11/6/45: Raised tender red swelling in palm of left hand; blood culture negative; red cells in the urine. 11/7/45: Dental extraction, covered by three days' penicillin. 23/7/45: Discharged to convalescent home. Seen as out-patient on several occasions—last time 2/11/45. Doing housework, weekly washing, etc. Gain in weight. Heart unchanged; no failure. Hb 74%; B.S.R. 4 mm./hr.

Case 302.—Female aged 27. Admitted 26/4/45. Rheumatic story at age of 10 and 23. Pain in left upper chest, lassitude, wasting, loss of weight; café-au-lait colour; splinter haemorrhage; temperature 102°; aortic regurgitation; Hb 54%; B.S.R. 3 mm./hr.; red cells in urine; positive blood culture. Raised tender swelling in palm of right hand. 1/5/45: Started penicillin. 5/5/45: Two further splinter haemorrhages; afebrile; blood culture negative. 14/5/45: Occasional evening pyrexia; Osler's nodes on fingers; red cells in urine. 22/5/45: Discontinued penicillin. 6/6/45: Remained afebrile; blood cultures negative; red cells in urine. 11/6/45: Osler's nodes. 21/6/45: Splenic infarct. 22/6/45: Painful swelling on dorsum of foot; red cells in urine; blood culture negative. 23/7/45: Discharged to convalescent home. Has been seen from time to time. 30/10/45: Heart unchanged; no failure; Hb 90%; B.S.R. 3 mm./hr. Found to be pregnant since discharge; termination advised and carried out.

Case 340.—Female aged 29. Admitted 25/6/45. Rheumatic fever at age of 13. Pain in chest, loss of appetite, breathlessness, palpitations, rigors; drowsy; café-au-lait tinge; petechial spots over the right forearm and splinter haemorrhages beneath the nails. Aortic and mitral lesions; spleen palpable; red cells in urine; Hb 73%; B.S.R. 31 mm./hr.; blood culture positive. 27/6/45: Started penicillin. 28/6/45: Dramatic improvement. 5/7/45: Spleen not palpable; blood cultures negative. 25/7/45: Discontinued penicillin. 7/8/45: Blood culture negative; no embolism; few red cells in urine. 30/8/45: Discharged home; no red cells in urine; Hb 98%; B.S.R. 23 mm./hr. Seen as an out-patient 2/11/45; doing light housework; no evidence of heart failure; heart unchanged; Hb 104%; B.S.R. 3 mm./hr.

Case 341.—Female aged 42. Admitted 10/7/45. Pain in left loin, general aches and pains, rigors, profuse sweats, oedema of ankles. Five teeth removed 6 weeks before admission. Sallow

complexion; splinter haemorrhages; petechial spots on both forearms; apical systolic murmur; spleen palpable; red cells in urine; Hb 70%; B.S.R. 33 mm./hr.; blood culture positive. Started penicillin 12/7/45: General condition improved, no further rigors. 14/7/45: Further crop of petechial haemorrhages; spleen not palpable; profuse red cells in urine. 22/7/45: Severe pain over frontal and maxillary sinuses; relieved 3 days later when several large clots were discharged. 7/8/45: Penicillin discontinued; blood culture negative. 31/8/45: Dental extraction under penicillin cover, several of the teeth growing *Sir. viridans*. 2/10/45: Discharged to convalescent home. Has been seen on several occasions since. Leading a comparatively normal life. Hb 97%; occasional red cells in urine; heart unchanged; no evidence of failure; B.S.R. 5 mm./hr.

Case 360.—Male aged 36. Admitted 27/8/45. Lassitude for 3 weeks; persistent pyrexia. No rheumatic history. 19 teeth removed 7 weeks previously. Swelling of ankles; night sweats. Systolic murmur inside apex; screening confirmed *maladie de Roger*; spleen palpable; Hb 78%; B.S.R. 17 mm./hr.; scanty red cells in urine; positive blood culture. 30/8/45: Started penicillin; rapid response. 26/9/45: Discontinued penicillin. 28/9/45: Heart unchanged; spleen not palpable; blood culture negative; Hb 84%; B.S.R. 7 mm./hr.; few red cells in the urine. 3/11/45: Discharged to convalescent home. 7/12/45: Seen as an out-patient. Gain in weight; no failure; heart unchanged.

Case 364.—Female aged 22. Admitted 10/10/45. No rheumatic history; one month of malaise and fleeting joint pains. Enlarged spleen; mitral stenosis; swelling of ankles; a few petechial spots; positive blood cultures; a few red cells in urine; temperature 101°; Hb 83%; B.S.R. 26 mm./hr. 13/10/45: Started penicillin; general condition much improved. 20/10/45: Osler's node palpable in index finger; splinter haemorrhages under nails of right hand. 10/11/45: Discontinued penicillin. No further evidence of embolism; spleen not palpable. 23/11/45: Blood culture negative; still red cells in the urine; no change in the heart; no failure. 27/11/45: Getting up. 14/12/45: Dental extraction under cover of penicillin. 20/12/45: Discharged. Hb 99%; B.S.R. 14 mm./hr.; no red cells in the urine.

Case 365.—Male aged 29. Admitted 10/10/45. Pain in left groin, swelling of ankles, rheumatic pains in joints. No definite rheumatic history. Febrile; a few petechial spots; mitral stenosis; Hb 76%; B.S.R. 33 mm./hr.; blood cultures positive; red cells in urine. 12/10/45: Started penicillin. 18/10/45: Has remained afebrile since start of penicillin; appetite improved; blood culture negative. 26/10/45: Faint diastolic murmur at aortic area; blood culture negative. 9/11/45: Discontinued penicillin. 22/11/45: Getting up with no ill effects; no failure; heart unchanged. Massage and exercises before discharge. 14/12/45: Dental extraction under penicillin cover. Blood culture negative; Hb 90%; B.S.R. 14 mm./hr. 20/12/45: Discharged.

Case 366.—Male aged 51. Admitted 5/10/45. Had been unwell since influenza in August; fever, lassitude, anorexia. No rheumatic history. Sallow complexion; splinter haemorrhages; aortic and mitral lesions; positive blood cultures; Hb 73%; B.S.R. 22 mm./hr.; red cells in urine. 8/10/45: Started penicillin. 15/10/45: Temperature normal; "has not felt as well for five years"; blood culture negative. 27/10/45: Dull ache in centre of sternum on inspiration. Spreads to left breast—pulmonary infarct. Later very restless, sweating, dyspnoeic; marked engorgement in neck veins; apex beat further out to left; systolic apical murmur had assumed a harsher quality; oedema of lung bases; liver tender; rapid auricular fibrillation; immediate intravenous digitalization. 28/10/45: Pulse regular at 130/min., definite improvement in general condition; failure subsided. 29/10/45: Pulse normal, though rapid rhythm. 5/11/45: Penicillin discontinued. 13/11/45: Pulse regular, 90/min.; heart smaller; no evidence of failure. 27/11/45: Afebrile; blood cultures remained negative. Hb 75%; B.S.R. 20 mm./hr. 31/12/45: Massage and exercises before discharge.

Case 256.—Female aged 56. Admitted 1/3/45, after having had 2 million units of penicillin in two courses, which did not appear to influence the endocarditis. Six months' history of oedema, dyspnoea, lassitude. Aortic and mitral lesions; pain in left ankle; positive blood culture; red cells in urine; Hb 63%. 3/3/45: Started penicillin. 5/3/45: Fatal cerebral embolism. *Necropsy*: Vegetations in left auricle, mitral and aortic valves; infarcts of kidney and spleen.

Case 342.—Male aged 34. Admitted 16/7/45. Pain in left chest; spots on legs; lassitude, increasing dyspnoea; night sweats; oedema of ankles. Clubbing; pale; spleen palpable; petechial rash on legs; Hb 48%; B.S.R. 30 mm./hr.; red cells in urine; positive blood culture; left pleural effusion. 26/7/45: Started penicillin. 1/8/45: Extreme cardiac asthma with further enlargement of the heart; marked aortic regurgitation; rales in both lungs; increasing pulmonary congestion. 13/8/45: Oedema of lungs less; heart still grossly enlarged; frequent extrasystoles; blood culture negative; red cells in urine; spleen not palpable; Hb 60%; B.S.R. 30 mm./hr. 23/8/45: Discontinued penicillin. 29/8/45: Increasing severity and duration of cardiac asthma. 2/9/45: Further increase in oedema

of lungs in spite of all diuretic measures. 6/9/45: Patient became orthopnoeic and died suddenly. *Necropsy*: Large ulceration through the aortic cusps.

Case 361.—Female aged 21. Admitted 11/8/45. No rheumatic history. Oedema of ankles; lassitude; upper abdominal pain; fever; increasing dyspnoea; pericardiac on abdominal walls. Yellowish skin; aortic and mitral lesions; spleen not palpable; red cells in urine; positive blood culture; Hb 66%; B.S.R. 20 mm./hr. 16/8/45: Started penicillin. 20/8/45: Penicillin does not appear to have affected the temperature at all. Central abdominal pain; tenderness over McBurney's point. Course of sulphacetamide for urinary infection, which cleared up. 8/9/45: Boost doses of penicillin 100,000 units did not influence the high temperature. 12/9/45: Discontinued penicillin. 17/9/45: Remaining febrile; red cells in urine. 27/9/45: Finished course of sulphamezathine for bronchopneumonia. Still some consolidation in the left base; blood cultures positive. 1/10/45: Aspirin 10 gr. (0.65 g.) four-hourly—no effect on temperature. 6/10/45: Pain in left chest and area of consolidation. Died next day. *Necropsy*: Large friable vegetations on mitral and aortic cusps; recent infarct left lower lobe.

Case 363.—Male aged 29. Admitted 3/10/45. Two months' history of loss of appetite, increasing dyspnoea, occasional palpitations, tenderness of fingers. Admitted to military hospital 5 weeks ago after three-pint (1.7 litres) haematemesis. Very pale; splinter haemorrhages; Osler's nodes; spleen palpable; red cells in urine; positive blood cultures; mitral stenosis; Hb 65%; B.S.R. 21 mm./hr.; occult blood positive. 4/10/45: Started penicillin. 7/10/45: Temperature normal; general condition much improved. 8/10/45: Febrile; blood culture negative. 9/10/45: Rigor. 15/10/45: Spleen further enlarged; another crop of tender spots on pulps of fingers. 18/10/45: Haematemesis 30 oz. (0.85 litre) bright red blood; replaced by 2 pints (1.14 litres) packed red cells by drip transfusion. 20/10/45: No signs of failure; abdomen less distended; spleen still palpable, not tender. 24/10/45: Haematemesis of 30 oz. bright red blood. "Pulse 110/min.; not sweating or shocked." This was followed by further haematemesis of 20 oz. (568 ml.) bright red blood, later 15 oz. (426 ml.) and 10 oz. (284 ml.). Became shocked, pale, sweating; pulse 160/min., hardly perceptible. Immediate intravenous drip, packed red cells; improved until pulse came down to 90/min. Two hours later further haematemesis of 32 oz. (0.9 litre). In the next 24 hours vomited another 30 oz. of darker blood. Drip discontinued after 10 pints (5.7 litres). 26/10/45: Marked improvement; no evidence of failure; Hb 75%. 28/10/45: Again became shocked; pain and massive distension in upper abdomen; further drip. 29/10/45: Patient died, not having recovered from final haemorrhage. *Necropsy*: Early coarse cirrhosis of the liver; large patent varicose veins in the oesophagus; 2 pints (1.4 litres) of free blood in the stomach, with a clot representing about 3 pints (1.7 litres) more. Small vegetations on mitral valve, not much larger than rheumatic vegetations.

Bacteriology

Blood Cultures.—As has already been mentioned, streptococci of the *viridans* type were isolated from all cases before treatment was started. Qualitative and quantitative methods were used—that is to say, at least 5 ml. of citrated blood was inoculated into 50 ml. of meat extract peptone broth, and a further 2 ml. was used to make two poured-plate cultures. The latter method proved more useful in that, besides providing an estimate of the numbers of bacteria in the blood stream, it gave positive results on several occasions when the fluid culture showed no growth. In each of the cases described here a positive result was obtained with the first blood culture taken after admission, though on one occasion (Case 273) only the fluid culture gave growth. In two subsequent cultures from this case only one colony per ml. was found, so that the failure of the first plate cultures was presumably due to the small number of organisms in the blood. This case illustrates the small variation in the degree of bacteraemia which we found to be the rule in the six cases in which repeated blood cultures were taken before treatment. There were, however, considerable variations in the number of colonies per ml. from patient to patient. Of 30 plate cultures taken before treatment two were negative, eight had 1 to 6 colonies, five 10 to 20 colonies, nine 28 to 60 colonies, five 100 to 250 colonies, and one (Case 256) had 2,000 colonies per ml. A high bacteraemia seemed to have some prognostic significance in that the patients who subsequently died had colony counts of 50, 60, 100, and 2,000 per ml.

Starting from the second to the sixth day, three to six blood cultures were taken during the course of treatment, and all were negative except in three cases, two of which were the only cases that subsequently relapsed. It would thus appear that a positive

blood culture during the course of penicillin treatment may be an indication that relapse is likely to occur. In Case 249 a positive blood culture was obtained on the day after stopping penicillin treatment, but this was regarded as due to a transient invasion probably from infected teeth, because there were no clinical symptoms of active infection, and since then blood cultures have been consistently negative.

Characters of the Isolated Streptococci.—The streptococcal strains isolated from these cases before treatment all displayed alpha-haemolysis typical of the *Str. viridans* group, with the exception of one strain (Case 342) in which haemolysis was slight and more of the beta type. Of these strains 14, excluding that from Case 342, have been maintained for further study, and preliminary work shows that they can be divided into two main fermentation groups. The first group, comprising six strains, ferment lactose, and in their range of fermentation reactions correspond well with *Str. salivarius*, described by Andrewes and Horder (1906) as the most common type of *Str. viridans* in the mouth and nasopharynx, and of frequent occurrence in subacute bacterial endocarditis. The second group, comprising eight strains, do not ferment lactose and are less readily identified with known strains. Okell and Elliott (1935), however, have found streptococci of the *viridans* type that do not ferment lactose in 11 of 36 strains isolated from cases of subacute bacterial endocarditis and in 11 of 26 isolations in blood cultures from cases of dental sepsis. It would therefore appear likely that our strains of the second group can also be mainly associated with *viridans* strains commonly found in the region of the mouth.

Penicillin Sensitivity.—The streptococci from these cases were tested for penicillin sensitivity by the method described by Selbie, Simon, and McIntosh (1945). In general, and like other strains of *Str. viridans* that we have tested, they were rather more resistant to penicillin than most strains of *Str. pyogenes*. Twelve strains were in the range of being not less than half and not more than twice as sensitive as the Oxford staphylococcus, while four strains were 4 times less sensitive and the strains from Cases 363 and 273 were 4 and 8 times more sensitive than the Oxford staphylococcus. There was no apparent correlation between penicillin sensitivity and the fermentation reactions of the organisms or the results of treatment. In the two cases which relapsed there was no difference in sensitivity between the organisms isolated before and after treatment.

Penicillin Blood Levels.—The dosage of penicillin during treatment was controlled by the estimation of penicillin in the blood serum by the method previously described (Selbie, Simon, and McIntosh, 1945). In general, after the intramuscular injection of 60,000 units of penicillin the blood serum inhibited the growth of the Oxford staphylococcus in a dilution of 1/32 to 1/128 at one-quarter to half an hour, and 1/1 to 1/8 at 3 hours. In Case 363, however, penicillin levels were rather low, and in Case 273 the bacteriostatic dilutions remained high, and were 1/32 and 1/64 even at the end of the three-hour period.

Discussion

All cases in this series were clinically shown to have the usual criteria of bacterial endocarditis: fever, heart lesion, and embolic phenomena in at least two different systems. In view of the fact that a transient bacteraemia can occur in patients with heart lesions who have no bacterial endocarditis, the above signs were demonstrated in addition to positive blood cultures (*Str. viridans*) before a case was treated. In spite of a severe and protracted debilitating illness coupled with the discomfort of up to a month's three-hourly intramuscular injections, all the patients remained extremely cheerful and of bright mentality: the "spes endocarditica" of Horder (1920).

The commonest superficial evidence of embolism was found in the form of splinter haemorrhages beneath the nails, occurring in 15 cases, in contrast to Osler's nodes, which were found in 9 patients. These embolic phenomena occurred most frequently in the first week of treatment, but also in several cases up to one month after treatment. In three cases lesions were noted in the palms of the hands; presumably embolic in nature, they presented suddenly as a tender raised nodule the size of a pea, and made all movements of the fingers painful. In two days the pain was less noticeable, but the fingers of

the affected hand showed some degree of flexion deformity, with complete inability to extend them actively. This was soon overcome with massage and passive movements, as probably due to involvement of palmar fascia.

Palpable splenic enlargement was present at some stage of the illness in 13 cases. In 7 patients the spleen rapidly diminished in size, not being palpable after 10 days' treatment. The degree of enlargement and the time it remained palpable were approximately proportional to the duration of the disease. Although 3 of our patients have shown transient visual disturbances such as blurring of vision, none have had white spots in the retina—so-called Roth spots. There was no optic neuritis or papilloedema. Clubbing of the fingers was present in 15 patients, in three of whom it appeared to be less marked after their discharge from hospital than on admission.

On admission all patients had an anaemia of microcytic hypochromic type which varied between 36% and 82% haemoglobin, mostly between 55% and 70%. In only 6 patients was the leucocyte count above 10,000 cells per c.mm., and one case showed the frequently described increase in large mononuclears, here 1,500 in a total white count of 8,800. An increase in the haemoglobin percentage occurred along with other signs of improvement—e.g., increase in weight, diminished evidence of embolism, fall in sedimentation rate. The B.S.R., estimated by Wintrobe's method corrected for packed-cell volume, was invariably raised at the outset, and showed a slow but steady fall, remaining abnormally high during the stay in hospital, and returning to within normal limits only some three months after treatment.

Microscopical haematuria was found in all cases, macroscopic in two, one of which showed clinical signs of a renal infarct of some magnitude. Ten patients continued to have a small number of red blood cells in the urine—one case five months after the end of treatment. This persistence of blood cells does not appear to be associated with any impairment of renal function at the present state of follow-up. In Bell's (1932) series over 50% of kidneys in endocarditis showed embolic focal nephritis; a smaller percentage had a diffuse acute or chronic glomerulonephritis. Since there may be a considerable time-lag between the onset of these lesions and the time when signs of renal impairment manifest themselves it is probable that, in the future, cases cured of endocarditis will show impairment of renal function.

A typical café-au-lait colour was noted in only 5 patients, probably because the majority started treatment within the first few months of onset. Three patients suffered cerebral damage from embolism—two of these within the first three days of treatment, one before treatment was started. It is worthy of note that the two relapses occurred early—i.e., within six weeks of terminating treatment.

Dental extraction can almost certainly be cited as the determining factor in initiating the infection in 3 patients who first noticed symptoms immediately after this procedure. A further 9 patients showed signs of dental infection. That oral sepsis may be a determining factor in initiating subacute bacterial endocarditis has been amply demonstrated by Okell and Elliott (1935), who found a transient bacteraemia after teeth extraction in 30 out of 40 cases with marked gum disease, and also obtained positive blood cultures in 12 of 100 cases of oral sepsis without the added trauma of extraction. There can therefore be no doubt that the most stringent oral hygiene is essential in persons with congenital or rheumatic heart affections. In our cases a rigorous search was made for septic foci, and these were eradicated in order to prevent reinfection.

In this series the disease has been completely arrested for periods of two to ten months, as judged by a gain in weight, normal temperature, disappearance of anaemia, absence of leucocytosis, diminution in the number of red cells in the urine, and fall in the sedimentation rate. Three of the four deaths resulted from causes not amenable to chemotherapy—i.e., ruptured aortic valve, cerebral embolism, and cirrhosis of liver.

Until penicillin was used in the treatment of subacute bacterial endocarditis this dread disease carried a mortality of close upon 100%. We now feel definitely more hopeful, or even confident that means of curing this condition are within measurable reach.

Summary

Eighteen cases of proved subacute bacterial endocarditis treated with penicillin are described. There is reasonable hope of permanent cure in 11 instances. There were four deaths, but only one can be called a failure to respond to penicillin. In three cases it is as yet too early to claim permanent recovery.

We should like to thank the Medical Research Council for providing penicillin for this investigation, and Mr. J. W. Schofield, the dental surgeon, for his advice and treatment of the teeth in the case mentioned above; also Prof. J. McIntosh for his help and advice.

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SYMPATHECTOMY IN PERIPHERAL ARTERIOSCLEROSIS

BY

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The ischaemia to which the ill effects of arteriosclerosis are due is caused partly by the thickening and narrowing of the vessel and partly by thrombi deposited on the altered intima. The damage may be made worse, sometimes acutely so, by the impaction of emboli from above, and there is also evidence that spasm of the diseased vessels may play some part in aggravating the trouble.

If the mischief were evenly and progressively spread throughout the arterial tree the sequence of mishaps would be coldness, claudication, rubor, rest-pain, persistent deepening cyanosis, and eventually onychia, ulceration, or gangrene. Such a sequence is in fact, seen in a number of cases, but the complexity of branches, the proneness to disease of certain areas, and the wide differences in the ease with which collateral circulation can be established lead to much divergence in both the order and the severity of symptoms. For instance, an obstruction in the more proximal stretches of the supply may cause only a moderate claudication going on for years without further trouble, whereas an obstruction in the popliteal area not only may cause severe claudication but may gravely imperil the life of the leg. Again it is not uncommon to find severe digital thrombosis with palpable posterior tibial pulse and no claudication. These latter cases may be due to the silting up of the vessels by repeated minute emboli and are apt to go to the bad rapidly with few or no premonitory signs. Such wide variations not only make prognosis difficult but render it far from easy to estimate the value of any given line of treatment.

In view of the poor results of medical treatment, with its expectant attitude, we have attempted over a number of years and on many different types of cases to find out what results might be obtained by the practice of sympathectomy on these patients. Division of vasoconstrictor fibres might be expected to lead to an improved supply partly by dilatation of the vessels and partly by improving collateral channels, provided always that the vessels were not too far damaged to permit of a response. Further, if it be true that spasm is a factor, any spastic contribution would be lessened or entirely eliminated.

For the purpose of this paper the word "sympathectomy" means either a cord-ganglionectomy of the lumbar chain, one and a half to two inches (4-5 cm.) in length, centred opposite the third lumbar vertebra, or, for the upper limb, a section of the thoracic chain below the third rib with wide dislodgement of the cut ends.

Scope of the Inquiry

The period over which the work extends is 15 years and the number of patients operated upon is 98. There were only seven women in the series. The consequences of arteriosclerosis are no doubt much less common in women than in men, but the

proportion of 91 males to 7 females is due to the fact that the man more often seeks advice than does the woman because of the interference with wage-earning. The average age of the patients who came on account of intermittent claudication was 50 years, while of those suffering from gangrene the average was 56. The complications of arteriosclerosis are to be found at ages much younger than is generally supposed. Our youngest patient was a man aged 32 who came to amputation owing to gangrene of the foot due to thrombosis of an ulcerated, calcified popliteal artery. The immediate post-operative mortality was small in view of the bad surgical risks of this type of patient. There were four deaths—one from alcoholic delirium, one from a profuse haematemesis due to a duodenal ulcer, and two from pulmonary embolism.

The follow-up has been very thorough; only three of the cases are untraced. Twelve of the patients are known to have died and, as might be expected, the cause of death in ten of these has been certified as either "angina" or "coronary thrombosis." No case of diabetes is included in the list.

Of the 91 cases left for analysis, 88 were in the lower extremity and 3 in the arm. The sympathectomy was bilateral in 46 cases and unilateral in 45, thus providing for review the not inconsiderable number of 137 limbs. The 88 cases in the lower limbs may be further subdivided into 47 in which the operation was done for intermittent claudication and 41 in which the reason for operation was incipient or frank gangrene.

Results in Intermittent Claudication

The post-operative history of these 47 cases is on the whole disappointing. They were all severe examples with claudication of the order of 25 to 50 yards (23–46 m.), and although not one has failed to show some improvement the majority have gained no more than 50 to 100 yards (45–90 m.). Nearly all say that the period of rest before they can go on again has been shortened and that the pain is not quite so acute. While this kind of result would hardly justify a major operation, it is gratifying to find that not one of these patients who have been followed for from 5 to 15 years has developed rest-pain or gangrene.

Though the average result has not been encouraging we find that six of these 47 cases were so far relieved as to become almost normal. One man returned to a heavy insurance round and walked many miles each day until he died suddenly from a coronary thrombosis. Another returned to his work and could walk any reasonable distance, but not uphill. This man was found at operation to have a complete obstruction of the aortic bifurcation. In the other successful cases the thrombosis was highly placed. These results are in agreement with an old observation that sympathectomy has given its best results in high obstructions. It may be possible by further study and experience to select with greater certainty the type of case that is likely to do well after operation.

Should operation be decided upon it should in all cases be bilateral, although complaint is usually made of one leg only; this is because the worse leg pulls the patient up before claudication can develop in its fellow. If these patients are tested by a claudicometer the second leg will usually be found to be little better than the one of which complaint is made.

Results in Cases with Gangrene

Since in arteriosclerosis there can be no question of a cure, the results in this group have been classified as "good" and "failed." By good is meant the abolition of rest-pain, the change from chronic invalidism to a life of reasonable activity, and the separation and healing of minor gangrenes. Judged on these lines the results in 21 cases were good, while in the remaining 20 the operation did not succeed and some form of amputation had to be done. We would point out, however, that in a sympathectomized limb it is often possible to perform a much less radical amputation than the customary one through the lower third of the thigh. A more detailed examination brings out the fact that without exception all the cases which gave good results were the earlier ones with rest-pain, persistent cyanosis, onychia, or minor gangrene of one or two toes.

A successful result depends upon the patency of a sufficient number of digital vessels. If the extent and degree of digital thrombosis are severe a good result is unlikely, and in doubtful

cases preliminary spinal analgesia or a paravertebral sympathetic chain block should be done to estimate how far the circulation can be restored. The cutting out of the constant wearing rest-pain after operation is often dramatic, but is seen only in those cases in which the operation has caused a definite improvement in the circulation. All the 20 cases which failed to show any improvement were instances of frank gangrene of two or more toes, or of the heel or dorsum of the foot.

It seems clear from these results that there is one stage in the downward progress of these patients at which sympathectomy may be usefully done. The time for it is the stage of rest-pain with deep rubor blanching rapidly on elevation or with persistent cyanosis. No more than trivial and superficial black patches should be present, but onychia can usually be got to heal.

If gangrene is more than trivial in extent, and especially if it be complicated by infection, the operation should not be done. In fact, two of the patients in our series showed a distinct and disquieting extension of the trouble after sympathectomy.

The Upper Extremity

The patients treated by sympathectomy for the complications of arteriosclerosis in the upper limb are too few to warrant any conclusions. They were, one case of thrombosis of the brachial artery and two cases of severe and crippling Raynaud's syndrome such as is sometimes seen in the hands of older and, more often, women patients. All three gave very good results. This is what one would expect from the better blood supply and more free anastomosis of the upper limb; it has no area comparable to the popliteal for danger.

Summary and Conclusions

Sympathectomy is not likely to lead to any worth-while improvement in the majority of patients suffering from intermittent claudication. There are, however, occasional excellent results. These appear to be found in patients with more proximal thrombosis, and it may be that further observation and experience will make for greater confidence in the selection of cases for operation.

Sympathectomy has no place in the treatment of extensive gangrene, but has been found to be of much value in the earlier pre-gangrenous states—e.g. rest-pain, persistent cyanosis, and small local lesions.

PRIMARY LUNG CANCER IN CHILDHOOD

REPORT OF AN UNUSUAL CASE

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The trend of opinion is that primary malignant disease of the lung is increasing; whether the increase is apparent or real is a question on which there has been no little controversy. The great majority of patients suffering from this disease are between the ages of 40 and 60. Thus Davidson (1930) recorded 107 cases of primary lung cancer with only two patients under 21 years, while Duguid (1927) described 173 cases with five under 21 years. Fried (1931) described 47 cases with only one patient between 20 and 29 years. References to primary lung cancer in childhood are still rare, and they are often unsatisfactory in that the origin of the primary growth is not always established. The diagnosis in childhood is often difficult; the following recorded cases each present some interesting but unusual feature. Wasch *et al.* (1940) described a case of bronchogenic carcinoma of seven years' duration in a boy aged 11. Sommer (1934) suggested the possibility of carcinomatous degeneration in a congenital cyst in a child 7 years old. Jones *et al.* (1943) described asthma as a presenting symptom in a boy of 10 years having a papillary growth extending into the lumen of the right main bronchus. Beardsley (1933) described an adenocarcinoma in a child of 23 months in whom secondary deposits had been evident 13 months previously. Hauser (1942)

recorded the case of a child of 17 months who had been ill for five months before the exact nature of the condition was realized.

The case to be described, in which the primary growth was not evident until eight months after a secondary deposit had become manifest, illustrates clearly the difficulties in the diagnosis of primary lung cancer in childhood, and would appear to be worth recording.

Case Record

The patient, a girl aged 9, was first seen at the out-patient department on March 9, 1944, complaining of pain in her left thigh of two weeks' duration, worse when walking and varying in amount each day. There had been no systemic upset or other sign of infection, but her doctor suggested the diagnosis of osteomyelitis and had started treatment with sulphadiazine. On examination there was tenderness over the upper end of the left femur, but no swelling of the thigh and no limitation of movement at the hip or knee-joint. X-ray examination showed no lesion of either femur; the leucocyte count was 10,650. There did not seem to be enough evidence to support the diagnosis of osteomyelitis, and she was allowed home, to be under observation.

On April 11 she was admitted to the Infirmary for further investigation; the pain in her left leg persisted, and was even troublesome when she lay in bed. Her general condition was satisfactory and she was afebrile; the leucocyte count was 8,250. A skiagram of the left leg now revealed a circumscribed area of atrophy just below the epiphysal line of the greater trochanter; nine days later this atrophy was more pronounced, but at the end of two weeks no further change had occurred. The condition was regarded as an inflammatory process affecting the upper end of the femur, and the possibility of a tuberculous focus was kept in view. No member of the family had suffered from tuberculosis. Her symptoms improved somewhat, and she was allowed home on May 16, with the instruction to rest in bed.

The patient was readmitted six weeks later (June 26) complaining of fairly severe and continued pain in the left leg. Her general condition had deteriorated somewhat and locally there was swelling of the left thigh. X-ray examination revealed further destruction of the upper end of the femur extending towards the shaft; there was no periosteal reaction and the cortex of the bone remained unchanged. The radiological appearances suggested an acute medullary infection, yet this was not consistent with the relatively slight clinical upset. Haematological and biochemical investigations on June 30 showed: Hb, 80%; R.B.C., 4.34 millions; C.I., 0.92; W.B.C., 5,510 (neutrophils 57%, eosinophils 5.5%, lymphocytes 30.5%, monocytes 7%). Further differential counts on July 14 and 19 revealed an almost identical distribution of the blood cells. The urine contained no Bence-Jones protein. Serum: albumin 5.8 g. %, globulin 2.2 g. %, and calcium 10 mg. per 100 ml.

A reasonable diagnosis appeared to be that of subacute osteomyelitis of the femur, and operation was considered advisable. At operation on July 5 several drill-holes were made into the bone and necrotic material was removed. Histological examination of this material revealed the presence of spicules and trabeculae of bony tissue separated by loose vascular connective tissue with masses of very cellular necrotic tissue, the cells of which could not be identified with certainty, but the lesion appeared to be neoplastic. There was no evidence of myeloma; and Ewing's tumour, another possibility, did not seem likely owing to the situation away from the mid-shaft and the absence of the typical radiological appearances of this tumour. A skiagram of the chest at this time (July 12) showed: "Enlarged partially calcified hilar and peribronchial glands, with peribronchial thickening in upper lung fields."

From July 14 to Aug. 25 the patient received deep x-ray therapy to the left femur; kilovoltage, 200; dose in r units, 2,000. By July 27 the disease process seemed arrested and showed commencing sclerosis with a periosteal reaction on x-ray examination. By Sept. 19 the process appeared to have "healed" and there was much sclerosis in the affected area; there was also slight atrophy of the head of the femur and a tendency to coxa vara. The child had no pain and was able to walk freely. We felt gratified at the response to x-ray therapy and the patient was dismissed on Sept. 23; the diagnosis was still uncertain and the prognosis doubtful.

On Nov. 10, eight months after she was first seen, the patient was readmitted complaining of cough, headache, and vomiting. She was emaciated and very breathless; there was found to be marked dullness of the right side of the chest, the clinical findings suggesting a right-sided pleural effusion. Aspiration of the chest revealed only a small quantity of blood-stained fluid which contained a few lymphocytes and some endothelial cells; there was no evidence of neoplastic cells. Further aspiration was attempted, but very little fluid was obtained, and the appearances were those of a needle entering solid lung or tumour tissue. The diagnosis was that of a malignant condition of the right lung, probably secondary to the obscure condition of the femur. X-ray therapy to the chest was

carried out from Dec. 12 to 22, by which time the general condition did not permit of further treatment. The patient died on Jan. 4, 1945.

Necropsy Findings.—The body was that of a very thin emaciated girl. The mediastinum was enlarged and was displaced to the left. The right lung was almost entirely replaced by a large mass of necrotic malignant tissue arising from the upper main bronchus. The tumour had invaded the chest wall and the mediastinum. The left lung and the heart, apart from displacement, presented a fairly normal appearance. The abdominal viscera were all free from the neoplastic process. The upper end of the left femur was replaced by yellowish necrotic tissue, which on the lateral surface extended to the periosteum, and the cortex of this part of the bone was considerably thinned. Histological examination of the lung revealed the presence of a primary bronchial carcinoma of the anaplastic type which had involved the whole of the right lung. The lesion in the femur was of similar histological structure.

Discussion

This case of primary lung cancer in childhood, in which the correct diagnosis was not established until necropsy, presents several interesting features. Histological examination of the necrotic material from the bone first suggested the possibility of a neoplastic process; the local response to x-ray therapy was satisfactory, and substantiated this diagnosis. When the patient returned to hospital presenting pulmonary symptoms the first impression was that she had secondary deposits in her right lung causing a massive effusion. (It should be noted that a skiagram of the chest four months previously had revealed no evidence of a bronchial neoplasm.) The radiological appearances of the chest were now consistent with those of a massive pleural effusion, and it was not until a second aspiration was attempted that the nature of the lesion was recognized. Hauser (1942) had previously observed that a sufficiently large tumour causing displacement of the mediastinum may resemble an effusion. Having established the presence of a large lung tumour, it still seemed likely that the pulmonary lesion was secondary to that in the bone. As was stated by Florman (1943) metastatic tumours in the lung in childhood are less rare than primary tumours, since many neoplasms occurring in early life invade the blood stream and become seeded in the lungs. The primary lesion, which had remained unrecognized for eight months, was, however, found to be a bronchial carcinoma, and the lesion of the right femur was secondary. Allen and Smith (1932) have pointed out that metastatic tumours may give rise to symptoms before the original site is suspected of disease, but it is most unusual to find a primary bronchial carcinoma giving rise to a single secondary deposit in bone. We doubt if the correct diagnosis could have been established at an earlier stage there was nothing to suggest a pulmonary lesion until one month before death. This case therefore stresses the likelihood of early metastases, but unfortunately offers no clue to the cause of the growth.

Summary

A case of primary lung cancer in a girl aged 9 is described. A single metastasis in the left femur caused symptoms eight months before the pulmonary lesion was recognized. The difficulties in the clinical and radiological diagnosis of the condition are discussed.

We wish to thank Dr. Gollied of the radiological department for his help with this case.

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Reviews of current literature bearing on various aspects of child welfare, by specialists in their own subjects, are a feature of the March issue of *The World's Children* (20, Gordon Square, London, W.C.; 6d.). Dr. H. Mannheim, of the London School of Economics, writes on juvenile delinquency and the law; Mr. F. Le Gros Clark on science and nutrition; and Dr. R. G. Gordon on problems of adolescence. Mr. John Morgan considers the National Insurance Bill from the point of view of its relation to children and family welfare; Dr. Harold A. Moody discusses the problem of illegitimate children of English mothers and American negro troops; and Dr. R. P. Stewart, writing from Greece, deals with the question of nutrition in that country.

SURVIVAL OF CORTICAL BONE AFTER BONE-GRAFTING

BY

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Since the earliest days of bone-grafting there has been doubt whether any of the cells of the graft survive. Until recently this subject was thought to be largely of academic interest because cortical bone had been used as a graft almost exclusively, and it had often been noted that a cortical graft was just as successful in promoting union whether it was transplanted alive or had first been killed and sterilized by boiling.

A change has recently taken place in surgical opinion on this subject, notably as a result of the work of Mowlem (1941), who was able to secure histological specimens of iliac-bone grafts four or five months after their insertion for repair of the bridge of the nose. These sections seemed to show that transplanted cancellous bone transformed itself into cortical bone within the short space of four months after operation, and that the cells in this bone remained alive; while transplanted cortical bone remained cortical in structure, its lacunar cells appeared dead, and it had not yet been replaced by living bone five months after the operation.

It was concluded from these interesting observations that cortical bone was too dense to allow the passage of sufficient tissue fluid to nourish the lacunar cells. A tibial cortical graft might therefore be expected to die and be gradually replaced by creeping substitution from the adjacent bone, while its function in a bone-grafting operation was simply to act as a splint and as a source of readily available calcium. Cancellous bone, on the other hand, was regarded as of so spongy a structure that it could be permeated by tissue fluids and so survive after transplantation.

The truth of these observations has since been abundantly tested, and Higgs (1945) was able to quote comparative figures for bone grafts which indicated that osteogenesis was more rapid in those cases where a graft of cortical bone was combined with the use of cancellous chips than where cortical bone was used alone.

It seems of interest in this connexion to quote three cases of bone tumours which have been excised extraperiosteally and replaced by a tibial cortical bone graft. In each case the graft has apparently survived without showing any evidence of being

replaced by creeping substitution, while in one case a fracture of the graft with subsequent union took place

Illustrative Cases

Case 1.—Female aged 18: a case of rapidly growing enchondroma of the proximal phalanx of the right thumb which had recurred following incision and curettage. Operation (Feb. 1, 1940) consisted of extraperiosteal excision of the whole proximal phalanx of the thumb and replacement by a tibial cortical graft sharpened at each end and inserted between the raw base of the distal phalanx and the head of the metacarpal bone of the thumb. Union of the graft had taken place at both ends by June 26, but a month later the union at the distal end broke down and a false interphalangeal joint began to form. When last seen on Dec. 8, 1943, the graft, which remained strongly united at its proximal end, was composed of strong bone throughout, and the false interphalangeal joint had acquired 30° of active flexion and extension. At present, nearly six years after the operation, the patient reports that her thumb remains as good as when she was last seen in 1943.

Case 2.—Female aged 24: a case of osteoclastoma of the lower end of the left radius which recurred after curettage. Symptoms were first noticed when the patient suffered a fracture through the tumour during an epileptic fit. Operation (Oct. 31, 1941) comprised incision over the postero-lateral surface of the hand and lower end of the forearm; separation of tendons and nerves from the front and back of the wrist-joint; division of the wrist-joint capsule so as to allow the hands to be capsized ulnarwards, hinging on the ulnar collateral ligament; extraperiosteal removal of the whole lower end of the radius with the pronator quadratus muscle; and replacement by a large tibial cortical bone graft inserted into the split lower end of the radius and the denuded proximal surface of the carpus. During the operation the tendon of the extensor pollicis longus was ruptured; this was made good by transplanting the extensor carpi radialis longior into the distal end of the thumb extensor.

On April 23, 1942, the graft was regarded as united strongly enough to allow removal of the plaster, but, in view of the patient's epilepsy, she retained an aluminium splint on the arm for several months longer. On Dec. 28, 1942, she complained of pain in the wrist, and a skiagram showed a crack in the lower end of the graft. It was assumed that she had refractured the graft during a fit. The wrist was immobilized again in plaster. Union of the fracture subsequently took place, though the graft shortened during the process of the union and allowed radial deviation of the hand. At present, four years after the operation, the graft remains united at both ends, and at the site of the fracture.

Case 3.—Female aged 36: a case of osteoclastoma of the lower end of the right radius. The operation (March 20, 1944) was essentially the same as in Case 2, except that the tendons of the extensor pollicis longus and abductor pollicis longus were deliberately divided and later resutured. Uneventful union of the graft took place by October, 1944. At present, 19 months after the operation, the skiagram shows sound union at both ends of the graft with good-quality bone intervening

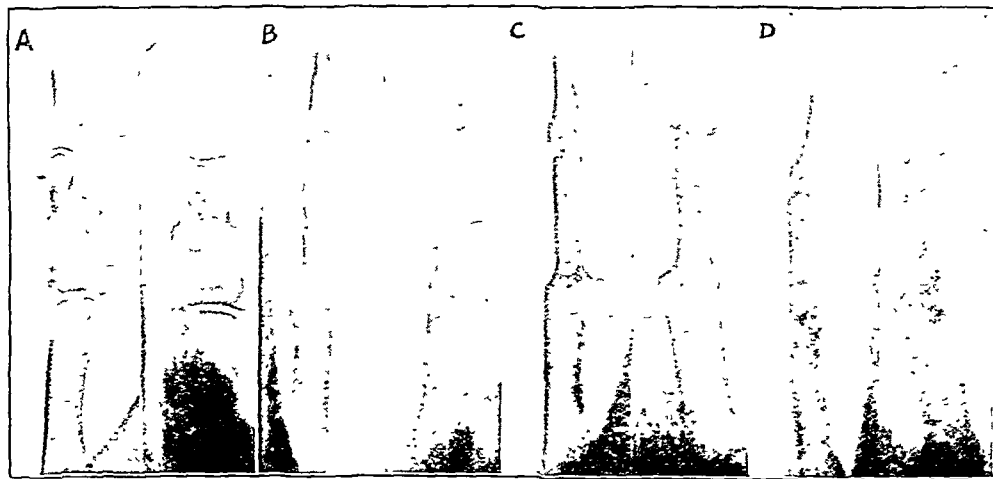


FIG. 1.—Case 1. A, Enchondroma of proximal phalanx of thumb. B, Five months after extraperiosteal excision and replacement by bone graft: union both ends of graft. C, Fifteen months after operation: false joint forming at distal end of graft. D, Three years and ten months after operation: actively movable false joint at distal end of graft.

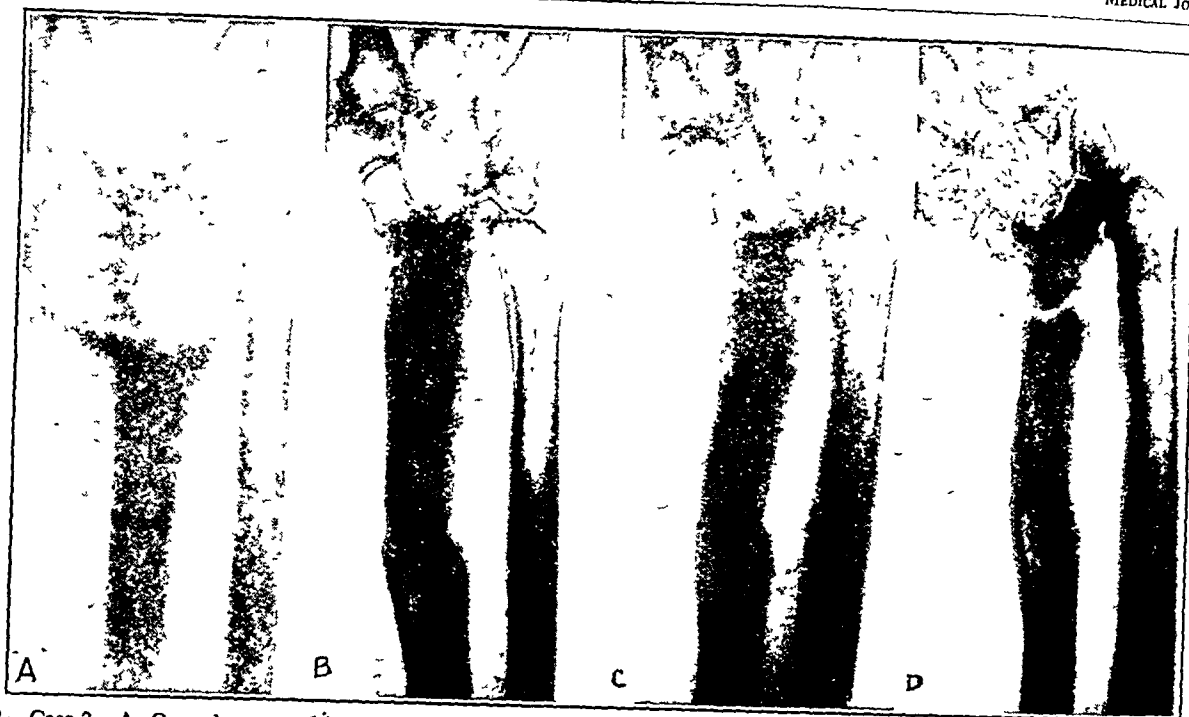


FIG. 2.—Case 2 A, Osteoclastoma of lower end of radius. B, Six months after extraperiosteal excision and replacement by bone graft. C, Fourteen months after operation: fracture of graft. D, Four years after operation: fracture remains united.

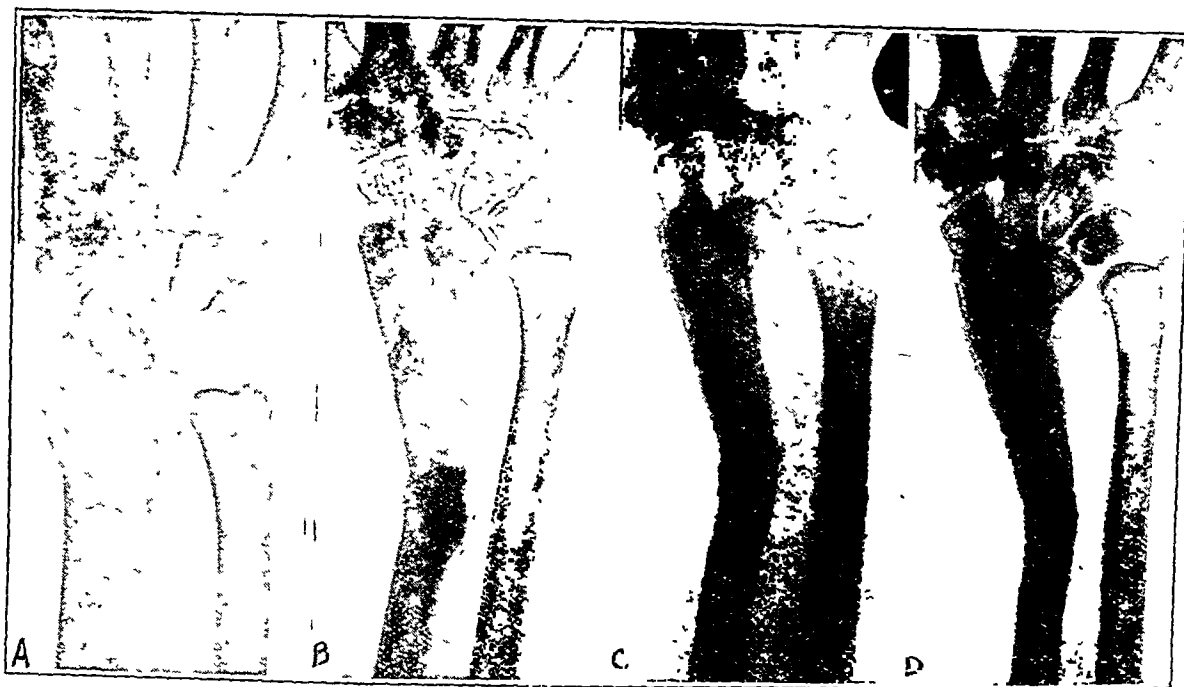


FIG. 3—Case 3 A, Osteoclastoma of lower end of radius. B, Four months after extraperiosteal excision and replacement by bone graft. C, Seven months after operation. D, Nineteen months after operation.

Comment

These grafts have evidently not received any assistance from the periosteum in their survival, since in each the periosteum of the recipient bone was completely removed with the tumour and the bone graft was inserted without any periosteum attached to it. Neither can it be said that these grafts have been replaced by creeping substitution from the bones with which they were in contact. If this had been the case one would have expected radiological evidence in the form of a decalcified line of demarcation gradually spreading from the ends towards the centre of the graft.

It might, however, be argued that these grafts died and were replaced by an invasion of cells from the organizing haematoma which surrounded them, such cells subsequently becoming differentiated into bone elements. This suggestion

it is impossible to refute, and it is in line with the teaching of Leriche and Policard that bone may form wherever there is a mass of primitive mesenchyma and an adequate supply of blood and calcium. But why postulate a difficult theory in these cases when it can be more simply assumed that at least a proportion of the bone cells of the original graft survived and proliferated?

Certain radiological appearances were common to each of these grafts. First, the coarse trabeculation of the original tibial graft became gradually transformed into bone of a denser and more finely trabeculated structure. Secondly, each case shows evidence of the development of a surface layer of homogeneous bone, as if the graft was attempting to differentiate itself into cortical and medullary structure. These radiological appearances seem to indicate that there was at least partial survival of cells throughout the whole substance of the graft.

The most important common factor in these cases, however, appears to be that each graft was transplanted into an area richly supplied with blood and devoid of any scar tissue. It would seem that when transplanted into such ideal surroundings even a cortical bone graft will survive and will rapidly become incorporated in the circulation of the host. These cases appear to emphasize once again that one of the chief functions of a bone-grafting operation must be the removal of scar tissue and the opening up of the whole vascular area for the promotion of osteogenesis at the site of fracture.

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ARGENTAFFIN (CARCINOID) TUMOURS OF THE SMALL INTESTINE

BY

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Argentaffin tumours are most commonly met with in the appendix, but it is now well recognized that they may occur in any part of the gastro-intestinal tract. According to McLeod (1944) about 283 cases of carcinoid tumours of the small intestine had been reported in the literature up to May, 1944. There is general agreement that, after the appendix, the most common site is the terminal ileum.

Carcinoid tumours of the appendix are generally stated to be innocent, but in the ileum the behaviour is quite different. Humphreys (1939), reviewing 152 cases, found that 37 (24.4%) had metastases. Dangremond (1942) in a study of 46 cases found that 24 (52%) had metastases. Ariel (1939) tabulated 111 cases of carcinoids reported in the literature since 1930. In this series metastases were reported in 33 cases (29.7%). Obviously, therefore, the tumour as found in the small intestine may behave as a metastasizing malignant growth, calling for radical surgical treatment.

Case Report

Mrs. P., aged 52, was admitted to hospital on April 24, 1943. The provisional diagnosis was chronic appendicitis. The history was that in the last two years she had had intermittent attacks of abdominal pain—five in all. The last attack occurred 14 days before admission. Each attack started with pain, at first felt in the right iliac fossa, but gradually spreading over the abdomen. When asked about the radiation of the pain, she stated that it tended to travel in a direction roughly following the course of the colon. The pain was of a colicky type. During each attack the bowel was constipated. The pain was severe enough to make her go to bed. On only one occasion did she vomit, though she often felt nauseated. Each attack lasted about four days. An interesting statement was that after the attack she invariably had diarrhoea. She was not certain as to the presence of distension during an attack. Examination was largely negative. She appeared to be a healthy woman, perhaps rather stout. The skin was clear, and there was no jaundice. The mucous membranes were well coloured and the tongue was clean. No abnormality was detected on examination of the chest and cardiovascular system. The urine was normal. The abdominal wall was rather stout and the muscles were flabby. No masses were palpable. Slight tenderness was noted in the right iliac fossa, and there was unusual gurgling. P.V. and P.R. examinations were negative.

In view of the history of ? obstructive attacks a barium enema x-ray examination was advised. This was carried out by Dr. D. Ramage, who reported as follows: "Apparently a developmental anomaly of the colon. The right flank is empty of colon; the caecum and ascending colon are near the midline. There is no evidence of filling defect." This unexpected report raised the question of recurring volvulus as an explanation of the symptoms, and operation was accordingly advised.

Operation was carried out on May 10. The abdomen was opened by an oblique muscle-cutting incision in the right iliac fossa. The caecum and ascending colon were found to have well-developed mesenteries. There was no distension of the caecum. The appendix was healthy. On further investigation a lesion of the ileum was found. The last few inches of the ileum were distorted by adhesion, and on palpation a hard mass was felt in the centre of the adherent bowel. The bowel proximal to the tumour was not distended. A presumptive diagnosis of scirrhus carcinoma was made. The mesenteric lymph nodes were not enlarged, and no secondary deposits were found in liver or peritoneum. In view of the proximity

of the growth to the caecum, a radical ileocelectomy was performed, and the ileum anastomosed to the transverse colon by the side-to-end method. No difficulty was encountered, as the colon was extremely mobile. The wound was closed, with drainage. The patient made an excellent recovery, despite some wound sepsis. She was discharged home on June 5, and has remained in excellent health since.

The specimen, unopened, was sent to Prof. A. Bernard Shaw for opinion, and he reported as follows:

"The specimen consists of the lower end of the ileum, 16 cm. long, the caecum and ascending colon, and the appendix. The attached mesenteries are loaded with fat, and the site of extensive operative haemorrhage. At 4 cm. from the ileo-caecal junction there is a transverse constriction on the outer aspect of the ileum. Embedded in the constriction is a hard mass 2 by 5 cm., which projects into the lumen of the ileum. The opaque bright-yellow material constituting this involves the submucosa and subserosa, while the muscular coat passes through it. The appendix shows no gross change. Microscopically, this is an argentaffinoma of the ileum which has infiltrated the muscular and subserous coats. The neoplastic cells give a positive reaction to Masson's silver stain, thus establishing the identity of the tumour."

Discussion

It is not proposed to discuss the pathological histology of these tumours. Masson's theory (1928, 1930) that these tumours arise from the Kultschitzky cells of the crypts of Lieberkühn, appears to be generally accepted. The cells contain granules which acquire a dark-brown stain when treated with Masson's silver stain—hence the name "argentaffinoma." The most striking feature of these tumours is the bright yellow colour on section. Usually the growth projects into the lumen of the bowel as a smooth polypoidal mass, and obviously this may lead to attacks of intussusception. Occasionally the tumour takes an annular form, giving rise to a typical ring constriction of the affected bowel.

It is obvious from personal experience that these tumours are rare. Raiford (1933) recorded 29 carcinoid tumours—9 of the ileum—as occurring in 62,000 necropsy and surgical specimens examined at the Johns Hopkins Hospital. Ariel (1939) examined 47,045 specimens at the Mount Sinai Hospital, and found 31 carcinoids.

The appendix and the terminal ileum are the two most frequently affected sites in the gastro-intestinal tract, but, as mentioned above, there is a striking difference in the malignancy of the two types. All commentators are agreed that carcinoids of the appendix are innocent. But in the ileum there is no doubt that the tumour is almost as malignant as an adenocarcinoma. Quarry Wood (1936), quoting Humphreys, points out that the incidence of metastases in carcinoids of the ileum is 24.4%, whereas the frequency of metastases in adenocarcinoma is given as 38% by Schlepps. In Quarry Wood's case a lymph node 2.5 cm. from the growth was the seat of a metastasis. McLeod cites one case in which the wall of the caecum was invaded, and a second case in which a mass of tumour cells was found in a large blood vessel of the mesentery. In the case under discussion the tumour cells had infiltrated the muscular and subserous layers. Ariel sums up the question of metastases thus:

"Metastases usually occur in the regional lymph nodes, the mesenteric fat, and, to a lesser degree, the liver. . . . Metastases have been recorded as follows: 29 in regional lymph nodes, 10 in the liver, 9 in the mesentery, 2 in the peritoneum, 1 in the inguinal lymph nodes, 1 in the peripancreatic and retroperitoneal lymph nodes, 1 in the testis, and 1 in the dura mater with compression of the spinal cord."

From the clinical viewpoint, the most common picture is one of recurring attacks of intestinal obstruction. The diagnosis arrived at on clinical grounds is most likely to be carcinoma of the colon, but the barium enema x-ray will negative this. It may be possible on x-ray examination to diagnose an obstruction of the terminal ileum, as in Quarry Wood's case, but many of the cases in the literature were not accurately diagnosed before laparotomy. In the case under review the presence of a gross congenital abnormality of the colon added to the difficulties, and, as mentioned, volvulus of the caecum was considered as a possible explanation of the symptoms.

In view of the evidence as to the malignancy of the tumour treatment must be radical, and as many of the growths are very close to the caecum an extensive resection of gut is necessary. The prognosis depends on the presence or otherwise of irremovable metastases. In the literature, only one reference to

the effect of x-ray therapy on these tumours was found, and unfortunately there was no final proof as to the nature of the tumour. The case is reported by Ariel (1939). A patient had had a resection of gut performed for a tumour of the terminal ileum, and section proved the growth to be a carcinoid. There were no metastases in the liver. Two months later a mass was found in the right iliac fossa, and a diagnosis of local recurrence was made. Deep x-ray therapy was given, and the mass disappeared. Ariel was of the opinion that the mass was a definite recurrence, and no doubt there were good reasons for coming to such a conclusion, but one cannot dogmatize, from this suggestive case, as to the value or otherwise of x-ray therapy in these growths.

Summary

A case of argentaffinoma (carcinoid tumour) of the ileum is reported.

These tumours are found most frequently in the appendix and the ileum. In the appendix they do not metastasize, but in the ileum secondary deposits are met with in 25% of cases.

The clinical picture is one of repeated attacks of intestinal obstruction.

The pre-operative diagnosis is difficult, and if an obstructive lesion of the terminal ileum is found it is most probable that it will be labelled carcinoma.

The appropriate treatment is radical removal.

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Medical Memoranda

Spontaneous Rupture of the Heart associated with a Road Accident

Two men were brought in dead to an East African military hospital with a history of having been knocked down by a lorry. Necropsies were performed within three hours of death, revealing in one of them extensive multiple fractures of the skull with severe laceration of the brain. The post-mortem findings in the other are described below.

FINDINGS AT NECROPSY

The body was that of a European male aged 40, about 5 ft. 7 in. (1.7 m.) tall, weighing between 12 and 13 st. (75–80 kg.). The chest, abdomen, and back were well covered with fat, which had a depth of 1½ in. (3.8 cm.) over parts of the abdominal wall. There were several superficial skin lacerations on all four limbs, particularly on the right arm and leg; the face was scratched and bruised.

Examination of the skull revealed a subperiosteal haematoma over the vertex about 1½ in. in diameter overlying a fracture about 1 in. (2.5 cm.) long, depressed at the anterior end. The brain and meninges were intact, and, except for some bilateral pinpoint petechial haemorrhages on the cerebral surface and in the white matter, no abnormality was found. The pituitary fossa and gland appeared normal. No other bone injury was seen, and no evidence of disease or injury was present in the tongue, pharynx, salivary glands, larynx, trachea, or thyroid gland. The thoracic wall was intact, and the lungs, pleurae, and bronchi showed no abnormality. The heart and pericardium are described below.

On opening the abdomen the striking feature was the gross amount of fat in the greater omentum; this was much in excess of what is normally found. The spleen, pancreas, gall-bladder, stomach, and small and large intestines appeared normal. The liver was enlarged one fingerbreadth below the costal margin, firm in consistency, and with a firm lower edge. The cut section was pale and greasy, revealing a fatty liver. Both kidneys were embedded in deep pads of fat, and the retroperitoneal fat was definitely excessive; the kidneys, suprarenals, ureters, and bladder seemed normal.

Heart and Pericardium.—The pericardial sac was globular, and was distended with about 1¼ pint (140 ml.) of blood. The heart was contracted and almost empty. Both auricles appeared normal. The fat of the ventricular epicardium was increased both in thickness and in extent. This was particularly evident on the anterior wall of the right ventricle, which was thin, being reduced to one-eighth of an inch (0.3 cm.) or less in parts. In many places the muscle bundles were separated by small areas of adipose tissue, which here and there almost formed the entire thickness of the ventricular wall. Streaky yellow patches of adipose tissue running along the lines of the columnae carneae were evident beneath the endocardium of the right ventricle, the cavity of which was dilated in spite of the general

contraction of the heart. Two linear ruptures were found in the anterior wall of the right ventricle communicating with the ventricular cavity, both about 1 in. long. The edges of the tears were uneven and irregular, but there was no evidence of recent bleeding or torn vessels along the edges, such as might be expected from a sudden rupture. One tear was situated about 1½ in. (1.25 cm.) from the anterior interventricular branch of the left coronary artery (to which both were roughly parallel), about 1½ in. (3.75 cm.) to the right of this artery, and 1 in. (2.5 cm.) above the inferior heart border. The ventricular wall was thinnest in the region of these ruptures, and consisted as much of fat as of muscle. There were no signs of disease in the valves, coronary arteries, or aorta.

Death was attributed to haemopericardium due to spontaneous rupture of the heart, with fatty infiltration of the myocardium, part of a general obesity, as the predisposing cause.

COMMENT

The relation of this unusual death to the road accident arose. Whether the head injury itself could have caused death was difficult to answer, but it seemed unlikely; yet just as difficult was the poser: Which came first—rupture or accident? The lack of recent bleeding along the edges of the rupture indicates that they had gradually formed and slowly progressed until they were well established on the day of the accident, but of course actual ventricular-pericardial communication had not occurred. It seems likely that completion of the rents was imminent at the time of the accident, and death was inevitable within, say, a few weeks. Completion of the ruptures may have occurred just before the accident by a sudden rise of inter-ventricular pressure due to fear or excitement. Alternatively, the accident occurred first, and the tears were completed, possibly, by the sudden contact of the chest wall with the ground.

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Herpes Zoster in an Isolated Community

The question of the relationship between the viruses responsible for herpes zoster and varicella has recently been discussed in these columns by Dr. James Taylor (*B.M.J.*, 1945, 2, 385). That such a relationship exists is beyond dispute; there can be few general practitioners who have not observed an outbreak of chicken-pox following a case of herpes zoster, or the appearance of zoster in a household afflicted by chicken-pox. The implication that herpes zoster is always caused by the virus of chicken-pox cannot, however, be accepted.

CASE HISTORIES

On the island of Tristan da Cunha, in the South Atlantic, there live some 220 persons, none of whom have ever suffered from varicella or any of the other exanthemata or infectious fevers. In 1942 their isolation was disturbed by the arrival of a party of Naval and South African personnel and the establishment of a station on their island. In May, 1943, I saw there a case of herpes zoster in a woman aged 70; the eruption was typical, and occurred over the outer side of the upper third of the right thigh. Such a condition had not been seen before by the islanders. There was no doubt as to the diagnosis.

The anticipated sequel—an epidemic of varicella—did not occur. No further cases of herpes were seen until December, 1943, when a man aged 79 developed typical lesions of intercostal distribution. Again no chicken-pox followed; but 3½ months later—in March, 1944—a third case occurred. The patient was a man aged 33, and the distribution was again intercostal. There had been no further cases when I left the island in July, 1944, nor had there been any case of chicken-pox.

All three patients made an uneventful recovery and the constitutional disturbance was not severe. Post-herpetic neuralgic pain occurred in one case; it was not severe, and lasted for some two months only.

COMMENT

If ever there were conditions in which an epidemic of chicken-pox might be expected to follow herpes zoster, they were present at Tristan da Cunha. Neither man, woman, nor child had any acquired immunity to the virus, and the people were living crowded in ill-ventilated, often dirty, two- and three-roomed cottages, yet no varicella occurred.

My interpretation of the above events is that herpes zoster can be caused by neurotropic viruses other than the virus of varicella. The interval which elapsed between the cases is grossly in excess of the alleged normal incubation period. It would appear, therefore, that there was present on the island, presumably among the Service personnel, a carrier of low-grade neurotropic virus, the virulence of which was not sufficient to cause any morbid condition among the naturally immune new-comers, but sufficient to produce typical herpes zoster among the non-immune islanders.

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Reviews

ON GROWTH AND FORM

Essays on Growth and Form presented to D. Arcy Wentworth Thompson
Edited by W. E. Le Gros Clark and P. B. Medawar (Pp 403, illustrated
21s.) Oxford: The Clarendon Press 1945

D. Arcy Wentworth Thompson was appointed professor of biology at Dundee in 1884, and has held a chair at St. Andrews since 1897. Any critic who might complain 'Sedet, aeter numque sedebit' is conclusively answered by the new edition of *On Growth and Form* published in 1942, and running to 1124 pages. This book reminds me of Greek geometry. I admire its elegance and ingenuity, but it is not always obvious what to do next. So often the author seems to have said the last word.

But the first edition, published in 1917, is at last beginning to bear intellectual fruit and the volume before us is part of its harvest. The longest article, and that which will probably be of the greatest interest to medical readers, is that on nerve fibres, by J. Z. Young. This summarizes his own work and that of his colleagues during the war, which has already had some influence on surgery. He makes out a strong case for the view that a nerve fibre is a hollow tube containing fluid under pressure, due to the fact that the nerve cell is continually forcing more fluid along it. If the internal pressure falls off the whole system breaks down, and the details of the breakdown are physically intelligible. Regeneration occurs at a roughly constant rate of about 4 mm a day, and is due to a steady outflow of material from the body of the nerve cell. So far everything is mechanistic. But fibres which make connexion with end organs hypertrophy, and those which do not do so disappear. So the author concludes on a decidedly unmechanistic note.

Prof. Le Gros Clark gives a similar mechanical analysis of the pattern of the folds in the cerebral cortex, and Dr. Danielli gives some very interesting facts regarding the surface forces in single cells. Dr. Astbury's article on molecular structures is an invaluable summary of the work which he and his colleagues have done on proteins, nucleic acid, polysaccharides, and other cell constituents. This work has only started, but the results are sufficiently striking. The fibrous proteins fall into two groups with different structures: an elastic group generally found inside cells, and including myosin, keratin and fibrinogen, and an inelastic collagen group always found outside cells, including the proteins of tendon, cartilage, and fish scales. Many of the non-fibrous proteins—for example, egg albumin and casein—can be drawn out into fibres of the intracellular type, but lose their specific properties in the process. When we know as much about their structure in the globular form as we know about it in the fibrous form we shall probably understand how they manage to be specific as enzymes or antigens.

Dr. Woodger's paper is an attempt to give a logical basis to the notion of homology. I can best explain why I distrust it by quoting one sentence: "Consider any such time-slice of a zygote and the set of all time-slices which are exactly like it." I may be wrong, but I start out from the assumption that no two animals are exactly alike. If I am right, Dr. Woodger's logic will not solve the problem. If a physician has ever had two patients who were exactly alike he will agree with Dr. Woodger, if not, not.

Reeve and Huxley, Richards and Kavanagh, all deal with allometric growth—that is to say, growth in which one part grows quicker than another, and the form therefore changes. Neither has anything very fresh to say on the matter. Medawar, in "Size, Shape and Age," probably has something fresh to say, since he combines a new mathematical approach with a new experimental technique. A tissue culture is placed in a medium in which Heaton's inhibitory factor is diffusing, so that the growth is slowed down on one side. He uses a mathematical method which is a development of one of D. Arcy Thompson's to represent the forms assumed and draws an analogy with the different growth rates of parts of the human body. But Medawar's ideas are still somewhat embryonic whereas the other four authors give useful summaries of a mass of careful work by themselves and others. Lotka gives a further development at one point of considerable mathematical elegance of his mathematical theory of population growth and decline.

He ends on a note of gloom regarding the future fall of population, which seems to neglect the fact that in many countries including both victors such as Britain and Czechoslovakia, and neutrals such as Sweden and Eire, the birth rate rose sharply during the war.

Dr. Berrill's paper on ascidian development is of interest because the ascidians are the animals most closely related to the vertebrates, which can develop from either a fertilized egg or a bud. A comparison of these two developments may have some bearing on human pathology. Dr. Wigglesworth's study of insect development is of wider interest, because he brings evidence that the parts of an insect are integrated not merely by hormones but by actual continuity between cells. For example if two bugs are joined by a capillary tube the hormones from one induce moulting in the other. But they moult simultaneously only if their skins are allowed to heal together. Thus he suggests that 'the epidermis is a chemical continuum upon which the cells are strung at intervals like beads upon a net'. In fact the organism is not a mere colony of cells but has some of the properties of a giant molecule.

The contribution which excited me most was Dr. Willmer's on tissue cultures. He suggests that cells should be classified not merely by their appearance and function in the body but by their behaviour under the standard conditions of tissue culture. Under such conditions some cells—for example neurones—will not grow. But the remainder revert to one of three types. The epitheliocyte forms a membrane and spreads over surfaces. The mechanocyte, which may be derived from muscle, bone, cartilage or connective tissue becomes a fibroblast, and forms a network in culture. The amoebocyte does not form a tissue. Further, the mechanocytes alone need embryo juice and are very sensitive to arsenic, the amoebocyte is phagocytic, the epitheliocytes tend to produce keratin, the mechanocytes collagen and so on. Dr. Willmer regards these three types as genera of cells, each with its own species including the carcinoma cell among the epitheliocytes and the sarcoma among the mechanocytes. I do not know if his views will be accepted. If so they are of the first importance. If not they will at least make a number of people think.

The whole volume is not only a tribute to a source of inspiration. It can be read with interest and profit by a wide circle. And very little of it will be too technical for the medical reader who wishes to keep in touch with the progress of thought concerning animal and human development.

J. B. S. HALDANE

SENIOR MENTAL DERANGEMENTS

Mental Disorders in Later Life. Edited by Oscar I. Kaplan. (Pp 426, illustrated \$5.00 or 30s.) California: Stanford University Press, London: Oxford University Press.

In psychiatry, as in other branches of medicine, the emphasis is rightly placed on the study of the disorders of childhood; nevertheless it may well be, as is stated in the preface to this book, that the mental disorders of older people have been grievously neglected. As a population we are growing older which makes it all the more important that we should do all we can to maintain bodily and mental health for as long as possible. Too often when an elderly person shows signs of mental derangement, even the expert jumps to the conclusion that he is suffering from an irreversible degeneration and that nothing can be done.

Among the seventeen essays by distinguished experts collected in this book perhaps the most important are those on the neuroses of later maturity, the involutional psychoses, and the toxic delirious reactions of old age, since they show that the patient suffering from these conditions, though he may be well advanced in years is not necessarily condemned to the inevitable deterioration of a dementia. It is pointed out that there is considerable similarity between the emotional stresses of the adolescent and of the ageing patient in that they are called upon to change a condition of security—in one case that of the protection of home and family and in the other a position of personal prestige and satisfaction—for one of insecurity. It is the loss of status whether of appearance, prowess or social and economic position which is so appalling to the aged, and it is very necessary for the individual and society to plan for old age so that the individual may remain useful, interested and respected for as long as is conceivably possible.

No doubt much could be done to prevent the evils of senility if over-exertion, over-eating and over-drinking, and various frustrations could be avoided, yet we know little enough about the causation of such an important condition as arteriosclerosis, or indeed of any of the degenerative processes. These essays cover the ground of senile mental derangements as thoroughly as can be expected in a book of 400 pages, and are both informative as to known facts and also stimulating in pointing out what an enormous amount of work remains to be done. Each essay is provided with a comprehensive bibliography, and an adequate index makes reference easy. This volume is certainly to be recommended, not only to psychiatrists but to all whose practice includes old people.

CARE OF THE NEWBORN

The New-born Infant. A Manual of Obstetrical Pediatrics. By Emerson L. Stone, M.D. Third edition, thoroughly revised. (Pp. 314. 16s. 6d.) London: Henry Kimpton.

The modern tendency to give the care of the newborn baby to the paediatrician has been resisted by some obstetricians, and it must be agreed that when the latter show keen interest in the baby their contributions to the subject are especially valuable. The third edition of *The New-born Infant*, by Prof. Emerson L. Stone, is a good illustration of this. It began as a course of lectures when the author was assisting Prof. Whitridge Williams at the Johns Hopkins, and now, in a complete revision, it provides a most useful and well-documented manual on the newborn. It is especially of value because it is essentially the outcome of long experience, and the author's practical outlook is well combined with his critical appraisal of other experts' publications. The section on intracranial birth injuries includes an account of subdural haematoma, but strangely omits consideration of cerebral oedema and of states short of gross haemorrhage. The terminology of jaundice in the newborn is also a little unusual, and in fact this disorder appears under diseases of the skin, though elsewhere there is a good summary of the story of the Rhesus factor. These few criticisms represent all the serious points of disagreement with standard teaching in this country that can be found, and it may therefore be concluded that Prof. Stone's work can be confidently recommended as embodying the modern views on the newborn as developed and held in the English-speaking world. It is a thoroughly good little book.

MILITARY PLASTIC SURGERY IN S. AFRICA

Brenthurst Papers. Edited by Jack Penn, M.B., Ch.B., F.R.C.S. Ed. Johannesburg: Witwatersrand University Press.

This small volume, privately circulated, is a collection of papers from the Brenthurst Military Hospital, which was unfortunately destroyed by fire at the end of 1944. Various members of the staff have contributed, and the editor is professor of plastic, maxillo-facial, and oral surgery in the University of Witwatersrand.

The papers mostly describe standard plastic procedures, with illustrative cases. The descriptions are unfortunately rather sketchy and lacking in detail, which makes them of little use to the beginner and incapable of fair criticism by the expert. One or two new ideas are interesting and appear sound. The Bienthurst clamp for the extra-oral fixation of fractures, where needed, differs from other methods in that the bone is not penetrated, although a small skin incision is needed. The acrylic mould used in the reconstruction of eye sockets is a definite advance. The paper on metacarpo-phalangeal joint deformity is also worthy of study.

It is a pity that the book was not more carefully put together, for there is no index, the pages are not properly numbered, and that irritating fault—the spelling mistake—is all too frequent.

The League of Nations has just issued a *Handbook of Infectious Diseases*, with notes on prophylaxis, serum treatment, and vaccination (London: George Allen and Unwin; 5s.). This compendium, of pocket size, is the fruit of the clinical and bacteriological experience of the directing staff of the Cantacuzène Institute, Bucarest. The work reviews infectious and parasitic diseases grouped according to their aetiological agents. It gives briefly in respect of each, first, a clinical description, the symptoms whereby it can be diagnosed, and the treatment; and, secondly, the channels of contagion and methods of prophylaxis.

Preparations and Appliances

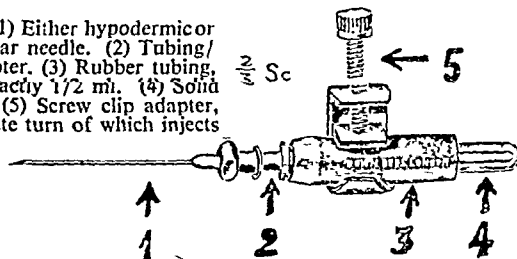
PIPETTE FOR REPEATED INJECTIONS

Dr. M. A. GAYAR, senior casualty officer and anaesthetist, Warwick Hospital, writes:

The problem of multiple injections has for a long time remained unconsidered until the introduction of systemic penicillin therapy. Several articles have been published on this subject, demonstrating devices designed to overcome the necessity for repeated skin puncture, but only with regard to penicillin therapy. To desensitize a serum-sensitive patient for antitetanus serum or to give small repeated doses of adrenaline in an asthmatic attack is even more distressing, especially where the patient is a child.

I have constructed a pipette (see Fig. 1) which has proved invaluable for repeated injections. It is simple, convenient to

FIG. 1.—(1) Either hypodermic or intramuscular needle. (2) Tubing/needle adapter. (3) Rubber tubing, capacity exactly 1/2 ml. (4) Solid glass rod. (5) Screw clip adapter, one complete turn of which injects 0.1 ml.



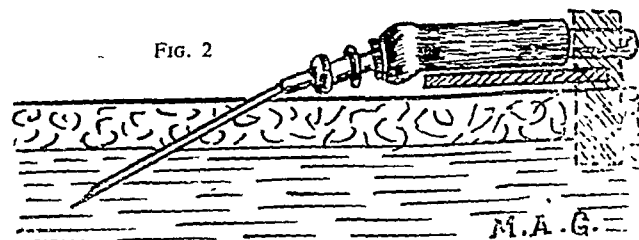
use, easy to sterilize, and has been in constant use for the past 5 months for giving penicillin, A.T.S., and adrenaline with great satisfaction; it is particularly useful in treating children. It would also be useful in cases of eclampsia, tetanus, and status epilepticus, where repeated skin puncture for giving sedatives or serum would precipitate an attack of convulsions.

For desensitization, fill the pipette by plunging its needle through the cap of the serum bottle and screw down its screw clip to empty the rubber tubing and then unscrew again to fill it with A.T.S. Sterilize the skin in the usual way, insert the needle hypodermically, and fix the pipette to the skin with a piece of adhesive over the glass rod. The required dose of A.T.S. can be injected at intervals by turning the screw. If more than 1/2 ml. is required, unscrew clip with the pipette still *in situ* and inject more serum into the lumen of the rubber tube with a fine hypodermic needle.

For treating an asthmatic attack with adrenaline employ the same principle as above.

For systemic penicillin use an intramuscular needle for the pipette (instead of a hypodermic needle), and remove the screw clip. Fix the pipette preferably to the skin of the thigh (see Fig. 2) and inject

FIG. 2



the required dose every 3 hours into the lumen of the rubber tube with a fine hypodermic needle. After injection cover the pipette with a sterile piece of gauze or lint, fixed to the skin with a piece of adhesive or "elastoplast." It will be noticed that as the capacity of the rubber tube is 1/2 ml. the first dose should be 1/2 ml. more than is required for actual injection. Alternatively the glass rod, which has a mark to indicate 1/2 ml., may be pushed down the rubber tube, so as to reduce its capacity to any required extent; after the course of injections the glass rod can be pulled back to the mark.

It would be advisable to change the site of the pipette once every 4 days to avoid a sterile abscess developing, though it has been used on several occasions for more than 10 days in the same site without abscess formation or untoward complaint.

The pipette was made for me by Down Bros. Ltd., of 23, Park Hill Rise, Croydon, to whom I am grateful. My thanks are due to Dr. D. R. Rigg, medical superintendent, for permission to publish this article; to all consultants, their assistants, and registrars in whose wards the work was carried out; to Mr. B. R. Jones, the pharmacist, for his help in supplying the materials; and to all sisters and nurses for their co-operation.

BRITISH MEDICAL JOURNAL

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THE HEALTH OF INDIA

India is headline news at the moment. She is claiming her right to independence from the British Empire. Her people are threatened with famine on an unprecedented scale. Faced with the necessity for meeting such immediate problems, there is a risk that fundamental reforms may be pushed on one side and forgotten. India is in dire need of health reform and of the conditions which make health possible. In 1943 the Government of India set up a predominantly Indian and non-official committee, under the chairmanship of Sir Joseph Bhore, to be known as the Health Survey and Development Committee, to survey the health services of the country and to advise on their better organization and development. This committee has just presented its report¹ in four volumes. Vol. I surveys the existing conditions. Vol. II in 532 pages covers recommendations for both a short- and a long-term plan. Vol. III contains appendices, and Vol. IV attempts to summarize the whole report in 90 pages. Those interested in India and in the fruitful development of human beings should read the first two volumes in their entirety. As the authors say "The term health, whether it is applied to the individual or the community, implies more than an absence of sickness and indicates a state of harmonious functioning of the body and mind in relation to man's physical and social environment, so as to enable him to enjoy life to the fullest possible extent to reach his maximum level of productive capacity." They recognize that reformed health services alone are not enough; they must be integrated with reforms in agriculture, education, and transport. "The elimination of unemployment, the provision of a living wage, improvement in agriculture and industrial production, the development of village roads and rural communications . . . are all so many facets of a single problem calling urgently for attention."

Some idea of the size and nature of this problem can best be given by figures. The death rate for the general population in 1937 was 22.4 per 1,000 inhabitants, and for infants under 1 year 162 per 1,000 live births. The total deaths under 10 years as a percentage of the total deaths at all ages was in 1935-9 48.5%, compared with 10.0% in England and Wales. About 200,000 women die every year from causes associated with pregnancy and childbearing, and probably about 4 million suffer from varying degrees of disability. The average number of deaths from cholera was 144,924 and from smallpox 30,932—both preventable diseases. There are approximately 2.5 million infective tuberculosis patients in the country, and the total number

of beds available for treatment is in the neighbourhood of 6,000; the number of doctors qualified for posts in tuberculosis institutions is 60 to 80. At least 100 million people suffer from malaria every year, and at least 2 million die each year either directly or indirectly as a result of malaria. The number of hospital beds available in British India for the treatment of general and special diseases is about 73,000, or about 0.24 bed per 1,000 population, as against 7.14 in England and Wales. There are to-day in India 47,000 doctors, some fully qualified, some with the licentiate training only—i.e., one doctor to 6,000 people. There are 7,000 nurses—i.e., one nurse to 43,000 people—750 health visitors, 5,000 midwives, 75 qualified pharmacologists, and 1,000 dentists.

Apart from active disease, the first essential of health is absent—namely, adequate nutrition. Undernutrition and malnutrition are widespread. The majority of the people live on diets lacking in calories, salts, vitamins, and protein. To-day they face absolute famine, but in the past pre-famine conditions have been general. In addition to general lowering of efficiency and resistance to disease, deficiency conditions are rampant. The simplest prerequisites of healthy living—adequate nutrition, housing, sanitation, and safe drinking-water—are lacking, except for certain privileged individuals living in the larger cities.

In making constructive plans to meet the grim situation revealed in the survey the members of the Bhore Committee have decided to accept the following principles: (1) that under the conditions existing in India medical services should be free to all and provided by a salaried service; (2) that in view of the complexity of modern medical practice the health services should ultimately provide all consultant, laboratory, and institutional facilities necessary for diagnosis and treatment; (3) the health programme must from the beginning lay special emphasis on preventive work, and on maintaining the closest links between preventive and curative medicine—"The doctor of the future should be a social physician protecting the people and guiding them to a healthier and happier life"; (4) care of the rural areas must be considered the most urgent need. The long-term programme looks to an organization in each Province under a Ministry of Health divided into district organizations each caring for 3,000,000 people; secondary units; and finally primary units, each of which would look after 25,000 people. The short-term programme follows somewhat similar lines but is less elaborate, largely owing to the shortage of trained personnel. It contemplates, however, a number of units concerned with both preventive and curative medicine for the people as a whole, together with special health services for mothers and children, school-children, and industrial workers, as well as for dealing with the more important diseases prevalent in India, such as malaria, tuberculosis, venereal disease, leprosy, and mental diseases.

It is reckoned that, at a minimum, by 1971 there should be 185,000 doctors, 740,000 nurses, 74,000 health visitors, 100,000 midwives, 62,000 pharmacists, and 92,500 dentists. Both long- and short-term schemes rightly concentrate upon the provision of medical aid to the rural areas. The primitive and squalid conditions of the villages associated with abject poverty cannot be imagined, but the few areas where

¹ Report of the Health Survey and Development Committee, Government of India Press, New Delhi, 1946.

experimental schemes have been in existence, like the district run by the, All-India Institute of Hygiene and Public Health and certain model schemes in the Punjab, show that, given encouragement and help, the Indian villager is eager and able to put into practice the essential laws of health. In the presence of good scientific medicine and education old customs and traditions lose their force. The indigenous systems of medicine flourish because there is no alternative. As a demonstration of what may be achieved by co-ordinated effort it is suggested that the Central Government should immediately implement the proposals for reconstruction not only of the health services but of education, agriculture, animal husbandry, and industry in Delhi Province, which for certain administrative reasons is particularly suitable for such an attempt. Associated with these plans for a complete medical service for the people are others concerned with the training of persons necessary to staff the service. The provision of such personnel is obviously the first essential to the success of any scheme, and here obviously is where Britain can and must help a courageous scheme of reconstruction by offering post-graduate training facilities to carefully chosen graduate students in all fields of the health services.

Sir John Megaw, whose lecture on the health of India was published last week, might claim that such schemes, far from helping India, may make her plight only more desperate. He sees her rising population as the root cause of the health problem. There will, he considers, always be a gap between the amount of food available and the number of mouths to be fed; therefore there will inevitably be malnutrition as the basis of ill-health unless something is done to restrict the growth of population. This he considers can be achieved only by changing the outlook on life of the people. The Bhore Committee recognizes that no programme of social reconstruction can afford to ignore the implications of the population problem. It realizes the difficulties inherent, particularly in a country with the varied religious beliefs of India, in achieving a reduction in the rate of additions to population, but it hopes that this may in time be achieved by raising the age of marriage for girls, improving the standard of living, and by intentional limitation of families. In the meantime their social instincts, as must those of all civilized people, prevent them from withholding reasonable health services for the nation for fear of their life-saving effect.

It is easy to criticize the schemes in the Bhore report as too elaborate and too ambitious. What matters is that a group of Indians and Englishmen representative of different parties and different beliefs have together reviewed the weighty problems involved and have together produced an agreed scheme, characterized by both vision and attention to practical detail, for the health development of India. The problem has been stated, in a dry analytical manner, of a vast nation short of food, short of sanitation, short of water, short of medical care. Men of good will from all parties in the State have hammered out a plan to build up a healthy nation. The future Government of India, whatever it may be, has been given a blue-print for her health services which it will do well to implement at the earliest possible opportunity. Health must stand outside politics. Its safeguarding should not wait upon constitution-making.

PENICILLIN IN BACTERIAL ENDOCARDITIS

Subacute bacterial endocarditis stands apart from all other infections due to the common cocci in its resistance to treatment. Since the earliest days of penicillin therapy this disease has figured as the last stronghold of streptococcal infection, on which an attack could be made only when an overwhelming force had been recruited. We have referred from time to time to the earlier moves in this campaign, and to the restrictions which have been placed on the use of penicillin for this purpose. The results in the first few groups of cases treated in the U.S.A.—usually with doses inadequate by present standards—were not altogether encouraging, and at a time when even a patient with staphylococcal septicaemia might not always be able to get penicillin its use for so problematic a benefit seemed unjustified. Moreover, the first pronounced success was achieved only by using quantities of penicillin which then appeared grossly extravagant, although they are now commonplace and have even been far surpassed. The protests which first greeted these attempts in the U.S.A. were extinguished by rapidly mounting production, and the treatment of subacute bacterial endocarditis with penicillin has now been in progress at many American centres for some two years. The development of penicillin therapy in this country has been hampered by greater scarcity of supplies, and it was not until the beginning of last year that a decision was taken to allot a certain quantity to the treatment of this disease. Its distribution and the manner of its use were entrusted to a committee of the Medical Research Council, whose first report will be found on the opening page of this *Journal*.

This report is a condensed statement by the secretary of the Penicillin Clinical Trials Committee, Prof. R. V. Christie, embodying the results obtained at 14 centres established by the committee. The series of cases so assembled is the largest yet to be published, and permits of statistical analysis in some detail. It deals with 147 patients, of whom 81 have been apparently cured—a satisfactory proportion which is likely to increase somewhat in the future when the lessons which have been learned during this investigation have been generally applied. The main object was to establish an optimum system of dosage, and by giving a constant total dose at different rates it was clearly shown that the first essential is prolonged treatment. Taking, then, the necessary period as 28 days, daily doses of different magnitude were compared. In assessing these results the important criterion is the relapse rate. A certain proportion of deaths during treatment owing to more or less mechanical accidents is inevitable: what matters is whether the infection is extinguished in patients who survive this period. Judged from this standpoint, a dose of 500,000 units a day is superior to lesser quantities; among 24 patients so treated the relapse rate was *nil*. The report also deals with policy and prognosis in re-treatment, and with the relation between prognosis and the degree of sensitivity of the infecting organism to penicillin. Although the single example of *Haemophilus* endocarditis in the series and two cases due to exceptionally resistant streptococci were frank failures, within limits not quite so wide as this

the coefficient of resistance of the organism did not appear to affect the results of treatment.

We also print a report dealing in more detail with the cases treated at one of these centres. G. E. S. Ward and his colleagues at the Middlesex Hospital have treated 18 patients, of whom only 1 failed to respond to treatment; 3 died in consequence of mechanical accidents, leaving 14 whose infection has been overcome, although 2 of these are threatened with heart failure. All these patients were given 480,000 units a day for 28 days by three-hourly intramuscular injection. Opinion is apparently divided on the relative merits—whether for the patient's comfort or for therapeutic efficiency—of such divided doses and continuous administration by intramuscular drip. It will be recalled that the original method of administration employed by Florey and his colleagues at Oxford was by continuous intravenous drip; this was abandoned in favour of spaced intramuscular injections owing to the frequency of venous thrombosis, due mainly to impurities in the penicillin then available. The continuous intramuscular drip is a compromise between these two methods which has given much satisfaction in some hands, although irregularities in the rate of flow have sometimes been troublesome. For the treatment of bacterial endocarditis Jessamine R. Goerner, A. J. Geiger, and Francis G. Blake¹ have reverted to the original method. Evidently the greater purity of the present-day penicillin has obviated its main drawback, and these authors claim for it freedom from trouble, convenience to the patient, and the regular maintenance of the desired level in the blood. They illustrate a group of three patients, two of them sitting up in chairs and one playing cards, all with delivery tubes splinted to their arms. Apart from any question of the patient's comfort, the respective merits of continuous and intermittent injection are still unsettled as regards their therapeutic effect: these authors claim that their own results strongly favour the continuous method. They treated 12 patients, employing a routine dose of 240,000 units a day for 3 or 4 weeks. The dose was increased and the treatment prolonged further if the initial response was unfavourable. Only one patient failed, for no ascertainable reason, to respond even to repeated courses; the remainder are all alive and well, in some cases after more than a year. A feature both of this report and of that from the Middlesex Hospital is the emphasis on eradicating foci of sepsis. The infection in subacute bacterial endocarditis is derived from the mouth, and when its actual point of origin is an apical abscess this focus should be eradicated in order to prevent recurrence. Numbers of extractions were found necessary for this reason, and were performed "under penicillin cover"—that is to say, penicillin was administered over a period of at least several days, during which the extraction was done. Heparin was used in none of the English cases and in only one of this American series, this being the single failure: here heparin was brought in when penicillin alone had failed, but without benefit.

These results, and others from the U.S.A. to which we have referred recently, establish the penicillin treatment of

bacterial endocarditis on a sure basis. While the ultimate prognosis still involves an element of uncertainty, it is clear that in a majority of cases the infection can be eradicated and the patient restored to normal health, except in so far as permanent valvular damage impairs this. Since this treatment will now presumably be given increasingly widely, it should perhaps be emphasized that the diagnosis must be beyond doubt before this arduous and costly proceeding is undertaken; one or preferably more unequivocal positive blood cultures are essential. In the treatment itself the prime necessity is to continue adequate dosage without any intermission for a month. It is a most reassuring feature of the extensive British series published to-day that relapse was most exceptional more than forty days after treatment had finished. If relapse does occur at an earlier stage a further full course may be undertaken with at least moderate prospects of success: 8 out of 26 such patients in this series finally recovered.

TOXICITY OF URANIUM

With the increasing interest in the development of atomic energy the toxicity of uranium becomes of the highest importance. In the U.S.A. nearly 70,000 people were employed over a period of three years to produce two atomic bombs. The secrecy surrounding these factories is complete, but we are led to believe that there have been no cases of serious poisoning. Uranium is radio-active, and this property has long been thought to be the cause of the high incidence of carcinoma of lung among the miners of Schneeberg and Joachimstal in Czechoslovakia. Fairhall,¹ reviewing the inorganic industrial hazards, pointed out that the metal could be detected by means of a sensitive Geiger-Mueller counter in amounts as small as 10⁻¹² grammes. He states that the metal is used to increase the hardness of steel, in colouring glass a fluorescent canary colour, and as the black oxide for red and black in the ceramic industry. It is used as a catalyst. Uranium oxide also has a new and important industrial application in connexion with the elimination of the effect of current surges in powerful projection lamps. Fairhall says that uranium and its salts are highly toxic, and that chronic nephritis and hepatic degeneration have occurred, but no reference, however, is made to its carcinogenic properties or its effects on haemopoiesis. It is likely to be many years before the full effects on these systems are known. Wiesner² has drawn attention to possible biological dangers from atomic fission, the results of which it may take even longer to discover.

From the U.S.A. Gustafson, Koletsky, and Free³ showed that dogs given uranyl nitrate intravenously developed severe tubular necrosis of the kidneys: anuria appeared on the fifth day, and the dogs died within a fortnight. The blood urea rose to 360 mg. per 100 ml. on the tenth day, the blood creatinine rose to 25.8 mg., and the serum chlorides fell to 61.2 milli-equivalents per litre. At necropsy a brown precipitate of uranium was found in the necrotic debris obstructing the lumens of the descending segments of the proximal convoluted tubules. Holman and Douglas⁴ made calibration curves of the alpha particle activity of standard dilutions of uranium in blood plasma, and thus made use

¹ *Physiol. Rev.*, 1945, 25, 152.

² *Lancet*, 1945, 1, 33.

³ *Arch. intern. Med.*, 1944, 74, 416.

⁴ *Proc. Soc. exp. Biol.*, N.Y., 1944, 57, 72.

of the natural radio-activity for tracer studies; they showed that in dogs given intravenous uranium radio-activity in the blood stream was minimal after four hours and in twenty-four hours had returned to normal levels; 65% of the uranium was passed in the urine in the same period. The dogs, however, still died unless they were also treated with sodium citrate. Gustafson and his colleagues, as well as Darnelly, Ross, Meroney, and Holman,⁵ confirmed that sodium citrate, given either orally or intravenously, protects the kidney against uranium poisoning; the latter authors showed that by the third week two-thirds of the damaged tubules were lined by newly formed flattened epithelium, and that nine months after the injection normal broad columnar epithelium lined the proximal convoluted tubules. Unfortunately, at present, there is no satisfactory explanation why sodium citrate protects against a lethal dose of uranium nitrate.

TOXICITY OF D.D.T.

D.D.T. is now available to the public and is being more and more widely used. At the same time further information is coming to hand about its toxicity to man and other vertebrates. The first fatal case of D.D.T. poisoning was recorded by Hill and Robinson⁶: a negro child aged 1 year drank about an ounce of 5% D.D.T. in crude kerosene. Atropine 1/400 gr. (0.16 mg.) was given and the stomach washed out about three hours later, but death from respiratory failure occurred at four hours. The lethal dose of D.D.T. was surprisingly low—apparently about 150 mg. per kg. Balaban,⁷ however, points out that the toxic effect of the kerosene carrier alone might have been quite considerable. An experimental study of D.D.T. intoxication in man is reported by Case.⁸ Two men lived in a small chamber painted with D.D.T. distemper and subsequently covered with a thin film of lubricating oil. Temperature and humidity were kept high, and the men, who wore short trunks only, had to sit so that a large area of skin was always in contact with the oily walls. Toxic effects were produced which were reflected in changes in the blood picture. Symptoms of tiredness and aching were experienced, and it is stated that several weeks passed before there was a return to normality. While it is clear that D.D.T. intoxication may result from severe exposures, it is difficult to know what reliance should be placed on the persistent subjective symptoms. Dangerfield,⁹ in a recent letter, suggests that the symptoms described by Wigglesworth¹⁰ were probably exaggerated by nervous anxiety. He records extensive experiments in which solutions and pastes of D.D.T. in acetone were applied to the hands of volunteers, who subsequently experienced no ill effects.

A study of possible hazards from the use of D.D.T. aerosols has been made by Neal and others¹¹ on a variety of test animals. They state that the aerosols were insecticidally efficient at air concentrations of 0.004 to 0.007 mg. D.D.T. per litre. In order to produce serious intoxication in the test animals they had to use concentrations of the order of 20 to 30 mg. D.D.T. per litre; so there seems to be a safety margin of 3,000 to 4,000 times the normal insecticidal dose of aerosols. Tests of the toxicity of aerosol concentrates and pathological examinations gave similar results to those summarized previously in this *Journal*.^{12 13} Small

and young animals were more susceptible than larger and older animals. Dogs were particularly resistant—an observation which conflicts with that of Hill and Robinson,⁶ in which two dogs died as a result of a single spray treatment of 5% D.D.T. in kerosene applied for demodex eczema.

The possible ill effect of D.D.T. on wild life has been widely discussed. The most likely vertebrates to suffer are fish. Emulsions or suspensions of D.D.T. above 0.1 part in a million are toxic to goldfish.^{14 15} During field experiments with mosquito larvicides containing D.D.T. Ginsbury¹⁴ observed that it had a harmful effect on black bass, catfish, and salt-water minnows. Eide and others¹⁵ showed that other cold-blooded aquatic life, such as frogs, snakes, crayfish, spiders, and insects, could be affected by D.D.T. suspensions, but during the trials warm-blooded animals got off scot-free. It was concluded, however, that fish and other vertebrates were not poisoned by dosage rates suitable for mosquito control.

SMALLPOX

Service men and women in large numbers are returning to this country by aeroplane and ship from places where variola major is endemic, and they or their kit may be infected. Many of them are so well vaccinated that should they develop the disease the constitutional symptoms may be so slight and the rash so modified and sparse as not to inconvenience them (the same is, of course, true of well-vaccinated persons who have not been out of the country); should they seek medical advice it is possible that a diagnosis of variola major may not be made in the absence of practically all the classical symptoms and signs of this disease. Two such cases in Hampstead Metropolitan Borough and Thurrock Urban District have given rise to localized outbreaks, and in both the diagnosis was made possible only by later events. Up to March 12 eleven subsequent cases (two fatal) have occurred; ten of these were probably direct contacts, and one (fatal) was infected by clothing. Both the fatal cases were haemorrhagic. In the circumstances it is important that all medical practitioners and hospital medical officers should bear smallpox in mind at the present time, and they are reminded that doubtful cases should be reported to the Medical Officer of Health, who will, if necessary, arrange for the gratuitous services of a consultant.

The King will open in London on Monday, June 17, an Empire Scientific Conference, arranged by the Royal Society, of which he is Patron. The conference will provide opportunities for men of science from the United Kingdom, most of the Dominions, India, and the Colonies, to discuss their problems in private. The subjects to be considered include nutrition and medical science. The Royal Society's conference will move to Cambridge for a week on June 22, and to Oxford for another week on June 29, returning to London on July 6. It is to be followed by the Commonwealth Scientific Official Conference in London from July 9 to 20, inclusive.

Dr. J. M. H. Campbell will deliver the Lumleian Lectures before the Royal College of Physicians of London on Tuesday, April 16, and Thursday, April 18, at 5 p.m. at the College, Pall Mall East; subject: "The Paroxysmal Tachycardias."

⁵ *Proc. Soc. exp. Biol.*, N.Y., 1944, 57, 72.

⁶ *British Medical Journal*, 1945, 2, 845.

⁷ *Ibid.*, 1946, 1, 147.

⁸ *Ibid.*, 1945, 2, 842.

⁹ *Ibid.*, 1946, 1, 27.

¹⁰ *Ibid.*, 1945, 1, 517.

¹¹ *Publ. Hlth. Rep. Wash.*, 1945, Suppl. No. 183.

¹² *British Medical Journal*, 1944, 2, 217.

¹³ *Ibid.*, 1945, 2, 260.

¹⁴ *J. econ. Ent.*, 1945, 38, 274.

¹⁵ *Ibid.*, 1945, 38, 493.

SOCIAL MEDICINE IN OLD AGE

BY

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The number of elderly people in this country is now higher than it has ever been and is still increasing. According to the estimates in the Beveridge report, over 20% of the population will be either women over 60 or men over 65 by the year 1971, if present trends continue. It would seem advisable, therefore, to consider some of the social and medical problems which may result from this increase of old people. These same problems are present to-day, but in a far less acute form than they will soon develop. Now is the time to seek a solution.

Economic Aspects of Old Age

Until recently the shift in age of the population has been partly obscured by wartime conditions. Elderly men and women could earn good wages in domestic or industrial employment, which they would not do under normal circumstances. The war also gave them fresh interests in life, enabled them to meet new people, and widened their horizon. For the time being they felt themselves to be useful members of the community. But this is changing. As younger men and women are released from the Forces and factories older workers become less desirable. They become first unemployed, then unemployable; and an old man or woman without steady occupation grows infirm of body and mind more quickly than one who has something to do. It therefore seems possible that a number of dependent or helpless old folk will need to be looked after, either by their relatives or by public bodies. In the past disease has kept down the numbers of such people, but modern therapeutics is changing all that, as Molière might have said. The facilities which are available at the present time may not be adequate to meet the increased demands which will arise in the near future. It is therefore worth while considering the problem from the viewpoints of economic state and of social medicine, which are so closely related that they react on one another considerably.

It is evident that elderly people with some private means can enjoy the evening of their life without discomfort. They can afford to pay someone to do their domestic work, and are thus spared any undue physical strain or mental worry as a rule. Even the married couple drawing the old-age pension can carry on in their own home quite comfortably unless infirmity overtakes one of them. If the wife is active she can cope with an invalid husband, but otherwise the home is broken up for lack of anyone to do the domestic work. Similarly, an elderly widow or spinster can get along fairly well while she is healthy; but as she becomes more and more feeble, either in body or in mind, a choice has to be made eventually between appealing to relatives for help or entering an institution. Neither of these alternatives is pleasant at an age when prejudices are fixed and mental adaptation is difficult. The music-hall joke about the mother-in-law living with a young couple implies an obverse side which is rather pitiful. This combination of poverty and infirmity is one which causes a great deal of unhappiness in old people. The time is ripe for an attempt to prevent this as much as possible.

Domestic Help during Illness

In addition to these economic aspects of old age, certain other facets present themselves to the general practitioner and often cause him some worry. The first of these is related to the problems mentioned above. Many old women live alone and do their own housework. When they are taken ill domestic help is needed as well as medical and nursing attention. The district nurse will look after the patient, but there is nobody to take charge of the house. And it is not always desirable or convenient to send such people to hospital. Very often they do not wish to go there. Such patients may be taken ill suddenly and be unable to send for a doctor. It may be two or three days before a neighbour or some other visitor calls to see them, during which time anything might happen. Another problem is that of the single daughter who looks after an aged mother. If she becomes ill, then two patients, not one, need help and attention. Separation from the parent is so often a necessary part of the treatment of such a case. At times an old person

has some recurrent disorder, like a urinary infection, epileptiform attacks, and so on, being well one day but ill the next. These patients do not like the idea of going into hospital, nor do the hospital authorities like admitting them. Yet they often need more care and attention than is available at home. Another difficulty, most marked in country districts, is that of cases which need prolonged observation and investigation. It is not usual to get the highest "opinions" in the infirmaries which admit senile and chronic cases. Another point worthy of mention is the difficulty of getting any physiotherapy in many parts of the country. So much disease in old folk responds better to various forms of heat and electric treatment than to drugs alone. But the greatest obstacle of all is the lack of interest in geriatric medicine, and the general feeling that nothing can be done for old age.

Since these problems and others akin to them will probably become intensified in the future, it is as well to look at some methods of solving them. First would seem to come some sort of home help and supervision for elderly invalids, especially those who live alone. Next, it is important to stop overcrowding of the institutions for the aged. Thirdly, the medical facilities available should be improved. Finally, the differing types of senile patients must be sorted out into those who need general care, nursing in sick wards, or complete attention. Above all, it is essential to see that institutions for old people do not develop into soulless barracks. They must become pervaded by the spirit of kindness, sympathy, and humanity.

It is probably not feasible to increase the number of old persons who are employed in domestic or industrial work. But a great deal can be done for the elderly unemployed to keep them active, alert, and occupied. If such people were visited regularly by trained personnel, akin to the present health visitors, they could be helped, advised, kept interested in hobbies or various pursuits, and assisted in many ways. Such visitors would be most useful if they had access to doctors, district nurses, hospitals, and sources of domestic help. By helping to tide over bad times they would defer for several years the entry of many old folk into institutions. Thus elderly men and women could be independent and happy in their own homes as long as possible. This would do much to lessen the troubles and worries which afflict so many old people.

Homelike Institutions

When at last it became necessary for an elderly person to enter some institution, he (or she) would not always need complete nursing and attention. Once the domestic burden was removed it would be possible for the new inmate to look after himself to some extent, to do a little in the garden, to mend, and so on. Some privacy and a simple but useful occupation would preserve self-respect and go far to prevent further senile deterioration. It should not be necessary to limit freedom of movement or to enforce too rigid a time-table. Small apartments of the almshouse type, preferably without stairs, would be suitable for this type of person if domestic help and some nursing supervision were provided. A small community of this sort may be found at Pearson's Retreat, Worthing. Here old people live in two-roomed apartments with a resident nurse to keep an eye on them and to look after their health. It might be necessary to provide communal meals, and a cafeteria system would have much to commend it. If places like this were in being the larger institutions could be reserved for those who were really infirm, senile, and sick in body or mind. Only patients needing medical attention and nursing care would have to be admitted. Inmates could be segregated into those who were ill, those who were senile, those who were incontinent, and those suffering from senile dementia. In this way a sick old woman would not have her sleep disturbed by the shouts of the mentally deranged patients, nor would an alert but crippled old man be depressed by the sight of cases dying beside him.

These institutions should preferably be attached to a general hospital with proper facilities for all necessary investigations. The training of both medical students and nurses would benefit if they had experience of work among such senile and chronic cases. The post-mortem room would offer a great deal of material interesting to the pathologist, and there is no reason why valuable research should not be carried out in such hospitals. It would not be difficult to attain a high standard

of medicine in such a "chronic" institution if consultants and specialists were invited and encouraged to take part in the work there regularly. Medical activity would also give rise to a pleasanter atmosphere among both staff and patients. Old people are happier when they feel that an interest is being taken in their welfare and activities. They thrive on individual attention and dislike any mass treatment. Their own possessions, their own bed, their own seat at table—these mean much more to them than to younger persons. Even men who have spent much of their lives in the regular Army, and are used to a regimented existence, are happier and more amenable to reason when given some degree of privacy and personal rights. But how is this to be done? In apartments of the almshouse type this exists to some extent. In hospital wards for the sick personal freedom must be limited, of necessity, to allow the regular routine of work to be carried out. But, outside these two classes, a solution on the lines of the "bunks" in the long wards of the Royal Hospital, Chelsea, might be practicable. Here each old pensioner has a small cubicle containing his bed, chair, table, and locker. There is an aperture which he can curtain off, or shutter as he chooses, and a door which he can close. Thus he gets a sense of privacy and personal possession which helps to maintain his self-respect.

Freedom of movement, both within the building and to some extent outside it, should be allowed. Strict segregation of the sexes is unnecessary. It seems cruel, when they can no longer look after themselves, to separate couples who have lived together for many years of happy married life. Recreation of suitable kinds should be encouraged, games, gardening, and so on being favoured. If some community spirit can be roused and fostered, the well-being of all the inmates will flourish. Also, self-reliance will be preserved, and this will postpone the day when the old person becomes helpless and dependent on others for everything. Some care and thought will be needed for the naming of such institutions, in order to avoid a stigma derived from association with the workhouse infirmary, etc. Finally it must be stressed again that the personal attitude of the staff in these homes and infirmaries is the most important factor in making them happy and successful.

Conclusion

To conclude and summarize these remarks: it is urged that consideration should be given to the need for making happy the last years of poor and lonely old people. If they can be given some domestic help, together with supervision and nursing attention, while the public assistance infirmaries are allowed to become medically active centres with a truly humane atmosphere, then a great step forward will have been taken. Sympathy for the sorrows of old age is not enough: it is time to translate it into action.

MEDICAL AID TO CHINA

[FROM A CORRESPONDENT]

Early in 1939 the victory of Franco had resulted in the internment in France, under bad conditions, of a number of refugees. Among them were doctors of various nationalities who had served with the Republican army. At the same time China was in great need of medical help, and a committee—the Medical Aid to China Committee—was formed, mostly of medical men and women, and succeeded in rescuing some of these doctors, sending them fully equipped to China, and paying them a living wage. Readers of this *Journal* will perhaps remember that appeals were made in its columns. At the same time a Norwegian committee was working on the same lines, and altogether nineteen men were sent out. They settled down well, learnt the language, and did excellent work in conditions difficult and unhealthy. With the fall of Norway the English committee took on the care of the whole nineteen, and with increasing trouble in remitting money the responsibility became onerous. Then the United (now British United) Aid to China Fund was established and, though the committee retained its identity, its resources and collections were pooled with the Fund, which took over its responsibilities and, with its better organization, was able to help the men more effectively. With the defeat of Japan the problem of repatriation arose, for that was still the moral responsibility of the committee. This proved

almost insuperable, passages, visas, passports presenting endless obstacles, for the men comprised Poles, Czechs, Austrians, and Germans. Fortunately seven had been adopted by the American-Chinese Army in Burma, and when hostilities ceased the Americans shipped them to Europe and they reached their native lands.

One of the team had found employment for himself, but eleven still remained. Then came the news that U.N.R.R.A. had enrolled them in its organization, and better helpers could hardly be found. The wanderings of our colleagues seem to be coming to an end, and the committee has perhaps saved their lives, for if left in the concentration camp the overrunning of France would surely have been the end of them. So it was with some self-satisfaction that on Feb. 13 the committee held its final meeting. The members made a presentation to Dr. Mary Gilchrist, the honorary secretary, who had shouldered most of the work of all these troubled years. The British Aid to China organization was thanked for the help given when it was most needed, and it was hoped that it would continue to receive that support from the committee's old subscribers.

MEDICAL SOCIETY OF LONDON DINNER

The 166th anniversary dinner of the Medical Society of London was held at Claridge's Hotel on March 8 after an enforced interval of seven years. The President, Sir James Walton, took the chair and the company included Lord Moran, P.R.C.P.; Sir Alfred Webb-Johnson, P.R.C.S., Surg. Rear-Admiral Sir Gordon Gordon-Taylor, President of the Royal Society of Medicine; Air Vice-Marshal Sir William Tyrrell and Sir Stanford Cade, Major-Gen. W. Brooke Purdon, Sir Henry Tidy, Dr. R. A. Young, Dr. Anthony Feiling, Sir Russell Wilkinson, Sir Philip Manson-Bahr, Mr. Lionel Colledge, Dr. A. Hope Gosse, Dr. H. E. A. Boldero, Mr. Zachary Cope, Mr. J. Johnston Abraham (biographer of Lettsom, the founder), Mr. E. W. Riches; Dr. Horace Evans and Mr. A. Dickson Wright (joint honorary secretaries); and the editors of the *Lancet* and the *British Medical Journal*. After the loyal toasts had been honoured the health of the Society was proposed by the guest of honour, Sir Alan Herbert, M.P., in a witty speech. The presence of ladies for the first time in the long history of the Society lured him into Parliamentary digressions, though he proclaimed more than once that he would keep off politics. He said that doctors were the most deserving of the human race and he was all in favour of them; like authors, they were in effect one-man businesses and should be protected. He looked forward to the future of the medical profession with some misgiving and felt little hope that anything to help it would happen in Parliament, though he would do his best when the National Health Service Bill was debated. He advised doctors to be careful of his friend Aneurin Bevan, who was unscrupulous in his means though his ends might be splendid; they should use a long spoon when supping with him. He himself felt it was wrong of the Minister to let the doctors know in private that he was going to cut off their heads and at the same time demand that nothing of this should be said beforehand in public. Sir Alan ended with a word of personal affection for the London Hospital and for Sir James Walton. The President, in reply, said that in spite of the war the Medical Society of London had remained active, largely thanks to Dr. Hope Gosse, and had suffered a very small loss in net membership, though 76 members had died during the past seven years. Material damage had been small and was now repaired, and the library had returned intact to the house in Chandos Street. He believed that the medical profession could, and should, take a large part in shaping the future of the public health services—but in an advisory capacity, retaining the trust of the public, and (because it had no political bias) acquiring the trust of the Government. Doctors feared lay bureaucratic control and wanted to preserve that sense of individual responsibility from which the civil servant shrank. Medical and surgical advances were due to aggregation of small individual contributions by many men, who reported and discussed them at meetings of societies when knowledge was in the making. Sir James felt that there was a great opening for clinical observations, especially by general practitioners. "By such means in our short lives we can attain immortality."

Nova et Vetera

ISLAM AND MEDICINE

With the object in view of showing that the end of the war affords an excellent opportunity for international co-operation and that in the organization of peace the Islamic world is likely to be a strong stabilizing factor, H H the Aga Khan and Dr Zakī Alī have written a survey of the fundamentals of Islam.¹ The greater part of this small book is devoted to proving how Islam had always encouraged the pursuit of medical science. This remarkable movement began in the eighth century and for the next 500 years the Muslims alone, following the precepts of the Koran, played a vital part in the evolution of humanity. They resuscitated Greek medicine by translating Galen's *Anatomy*. Hunayn ibn Ishaq was the author of an original work on eye diseases, and Abul Qasim, who wrote a medical encyclopaedia of thirty volumes, was credited with being an outstanding oral surgeon.

To early Arab chemists Europe owes its knowledge of corrosive sublimate, arsenic acid, silver nitrate, and many other preparations. They also investigated the existence of impalpable air-borne bodies. To them Europe owes the discovery of alcohol, even organotherapy was not unknown to them. With regard to physiology Ala ad Din (A.D. 1210-1288) described the pulmonary circulation, three centuries before Michel Servet. Perhaps the most illustrious investigator the East has ever produced was Avicenna, born near Bokhara in A.D. 980. He was the author of a textbook which included all the branches then known to medical science and which remained the chief medical classic for 600 years. He systematized psychology and recognized the value of psychotherapy. In helminthology he brought *Dracuncula medinensis* and *Ankylostoma* to notice, and differentiated between gonorrhoea and syphilis. In the domain of surgery Avicenna described tracheotomy, as also symptoms of pyloric stenosis and gastric ulcer. He wrote a remarkable dissertation on diseases of the liver and gall bladder. Among other Muslim scientists mention is made of Alī al Hussan, who made researches in optics with special reference to refraction.

There were women physicians in the East and in Muslim Spain, who graduated after long and practical courses in obstetrics and gynaecology. The foundation of well-equipped hospitals was a striking feature of Muslim civilization. Clinics, rooms, lecture halls, and medical libraries were provided. After students passed their examinations a diploma was given, so that the practice of the profession was confined to those who had undergone proper training.

Dr Zakī Alī's studies are concerned with the period from the ninth to the end of the fourteenth centuries, and in his documented story he has effectively shown the debt we owe to the glorious period of Muslim medical renaissance, which gave a strong impetus to Europe and led to a fruitful quickening of the spirit of scientific investigation in the West. It was an era which paved the way to modern civilization.

SIR THOMAS ELYOT (? 1490-1546)

On March 20, 400 years ago, there died a disappointed man, one of the more remarkable personalities in English medicine. His dreams had faded and his ambitions had turned to naught. The figure of Sir Thomas Elyot (his likeness is preserved in Holbein's drawing at Windsor) strangely stirs the imagination. Yet with the passage of the centuries we drift increasingly away from the actual man. Traditionally M.D. of Oxford. Traditionally the first medical man to receive a knighthood. A classical scholar who provoked the vociferous wrath of the medical profession when in 1534 he published in English a popular guide to medicine, *The Castel of Health*. This, incidentally, is a fascinating and touching autobiography, for it reveals the many diseases which plagued its author for so many years. His "Boke named the Governour" (1531) is described as the first English treatise on ethics. Though Sir Thomas Elyot served on two occasions as ambassador to the Court of the Emperor Charles V, it would be an extravagance to style him truant from medicine, having regard to the mystery which cloaks his medical career.

W R B

¹ *Glances of Islam*. By Prince Aga Khan and Dr Zakī Alī. (Pp. 72.) Geneva: printed by La Tribune de Genève.

Reports of Societies

INFECTIOUS DISEASE CONTROL IN U.S.A.

At a meeting of the Fevers Group of the Society of Medical Officers of Health on Feb. 1, with Dr M. MITMAN in the chair, Dr ROBERT CRUICKSHANK, Director of the Central Laboratory of the Public Health Laboratory Service, talked on his "Impressions on the Control of Infectious Diseases in America."

Dr. Cruickshank remarked on the preoccupation in America with the infective neuropathies, such as the various forms of encephalitis and poliomyelitis. Rabies was a common infection among dogs and rabies vaccine was used extensively, although there was some doubt about its prophylactic value. Team work was usual in research in the laboratory, in the hospital, and in the field.

Diarrhoea and Dysentery

In the south western States of the U.S.A. the death rate from diarrhoeal diseases was high, for example, the annual figure for San Antonio, Texas, was 200 deaths per 100,000 population. The bulk of these were due to infections with the dysentery and *Salmonella* organisms, as in Britain many cases of acute diarrhoea were not reported to the health authorities. He gave an account of the epidemiological studies of Hardy and Watt based on some 1,600 cases of diarrhoea and examinations from 850 households totalling some 8,000 faecal cultures. Infection was most prevalent among children aged 1 to 9 years and most severe in children under 2 years of age. In older children about one-half of those infected showed clinical signs. In adults the ratio was 1 in 4 or 5. In a survey of 380 cases which yielded positive stool cultures less than 10% had diarrhoea, one-quarter were convalescent carriers and the rest were healthy contact carriers. The infection in America was rarely water- or milk-borne. Food borne outbreaks occurred in institutions; flies were not, apparently, important vectors, in most instances spread of infection was direct, person to person, facilitated by low standards of personal hygiene.

Sulphadiazine was used extensively and successfully for Flexner infections, in Sonne infections both soluble and in soluble sulphonamides were less successful. Sulphadiazine has also been used prophylactically for the control of dysentery in institutions but there was a danger of establishing drug fast strains. Streptomycin had produced rapid clinical and bacteriological cure in cases and carriers infected with sulphonamide resistant Flexner bacilli.

There was considerable interest in methods for improving food and restaurant hygiene, and Dr Cruickshank referred to the main faults and the ways in which they were being corrected. Education of the food handler was a most important factor in the control of infection.

Gastro-enteritis did not seem to be such a serious problem as it is in this country. Neonatal diarrhoea with a mortality of over 30% was attracting a good deal of attention. A virus had been isolated from infants suffering from stomatitis and diarrhoea, but the clinical course of this disease was unlike the gastro-enteritis prevalent in this country.

Respiratory Infections

Acute respiratory infections could be classified in two groups: (A) Those not controllable by prophylactic vaccination. (1) upper respiratory infections, including the common cold, catarrh fever, and primary atypical pneumonia, (2) measles, mumps and chicken pox, and (3) streptococcal infections. (B) Those in which artificial immunization gave reasonable hope of control: diphtheria and smallpox, probably pertussis, and possibly in fluenza and pneumococcal pneumonia.

Attempts were being made to separate out the hotch potch of upper respiratory infections and to control their spread in hospitals, particularly by the use of barriers of ultra-violet light. In schools ultra violet light had given some success in controlling the spread of the common childhood fevers, such as measles, mumps, and chicken pox. Progress was being made in the practical application of aural antiseptics.

Streptococcal infections had been very troublesome in Army training camps and were particularly common in New England.

and in the uplands of the Western States. They were followed by a high incidence of rheumatic fever. Recent work had suggested that heavy nasal carriers were important reservoirs for the spread of streptococcal infections, and as they might show no obvious stigmata of infection these carriers should be sought out by routine swabbing. Oiling of floors and bed-linen had given good results in the control of streptococcal infection.

Controlled field trials of vaccine action against pertussis were going on in a number of States, and good results were being obtained with three spaced doses of plain or alum-precipitated pertussis vaccine. Antibody tests and agglutinin skin reactions were being used as indices of the immunity produced by pertussis antigen. A mouse test had recently been introduced which might prove very useful in assessing the relative antigenic potency of different pertussis vaccines.

General Discussion

Dr. HARRIES (L.C.C.) asked about the present position of gamma globulin in measles treatment and prophylaxis in America. Dr. Cruickshank replied that gamma globulin was too depressant to be given intravenously for the treatment of measles; its value in measles prophylaxis had been in line with experience here. It had been confirmed that prophylactic gamma globulin would prevent infective hepatitis.

Dr. W. GUNN (L.C.C.) asked the lecturer about streptomycin. In addition to information about its pharmacology, Dr. Cruickshank gave details illustrating the valuable therapeutic properties of streptomycin in influenzal meningitis. It has also given promising results in experimental tuberculosis, and in certain human cases of progressive tuberculosis. American supplies were still under Government control and the cost of production was very high, but a number of firms were now making streptomycin on a commercial scale and there were indications that, in addition to its possible use in tuberculosis, it would act as a complementary chemotherapeutic substance to penicillin.

Dr. M. MITMAN said the space allowed in catering establishments for the preparation of food was usually totally inadequate; he had good authority for stating that it should comprise one-third of the total floor space. Architects were interested chiefly in designing the restaurant, lounges, and bars, and few of them were competent to plan kitchens. The Americans were ahead of us in providing refrigerator space. Incubation after food contamination was an important factor in food-poisoning, and refrigeration prevented it. Dorling's case (*Lancet*, 1942, 1, 382) was an excellent example of such incubation. A woman of 61 living alone opened a tin of wholesome soup and in so doing contaminated it with staphylococci from her septic thumb; she consumed half the soup without ill effect and left the rest in her warm kitchen for seven days. She then rewarmed the remaining half and consumed it; within three hours she was violently ill with food-poisoning, and within twenty-four hours she was dead.

Nasal carriers were important disseminators of infection, not only of diphtheria bacilli and streptococci, but also of pathogenic staphylococci. From his bacteriological examinations of the nose in septic cutaneous conditions, including furunculosis, he was satisfied that many of the skin lesions were auto-infections from the nose and were not attributable to the general health of the patient. The carrying of staphylococci in the nose was common, and the frequency with which the hands of normal people straved to their noses was surprising. For the treatment of intestinal infections he preferred to combine an unabsorbable sulphonamide—sulphasuxidine—with an absorbable one, such as sulphamezathine or sulphadiazine.

PSYCHIATRIC PROBLEMS OF REPATRIATED PRISONERS

A meeting of the Section of Psychiatry of the Royal Society of Medicine on Feb. 12, with Dr. G. W. B. JAMES in the chair, was devoted to some psychiatric problems of repatriated prisoners of war.

Dr. MAXWELL JONES gave an account of work, in collaboration with Dr. Tanner, at the special unit at Dartford, where 829 prisoners of war had been treated. A special investigation was carried out between June and September, 1945, every fifth admission—100 patients in all—being studied according to a

rather elaborate standard formula. Family and personal history, home atmosphere, social circumstances, schooling and work record, marriage, range of interests, personality type, intelligence, and physique were all taken into account. An assessment was made of the stresses to which the individual was subject before his Army service and of his reactions thereto. He was examined in relation to his Army adjustment, domestic worries, experiences in prisoner-of-war camps, and his re-adjustment on returning to his home and unit. The results of the investigation brought out the normality of the group, which was the more striking to the investigators who had been accustomed to deal with a neurotic population. Of recent severe stresses, 58% mentioned poor food, 30% stress on active service, 26% Allied bombing while in prison camp, and 24% conditions on the marches at the beginning and end of captivity; 88% stated that sex was no real problem; 82% that enemy propaganda had no effect; and 58% that they had not been subjected to any unreasonable degree of punishment or cruelty.

The most common symptoms encountered were breathlessness, tremor, a feeling of "not belonging," shyness in the presence of women, resentment towards the Army, fatigability, and lessened tolerance. The low-rated symptoms were also of interest: fear of impotence or actual impotence and of loss of family affection, battle dreams, weeping, pain on breathing, and diarrhoea and vomiting. In no single case was hysteria a major manifestation. While it was premature to draw final conclusions, all the evidence pointed in one direction—namely, that these patients, although they differed from the normal population, were not neurotic. In response to standard exercises their oxygen intake was similar to that of normal controls, pulse response was normal, and the results of treatment were rapid.

In the treatment programme at Dartford particular attention was paid to the resolution of social difficulties. The unit was fortunate in obtaining the co-operation of between forty and fifty local employers, ranging from small family businesses to large factories. The advantages of infiltration into a normal population were obvious. Various group activities, such as educational and entertainment programmes, were undertaken. Out of the 829 patients, 107 resided in and around London, and it was arranged that these should be followed up. To date 56 patients who had been discharged from hospital for three months or more had been visited, and a relative had been interviewed in every case. Only 4 men had done no work whatever, and 16 had taken more than eight weeks' rest before starting work; others started work almost immediately after leaving hospital. The average number of weeks worked in this group was nearly 13, and the average number of days off work on account of illness was 6, this figure having been increased by a slight influenza epidemic. Of the patients 20 had sought medical advice for nervous symptoms; 8 stated that they were completely symptom-free. In 47 cases the relative said that they had been greatly improved by hospital treatment. In 51 cases no change of employment had occurred; only 4 were in Government training schemes. In the unit the factors most beneficial, according to the patients, were the work therapy, the general social organization, and the quietness of the place. There was a resident disablement rehabilitation officer, who had been invaluable in helping those discharged.

Work of Civil Resettlement Units

Lieut.-Col. A. T. M. WILSON said that in 1941 attention began to be directed to this problem, and more recently units had been set up for dealing with repatriated prisoners of war. The men who went to these civil resettlement units, as they were called, did so as volunteers, and the degree of collaboration was more than had been anticipated. Had it not been forthcoming it would have been impossible to have overcome the suspicion of the men concerning the Army and its intentions. Although ex-prisoners of war had certain special difficulties, their problems were not greatly different from those of other repatriated Service men. The resumption of social relations, particularly within the family, made severe demands not only on the returning father but on his wife and children, who had problems of their own. Resettlement was a two-way affair, calling for mutual adjustments, whether considered in terms of family, place of work, or community as a whole.

He described the staff of a civil resettlement unit, with its specialist and vocational officers, Ministry of Labour and Red

Cross liaison officers professional women social workers, and others all helping the men to replace the control of military life by control suitable to civil conditions. No man was ordered to see anyone. When men were backward in making use of facilities it was regarded as a psychiatric problem. As yet no adequate information was available as to the permanent results of four or five weeks spent in such a centre but such information as could be gathered from social agencies, the Ministry of Labour employers and the men themselves and their families was encouraging. The men had realized that the Army had taken well informed social action in relation to their problem.

In the course of some further discussion a number of officers attached to civil resettlement units contributed their experiences. Major DOYLE the first psychiatrist to be appointed to a civil resettlement unit said that the most vexing problem was the small non cooperative group who were flagrantly antisocial and with regard to whom it seemed that expulsion was the only solution. This group was tackled by individual interviews and collective discussions. The men were told that although there was no punishment in the unit others were affected by their behaviour and that they were up against their community. This approach was effective, and one by one they gave an assurance that there would be no further trouble and the rest of the unit became not only more tolerant but even protective towards this neurotic group. The demand for psychiatric help in the unit rose from 5% of the cases at the beginning to 60% after three or four months. Major KILNER also said that the requests to see the psychiatrist were increasing. Every man consulting the psychiatrist was seen once or twice, the nature of his symptoms was explained to him and he was made to feel that his individuality was respected. "Therapeutic discussions" were held every week the themes selected by the group itself, and the psychiatrist, once the discussion was in full swing, receded into the background choosing the right moment for explanation and interpretation. The therapeutic side of the civil resettlement unit was represented not only by the psychiatrist but by the vocational and other officers. Brig BARBER described the arrangements for the repatriation of prisoners from Germany. The thing which had struck the officers in charge he said, was the extent to which the recently repatriated prisoner resembled the institutional child newly let loose on the outside world. Many had neurotic symptoms but gross phenomena were extremely rare.

A medical officer of one of the European Allied armies who had been in a prisoner-of-war camp said that the investigation of a sample of 250 cases had shown that the incidence of neurosis rose with length of captivity and jumped significantly between the second and third years. After two years there seemed to come a breaking point in the prisoner of war's power of adaptation. Chronic anxiety states increased relatively as well as absolutely with length of captivity. The most marked symptoms were headache, loss of power of concentration, and insomnia. Among the anxiety states, however there was an absence in his group of "barbed wire phobia" and the four cases of claustrophobia did not arise out of the incarceration. There was no instance of fear of impotence or sterility.

The PRESIDENT said that not only in prisoners of war but in fighting men generally the critical period was after two years.

NEONATAL INFECTIONS

At a meeting of the Section of Disease in Children at the Royal Society of Medicine on Feb 22 Prof NORMAN CAPON presiding the subject of discussion was neonatal infections.

Dr BERYL CORNER gave an analysis of infections among 6500 infants consecutive live births in two maternity units in Bristol. The infections included the smallest manifestations such as a spot on the skin. In one of the hospitals with just over fifty beds devoted entirely to maternity work the number of infants who showed some infection during the period under review was 869 or 25.3%. More than one infection—for example conjunctivitis and thrush—was shown in 83 and more than two infections in 8. There were three deaths, all from bronchopneumonia. The number of superficial skin lesions, cases with only a single lesion being included, was 198, eye

infections numbered 451, among which only 89 occurred during the first five days of life. In the second hospital the number of infected infants was 949, or 29.7%. More than one infection was shown by 129, and more than two infections by 33. Here deaths from infection—bronchopneumonia or gastro-enteritis—numbered 12. Eye infections totalled 563 and minor infections 61, some of these being severe enough to cause constitutional symptoms.

From these figures, said Dr CORNER, it was obvious that prevention of infection was a major problem in a maternity department. In the first hospital which had rather better figures, a serious effort was made three or four years ago to reduce infant infections particularly those of the skin. As long as pustules on a newborn infant's skin were dismissed lightly as a few septic spots and were not treated with the importance they deserved so long would serious staphylococcal infections arise in the nursery. The importance of apparently trivial infections could best be brought home to the nursing staff by keeping careful records.

It was important to devote attention to the kind of nursing staff required for the care of the newborn baby in hospital. The idea was tenaciously held that mother and baby were an inseparable unit and that the same nurse should care for both. That was the ideal in the days of private domiciliary midwifery but in these days of large-scale institutional midwifery with the 48 hour working week for nurses, and allowance for the large number of lectures to be attended by the pupil midwife, it was an ideal which could not be reached. In the second of her hospitals which was a teaching hospital the nurses spent only 40 hours a week attending their patients which meant that each mother and child must be attended by 4.15 nurses. The most practical solution to the problem was the nursing of the baby by a completely separate nursing staff. This had the advantages that the nurses' whole attention was focused on the baby and minor lesions were readily observed that the baby need never be left alone in the nursery that the baby's routine was undisturbed by maternal emergencies that the carrying of infection from mothers to babies was largely eliminated, and that all types of nurses apart from the midwife or pupil midwife could be used for routine nursery work.

In the treatment of infection barrier nursing was the first point. This was carried out not only for infants actually infected but for infants whose mothers had an infection. The nursery sister should be given power to start treating small lesions as soon as she saw them. Cases of pemphigus had been arrested because the nursing staff had been allowed to start treating the first few spots they had seen. For application to skin lesions 5% sulphathiazole in glycerine had been used at three hourly intervals, and in the majority of cases this would clear up septic spots in two, three, or four days. Penicillin cream, used in 33 more serious cases, seemed to have an advantage. Twelve cases of pneumonia had been treated with penicillin, with three deaths, all in premature infants. She urged that paediatricians should concentrate on improvements in nursing routine and technique in order to reduce the still unduly high neonatal morbidity.

The Ophthalmic Aspect

Prof ARNOLD SORSBY dwelt upon the importance of the ophthalmic aspect in sepsis in newborn children. Most of these infections of the eye developed after five or six days of life. That did not fit in with the classical conception of ophthalmia neonatorum in the newborn. One of the difficulties was a merely verbal one. The unfortunate term "sticky eye" represented the line of demarcation between the normal eye and ophthalmia neonatorum—it meant the slightly irritated or inflamed eye. The rate of blindness among school-children went down from 36.4 per 100 000 in 1923 to 26 in 1933 and 20 in 1943. In 1922 37% of all blind children were blind as the result of congenital anomalies of the eye, twenty years later this proportion had increased to 67% meaning, of course, not an actual increase in congenital anomalies but a relative decline in infective conditions as the cause of blindness. It would be a mistake to assume that these congenital anomalies were all genetic affections; at least a quarter of them were due to a transmitted infection like congenital syphilis. It was also well known that German measles in the mother was responsible for a certain amount of

blindness in the children, producing congenital cataract and extensive fundus lesions. The incidence of blindness and impaired vision resulting from ophthalmia neonatorum had gone down markedly during the last twenty years, but there was no evidence of any reduction in the amount of ophthalmia neonatorum itself. What had happened was that as a result of intensive effort the complications of ophthalmia neonatorum had been brought under control. The most significant of the measures was notification. In some countries silver nitrate prophylaxis was compulsory. In Scotland, while not exactly compulsory, it was very widely carried out. In England and Wales it was carried out in some places and in others ignored. There was no real evidence that instillation of a drop of antiseptic prevented the onset of ophthalmia neonatorum. The complications of ophthalmia neonatorum had been steadily declining for many years before the advent of silver nitrate; silver nitrate and penicillin had accelerated what was already occurring. The value of sulphonamides was, of course, undoubted, and they should be used as a routine measure, save in the specialized units where penicillin could be used. His experience of penicillin in ophthalmia neonatorum extended to 150 cases. It must be used in relatively strong concentration and with great frequency. It was easy enough to get a cure with penicillin, but no one yet could say how it could be used in a simple and effective method.

Nursing Routine

Dr. HELEN MACKAY was doubtful about the wisdom of the policy of nursing the babies apart from their mothers. It was important to guard the babies against maternal infection, but it was also important to teach the mothers to tend their babies before they went out of the maternity home, also to get unmotherly mothers interested in their babies as quickly as possible. The balance of advantage might be to keep the baby with the mother. Dr. C. E. FIELD said that about a year ago in her hospital there was a small epidemic of skin infection in one nursery, and the prophylactic bathing of the babies with penicillin cream was tried and gave good results as compared with controls. The PRESIDENT said that babies were bathed too often. One well-known paediatrician insisted that the baby should be bathed once at birth, and then not again until the cord came away, and that procedure had resulted in a material reduction of infections.

Dr. CORNER, in reply, said that the ideal thing was to nurse the baby with the mother if the latter was fit, but so many of the mothers came into hospital with all kinds of infections, and the records of her hospital showed definitely that a little crop of infant infections coincided with infections of the same kind in mothers who were being nursed in the same wing. As for bathing, it was the practice in her hospital to bathe the babies at birth and then on the fourth day. If the cord was not rated they were not actually immersed. After this they were bathed every day. It was possible that the bathing took place too often, but the routine of bathing—the complete undressing of the infant—was a means of drawing attention to any lesion that might otherwise remain undisclosed.

A meeting of the Medical Society of the L.C.C. Service was held at the Maudsley Hospital, Denmark Hill, S.E., on Feb. 7, when 115 members were present. Members of the staff of Maudsley Hospital demonstrated the methods and appliances used in present-day psychology, and showed films of "The Physical Treatment of Neurotic States" and "Neuropsychiatry," and demonstrated cases of prefrontal leucotomy, anxiety state, G.P.I. treated with penicillin, and exophthalmic ophthalmoplegia.

The Washington Institute of Medicine (1720 M Street, N.W., Washington, D.C.) announce the following publication of two new periodicals. The *Quarterly Review of Psychiatry and Neurology*, with Prof. Winfred Overholser, M.D., as editor-in-chief, is to appear in January, April, July, and October of each year. The *Quarterly Review of Urology*, with Dr. Hugh J. Jewett, of Johns Hopkins University, as editor-in-chief, is designed to present concisely not only all progress in the field of urology but also important developments in other branches of medicine which are, or may become, of urological significance. It is to be published in March, June, September, and December. The annual subscription to each review is \$9.00.

Correspondence

Making Meaning Clear

SIR,—One of the advances in modern therapeutics has been the introduction of methods for determining the concentration of drugs in the blood stream. Such methods greatly accelerated the application of the sulphonamides and the new antimalarials. Unfortunately, in the case of salicylates and penicillin the established convention of reporting biochemical data in terms of 100 ml. of blood has been disregarded, and results are given in terms of microgrammes or decimals of units per ml. This is all very confusing, for most of us would find it much easier to remember the therapeutic range of penicillin as 4 to 20 units per 100 ml. than as 0.04 to 0.2 unit per ml. Part of the art of writing is to remove unnecessary obstacles from the way of the reader, and it is therefore to be hoped that editors will persuade contributors to revert to the normal custom.—I am, etc.,

Oxford.

L. J. WITTS.

Words and Clear Thinking

SIR,—I feel it is time Dr. Geoffrey Bourne's words under this heading (*Journal*, Oct. 21, 1944, p. 543) were reiterated: "Clear thinking is largely determined by clear expression. Those who misuse words are enemies to science." He enumerates the reasons for abandoning the terms "hyperglycaemic coma" and "hypoglycaemic coma." Others have joined him: "Why hyperbaric and hypobaric?" asks Lieut.-Col. H. Williamson (Sept. 15, 1945), recommending the safer synonyms "heavy" and "light." Your own leading article, "Drugs and the Doctor" (Oct. 21, 1944), describes proprietary names of drugs as "a problem," instancing sulphanilamide, offered under fifty-odd names at the last time of recording. Dr. A. Piney (Dec. 15, 1945) looks forward to a meeting of haematologists to clarify "the unwieldy terminology of their subject."

After reading these heartening contributions it is disappointing to see Dr. W. J. Gardner (Feb. 9, 1946) disparage the "myringotomy or paracentesis?" discussion so well introduced by Mr. T. B. Jobson (Jan. 5). He may be disgusted at one of the words later suggested, but his contempt of this type of correspondence is mischievous if our vocabulary is to undergo any improvement. It is also very disturbing to see your reviewer of the new supplement to the *B.P.C.* (Dec. 15, 1945) waiting for the day, which he thinks "will surely come," when that impartial publication shall burden its pages with a multitude of terms invented at random by private firms.

Medical terminology invites reform in several directions. I believe it was H. G. Wells who said (long ago) that scientists have yet to learn what every novelist knows—that is, that different characters in the same plot should not have similar names. Yet the "hypers" and "hypos," "ads" and "abs" remain, to our constant confusion and danger. The annoyance is worse when we see all the contrasting terms the drug houses can produce for a single substance.

A third obstacle to clear thinking, the least necessary of all, arises when we mix the meaning of such good words as we possess. An example has appeared in your columns at the time of writing. Dr. Gaskell (Feb. 16) defends a previous letter by quoting a well-known textbook in which the dilute plasma at the top of the E.S.R. tube is called "serum" fourteen times in three pages. This, he says, is good enough for him. Surely, at a time when perhaps hundreds of bottles of dried plasma and dried serum are issued weekly by the transfusion services, it would be more reasonable to recognize the difference between these substances and refrain from using their names interchangeably. It is not enough that the authors of the textbook are clear in their own minds about the matter, or that readers "know what they mean." They have confused Dr. Gaskell and will confuse others. (Dr. Gaskell will see his other troubles explained in an article such as that in the *Journal* of Sept. 5, 1942, p. 278.)—I am, etc.,

Brocket Hall Hospital, Welwyn.

T. C. BEARD.

Fractured Patella

SIR.—Mr. R. Brooke (Feb. 16, p. 231) has not convinced me that the patella is a useless bone which may be sacrificed with impunity. I believe that it serves a useful purpose and that when it is broken it should be mended and so far as possible restored to its normal condition. As Sir Max Page (March 2, p. 329) has pointed out, loss of the patella gives an ugly flattened knee, while the functional results of excision are often very imperfect.

On the other hand, it must be admitted that the results of suture are not always perfect, and the reason is that suture or "wiring" alone, however competently done, is a mechanically inefficient method of uniting a transverse fracture. In fact, it is bad carpentry. Frequently the result looks perfect on the operating table, but the x-ray photographs taken a few days later show tilting of the fragments and partial separation of the fracture surfaces. This applies both to the transverse fracture of the patella and to the common fracture of the olecranon.

For some years I have used a combination of pegging and wiring for these fractures. The fracture surfaces are cleaned and fitted most accurately together. They are firmly held together while first a drill and then a bone peg is passed into the long axis of the bone. A malleable stainless-steel wire is then passed transversely through the fragments above and below the fracture, and it is drawn tight and twisted in the usual way. The peg prevents any tilting of the fragments, while the wire holds them together.

In the case of the olecranon a long central screw is good carpentry if it will hold. But neither a screw nor a peg can be relied on to hold in the soft cancellous tissue of the shaft of the ulna, so that combined pegging and wiring is better.—I am, etc.,

London, W 1.

A. S. BLUNDELL BANKART.

Suprapubic Drainage of the Bladder

SIR.—Mr. E. W. Sheaf (March 2, p. 331) is wise to draw attention to the dangers of suprapubic cystostomy by a blind operation. An experienced surgeon can make the same mistake as Mr. Sheaf's "competent house-surgeon," for how will he be sure of avoiding the peritoneum in the region of the upper half of the anterior wall of the bladder without seeing or feeling the latter? The anatomical arrangement of the peritoneum is not the same in every case. I have observed a fold of it lying in front of a part of the anterior wall of an over-distended bladder on more than one occasion. Mr. Sheaf's experience with damaged gut is unfortunately not unique. I have had to operate on a patient in whom the tube had been inserted by blind puncture through the lumen of a piece of small gut before entering the bladder. As in Mr. Sheaf's case the intestine was still further damaged when the suprapubic sinus was dissected preliminary to opening the bladder for prostatectomy. The operation was made more difficult by the mass of peritoneal adhesions. Another case in which similar adhesions had sealed off the tube from the coelom had fortunately left the gut undamaged. I agree with Mr. Sheaf that in performing suprapubic drainage the catheter should be introduced into the bladder under vision. Apart from this, Mr. E. W. Riches's technique is to be commended.—I am, etc.,

London, W 1

CLIFFORD MORSON.

SIR.—I should like to reply to Mr. E. W. Sheaf's letter (March 2, p. 331), as that part of the article to which he refers was my responsibility. Although the method of suprapubic catheterization described was originally devised for the treatment of bladder paralysis (*Lancet*, 1943, 2, 128; *Brit. J. Surg.*, 1943, 31, 135), I have used it extensively for cases of retention in prostatic obstruction, and it is my routine treatment for chronic retention due to this cause. The very competent house-surgeon to whom he refers was also very enterprising in adopting the same method, although the propriety of any house-surgeon performing solely from the book an operation in which he has not had practical instruction may be questioned. The level of the puncture must obviously depend on the degree of bladder distension, and the instructions cited by Mr. Sheaf were given in an attempt to avoid the low suprapubic fistula which has been and still is, unfortunately, too common. If the bladder is adequately distended and an oblique track is made

the danger of puncturing the peritoneum is minimal; I have seen it only twice in some hundreds of cases, and each time it was recognized and corrected without harm at the time of the subsequent prostatectomy. Anatomists have stated that a bladder containing three-quarters of a pint (425 ml.) of fluid comes into contact with the abdominal wall for a distance of about 3 inches (7.5 cm.) above the symphysis pubis (Appleton, A. B., Hamilton, W. J., and Tchaperoff, I. C. C., 1938, *Surface and Radiological Anatomy*, Cambridge, p. 185), and this can readily be verified by surgical observation. Mr. Sheaf's suggestion that the puncture must usually traverse free peritoneum is at complete variance with the facts. Nor must he expect to find the bladder adherent to the anterior abdominal wall below the fistula; the avoidance of an open operation at the first stage leaves the field free of any adhesions or scar tissue at the second, and makes the exposure equal to that obtained at a one-stage prostatectomy. When preliminary drainage has been prolonged—in his case it was ten weeks—it is to be expected that a pouch of peritoneum will come down on either side of the track of the catheter, and it is therefore wiser to expose the anterior surface of the bladder at the second operation and open it below the fistula, stripping up the peritoneum and keeping strictly to the midline, just as in a one-stage operation. The accident of opening the intestine can thus be avoided.

While one must sympathize that his Christmas Day was marred by having to operate for intestinal obstruction, one must congratulate him on the successful outcome of his treatment and express the hope that this incident will not prevent his giving the method a fair trial in suitable cases; I can assure him that its advantages greatly outweigh any defects it may have.—I am, etc.,

London, W 1.

E. W. RICHES.

Psychology of the One-eyed Man and his Position in Industry

SIR.—The article on this subject by Lady Duke-Elder and Dr. E. Wittkower (Feb. 2, p. 155) has given us a timely reminder of this important problem. The eye injuries of this war and the ever-recurring eye injuries in industry are adding thousands to the present mass of one-eyed people. What is the position of the one-eyed men and women in the labour market? What jobs should they take up?

In the course of my investigations in 1938 on the employment of the one-eyed worker in industry I asked the Industrial Welfare Society to send out a questionnaire to its 750 member firms. This questionnaire asked for information about the employment of one-eyed men and women, their efficiency at work, and their accident record. Replies were received from 398 firms which employed about 1,000,000 workers. In these replies I learned that one-eyed men and women are employed in mines, iron and steel works, in the manufacture of chemical and electrical goods, and also in the fine close work necessary in the manufacture of artificial silk yarn, woollen goods, etc.

One-eyed people can be divided into two groups: (1) those who have lost an eye since childhood; and (2) those who have lost the vision of one eye in adult life as a result of disease or injury. The first group are in no way handicapped and have full confidence in carrying out their work. One finds the men in this group employed in the building trades working on ladders, on scaffolding, roofs, etc.; in the engineering trades working on every type of machine; in the tool-making industry, where great precision is required; and doing clerical work in offices. They are just as quick and efficient as their fellow men who work with both eyes. In the labour market these men and women have suffered few disadvantages until now. In recent years many large industrial establishments have instituted pre-employment visual examinations. It is obvious, therefore, that this group of one-eyed people will in future find greater difficulty in the selection of trades and professions.

The second group of one-eyed workers comprises those who have lost an eye in adult life. For the purpose of this investigation in 1938 I examined 100 men and women who had lost an eye within the previous eight years. They were patients at the Royal Eye Hospital, London, where the investigation was carried out. An inquiry was then made into the following points: (1) Trade and occupation when the accident to the eye occurred. (2) Time taken for readjustment to monocular

vision. (3) Period of enforced absence from work. (4) The subsequent employment of the injured worker. After the excision of an eye the patient takes a little time to adjust himself to the new visual conditions. The usual errors in the estimation of distances are made by all during the first few weeks following the loss of an eye. The period of the new visual adjustment takes from a few weeks to some months. Young workmen adjust themselves to the new visual conditions much more quickly than older people, who take longer to regain their confidence and remain nervous and anxious, especially when negotiating traffic in busy roads. The loss of the master (dominant) eye produces greater disability and delays adjustment to monocular vision. In assessing the loss of working capacity in a person who has lost the vision of one eye it is important to ascertain whether the injured eye was the master.

The Period of Enforced Absence from Work.—Convalescence after the removal of an eye together with the time necessary for the patient to regain confidence to return to work should rarely exceed two to three months, and yet I found during my investigation that the greater number of men, after the loss of an eye, stayed away from work for periods varying from six to nine or even ten months. A number of factors are responsible for this delay in the return to work. (1) Fear and lack of confidence to work under the new visual conditions. This may be a very important factor and cause the man to stay away for several months. Patients suffer from a genuine fear of injury to the other eye if and when they return to work. Their limitations in the field of vision and the mistakes they make in judging distances, heights, and speed of vehicles, etc., cause them to be conscious of the dangers which will confront them when they resume work. These men require careful rehabilitation. On many occasions I have advised them to carry out simple tasks at home, such as knocking nails into a board, using a screwdriver, etc. These simple exercises combined with the playing of a ball game have greatly accelerated the process of visual readaptation, thus enabling the injured men to return to work sooner. It would indeed be helpful if rehabilitation centres were established at eye hospitals. There the one-eyed men and women could receive training for specified work, and psychological treatment could be given where necessary. (2) Compensation and litigation difficulties represent the next factor delaying the patient's return. I hope that the new Industrial Injuries Bill will safeguard the interests of the injured worker and enable him to return to work as soon as he is fit. The settlement of the claim should be left to a later date after the resumption of work. This procedure would save him many months of unnecessary hardship resulting from the loss of wages. (3) The last and very important factor causing delay in the return to work is due to the unwillingness of firms to employ one-eyed personnel. It should be made well known that the experience of many welfare and safety departments attached to several large factories in this country has shown that one-eyed workers, after the initial period of accustoming themselves to monocular vision, are, for practical purposes, as fully efficient as two-eyed people. Detailed accident statistics kept by the safety departments indicate that there is no evidence to show that one-eyed persons are more prone to accidents than the normal-sighted.

I am often asked by parents of one-eyed children and by labour managers of large industrial establishments what occupations I consider suitable for one-eyed people. Of course this depends on the vision of the one good eye. If this is 6/6 or 6/9 the one-eyed person can follow comfortably all occupations involving close work (clerical work, watch-making, jewel work, and even the fine close work required in the manufacture of artificial silk yarn or hose, and the inspection and manufacture of electric-light bulbs and radio valves). In the metal and engineering trades the one-eyed man with 6/6 or 6/9 vision is fit for most jobs, but of course I would advise against employment in operations which present a greater danger of injury to the good eye. If the vision of the sound eye is less than 6/12 I would suggest that gardening, farming, or domestic service are the most suitable occupations.

The eye injuries of this war will add a large number of men to the mass of one-eyed workers. Many of them will be anxious to return to their pre-war employment. The men should be advised against returning to work which involves chipping, hammering, or drilling metal. They should not be employed

in underground work in the mining industry. Rehabilitation centres should bear this in mind when preparing them for future work. The examining factory surgeons and industrial medical officers should always remember that although one-eyed men and women are fit for most jobs the safety of the good eye should be the first consideration.—I am, etc.,

London, W.1.

J. MINTON, F.R.C.S.

REFERENCE

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Cephalin Flocculation Test in Malaria

SIR,—We read with great interest Dr. J. G. Makari's paper (Feb. 23, p. 272) on the cephalin-cholesterol test in malaria. We first became interested in the use of this test in malaria in August, 1945, and since then we have applied it to 18 cases of malaria, the results of which are tabulated below:

Type of Malaria	No. of Cases with Positive Blood or Marrow Smear	No. of Cases with Negative Blood Smears	C.C.F. 48-hour Result	
			Positive	Negative
<i>P. vivax</i> infections . . .	14	—	11	3
Clinical malaria (<i>P. vivax</i>)	—	3	2	1
<i>P. vivax</i> and <i>P. falciparum</i> infections	1	0	1	0

It will be seen from this table that our results are in agreement with those obtained by Dr. Makari. Of the three clinical cases with negative smears, two were typical benign tertian clinical cases with histories of repeated attacks of malaria, and the third case was a patient with chronic malaria who had received treatment before admission. In this case the C.C.F. test was negative on admission. The only abnormal findings were a raised sedimentation rate and splenomegaly, both of which disappeared with further treatment.

Hippuric acid liver function tests were carried out on 8 of our cases; the results varied from 83 to 122%, normal average—all within normal values. In cases we were able to follow up we found that the C.C.F. reaction became negative with antimalarial treatment; the shortest interval after commencement of treatment and the reaction becoming negative was 10 days and the longest 60 days, this last being in a case of chronic malaria with a large spleen, no pyrexia, and parasites only present in sternal marrow. Generally we found that the decrease in flocculation was closely correlated to a fall in the sedimentation rate. Our tests were carried out with "difco" cephalin cholesterol and Hanger's method was used.

We are in agreement with Dr. Makari that the cephalin-cholesterol test is an index of malarial activity in the host's tissues, and we commend his suggestion that this test should be carried out in prospective blood donors. As well as excluding cases of malaria and infective hepatitis, it would also exclude cases of infective mononucleosis. Rosenberg (1941) describes three cases of infective mononucleosis in which the cephalin-cholesterol test was positive, and we have observed it on two cases, both giving a strong positive result. Incidentally the first mention of the use of the cephalin-cholesterol test in malaria that we can find in the literature is four cases described by Pohle and Stewart in 1941. In three of these cases the patients were suffering from syphilis of the nervous system and had been treated with malaria therapy, and the fourth was a case of acute tertian malaria. We hope to publish our own results in full at a later date.—We are, etc.,

JAMES P. A. HALCROW.

IAN WANG.

Hairmyres E.M.S. Hospital,
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Sulphadiazine Anuria in a Gurkha

SIR,—Lieut.-Col. C. W. Healey (Feb. 9, p. 202) described five cases of sulphapyridine anuria in Gurkhas, and he concluded from his experience that they "are particularly liable to fail to excrete the products of modern chemotherapy." In Italy last year my field surgical unit was sent to look after the casualties of a Gurkha regiment engaged in the Apennine Mountains, just

before the final and overwhelming attack on the valley of the Po. Although we only treated Gurkha patients for this one month, our only case of sulphonamide anuria during that year (1945) in Italy occurred in a Gurkha patient, and the majority of our abdominal and head cases received sulphadiazine as routine post-operative treatment.

Rfn A B C, aged 20 years, was wounded on the Gesso mountain on Jan 10, 1945. He suffered from multiple shell wounds of the head and a fractured scapula. The scalp was severely lacerated and the skull was fissured but not depressed. The scalp wounds were excised, penicillin was inserted, and all the wounds were sutured. A course of sulphadiazine was given by mouth for the first four days after operation (total 25 g).

On Jan 14 no urine was passed. Fluids and alkalis—sodium citrate 60 gr (4 g) four hourly—were given by mouth in large quantities, but no urine was passed during the next twenty-four hours. On Jan 16 intravenous glucose saline was administered by drip infusion. Still no urine was passed. In the afternoon the patient had become drowsy, his face was oedematous, and his eyelids and legs were greatly swollen.

As the roads were blocked by snowdrifts and there was no possibility of obtaining a cystoscope or a ureteric catheter, a nephrostomy became essential. At 5.30 p.m. on Jan 16, under open ether anaesthesia, the right kidney was exposed and found to be swollen beneath a tense capsule. On opening the pelvis of the kidney clear urine squirted out under pressure. The capsule was stripped off the convex border of the kidney, and a de Pezzar catheter was placed in the pelvis. During the next twenty-four hours 17 oz (482 ml) of blood-stained urine were passed via the nephrostomy tube and 5 oz (142 ml) per urethrum. The patient was still oedematous and his sputum became profuse and frothy in the afternoon of Jan 17. The infusion was stopped at once and his general condition improved rapidly. During the next twenty-four hours 20 oz (568 ml) were passed via the nephrostomy and 45 oz (1.3 l) were voided normally. At 7 p.m. on Jan 18 the urine was noticed to be clear and free from obvious blood. The oedema had subsided considerably. Next day the patient was cheerful and alert, and the oedema had disappeared. Henceforth he passed clear urine in normal volume each day.

The patient was allowed up on Jan 26 and the nephrostomy tube was removed next day. He was evacuated to the rear on Jan 29 and his M.O., Capt. Naqi, M.C., I.A.M.C., reported that he ultimately returned to duty some weeks later.

I believe that sulphonamide nephrosis, or ureter obstruction due to crystal precipitation, can be prevented in nearly all British patients if there is an adequate fluid intake—5 to 6 pints (2.8 to 3.4 l) daily. However, if the fluid intake has been allowed to fall whilst the drug is being administered, oliguria, pain in the loin or epigastrium, and haematuria may occur. In this early stage the patient can be treated successfully by intravenous glucose-saline infusion. Alkalis may possibly help, but I am not convinced of their efficacy. If anuria is allowed to ensue, washing the pelvis out with saline through the ureteric catheter usually relieves the patient. If this process fails or is impracticable, a nephrostomy, performed in good time, can usually be relied upon to save the patient.—I am, etc.

Leeds

MICHAEL C. OLDFIELD

Ocular Signs in P.O.W.s from the Far East

SIR.—The condition referred to in both Dr. H. G. Garland's and Capt. W. M. Rich's letters (Jan 26, p. 143, and March 2, p. 330) is one well known to observers in West Africa and other tropical countries. For the first time, apparently, it has now been observed in Europeans, and under conditions permitting accurate observation. During my time as Army ophthalmologist in Freetown, from 1941 to 1943, I have seen a large number of these cases among native troops. They were at that time regarded as a "kind of avitaminic retinopathy." I ran some series of vitamin administration: red palm oil (retinol), vitamin A and D, pure riboflavin, marmite, and nicotinic acid. Uniformly negative results forced me to the conclusion that the condition was not an avitaminosis, at least not one in the accepted sense of the term. Investigations into the customary diet of these men, however, made me suspect a protein deficiency, or rather a "poisoning" by certain kinds of low-grade protein.

Last summer, in Rangoon, when thousands of relieved P.O.W.s and internees passed through our military hospitals on the first stage of their way home from Thailand and Indo-China, we found about 1% of the men suffering from an identical complaint. The history given by the men and the disappointing

results of vitamin administration brought me to the same conclusion I had reached two years before: that the so-called "avitaminic retinopathy" was not caused by lack of vitamins at all but by some toxicosis due to lack of good proteins or to certain low-grade proteins. In addition there seemed some constitutional and psychological factors involved.

It was interesting to listen to the nearly stereotyped case histories related by these men, how they dated the beginning of their complaints to a period of uniformly bad diet in the spring of 1943, and how in the time following they observed temporary improvement of their vision whenever an egg or a scrap of meat could be obtained. On hearing such a story every contemporary medical observer with his vitamin-conditioned mind will jump to the seemingly obvious conclusion—and then be disappointed by unsuccessful treatment. There is, of course, the true retinopathy of beriberi which invariably leads to optic atrophy. Optic atrophy of the papillo-macular bundle was indeed observed frequently, but its occurrence bore no relation to the incidence of the scotomata, which rather seemed to be an independent symptom of this peculiar toxic amblyopia.

While I do not claim any originality for these views, I hope that these remarks will help to throw more light upon this rather puzzling condition—I am, etc.

Nottingham

H. GOLDSMITH,
Late Major, R.A.M.C. Ophthalmic
Specialist.

Quinine for Induction of Labour

SIR.—I read with interest Dr. Eneas Mackenzie's letter (March 2, p. 333) on the use of quinine for medical induction, but am rather at a loss to discover what exactly he is able to prove by the figures which he gives. It would appear that he disagrees with Mr. Neon Reynolds's statement that the use of quinine is a "thoroughly bad practice which is productive of many stillbirths each year." He then goes on to say that in 105 cases out of 647 he used quinine as a method of induction without a single stillbirth.

First, I would like to point out that a series of this size proves very little, it is not, in fact, statistically "significant." On the other hand, one must say in fairness that all the available evidence is not on the side of Mr. Reynolds and against Dr. Mackenzie. Dilling and Gemmel (*J. Obstet. Gynaec. Brit. Emp.*, 1929, 36, 352, 1930, 37, 529) record their observations on the dangers of quinine in these words: "Although there is experimental evidence to prove that quinine may cause intra-uterine death, statistics show that this risk is not greater than that of stillbirths from undiscovered causes in otherwise normal labours." Dodds (*J. Obstet. Gynaec. Brit. Emp.*, 1931, 38, 827), in a series of 338 cases, came to a similar conclusion. On the positive side, however, Munro Kerr denies that the use of quinine has any influence on either the duration of labour or uterine inertia; and on page 69 of his *Operative Obstetrics* mentions that Theobald (*Journal*, 1943, 2, 851) recommends it very strongly, while Buddee (*ibid.*, 1934, 1, 1159) questions its efficacy.

I would like to know, however, exactly what the following statements in Dr. Mackenzie's letter are really meant to convey.

1. "I have found it a most helpful procedure." To whom is it helpful—to the mother, the baby, or the doctor? How may this helpfulness be assessed?

2. "There is a proper stage in pregnancy when quinine can be used with safety and success." This is a simple and dogmatic statement made without any statistical backing. How does Dr. Mackenzie arrive at an estimate of propriety, safety, and success?

3. "To use it at the wrong time and in the wrong type of case is to court disaster." This is true of practically any method in use in operative obstetrics—in forceps delivery, version, and Caesarean section, to mention a few only. What are the right times and the right type of case?

4. "I am, of course, not an F.R.C.O.G., and not even a D.R.C.O.G., and I have not been within a maternity hospital for 40 years; I am only a rural practitioner with no begowned, bemaused, and begloved assistants to help me, only a district nurse and 'an auld wife to haud a leg.'" Possibly had I Mr. Reynolds's qualifications and bevy of assistants I might have his results. As Dr. Mackenzie has been permitted to lapse into the idiom of "braid Scots" perhaps I may be allowed to

do the same, and to inquire whether it is by any chance possible that he has a "scunner" (dislike) for such new-fangled notions as higher obstetric qualifications, maternity hospitals, gowns, gloves, masks, and the like.—I am, etc.,

London, W.1.

D. G. WILSON CLYNE.

Penicillin in Gonorrhoea

SIR,—In his article "Penicillin in Gonorrhoea" (March 2, p. 314) Dr. Alastair Allan stresses the need for a follow-up lasting twelve months in cases of gonorrhoea treated with penicillin. It would be interesting to know what facts or theories have led Dr. Allan to advocate this long period of surveillance.

My own observations in cases of gonorrhoea¹ treated with penicillin in doses of 100,000 units by the divided dose method have led me to believe that the six-months follow-up used in the Allied Armies is adequate. Indeed I have not yet seen any cases where syphilis became evident later than three months after penicillin therapy for gonorrhoea and without another exposure to possible infection. The incubation period of syphilis is lengthened by penicillin in the dosage used for gonorrhoea, but when signs of disease appear they are in no way altered, and *Sp. pallida* is readily demonstrable in primary lesions. In my experience, even after the treatment of syphilis itself with penicillin in doses of 2,400,000 units, cutaneous and mucous relapse phenomena appear in the majority of cases within six months after treatment.²

I think that Dr. Allan is overestimating the antispirechaetal powers of small doses of penicillin, and that any improvement in his default rate caused by speeding up actual treatment will be offset by the length of the surveillance period. It would be interesting to have the reasoned opinions of your readers on the length of follow-up necessary after the treatment of gonorrhoea with penicillin in the doses now used.—I am, etc.,

London, S W 1.

JAMES MARSHALL.

REFERENCES

- ¹ Marshall, J. (1945). *Brit. J. vener. Dis.*, 21, 150.
² — (1945). *Nature*, 156, 769.

Penicillin and Pursers

SIR,—It is interesting and comforting to read in Mr. James Hall's most instructive article (Feb. 16, p. 244) that penicillin is used (and with satisfactory results) under the direction of the pursers of many American ships. Surely the time has now come when the general body of practitioners in this country may be trusted with the precious stuff. I write not only as one of the "ninety-and-nine" unprivileged general practitioners whose work over the past few years has been from time to time embarrassed by this invidious veto, but also as one who, thanks to the timely action of a specialist colleague, owes his very life to penicillin therapy.—I am, etc.,

Worthing

O. P. CLARK.

Anaesthesia

SIR,—Dr. W. A. Bellamy (Feb. 16, p. 252) bows his devoted head awaiting the storm to burst: and I am sure it will burst indeed before very long. I should like to add my raindrop to the storm.

He deduces from the fact that the percentage of anaesthetic deaths has not decreased during the last fifteen years the curious conclusion that the older methods are equal in efficiency to more modern and elaborate techniques. It would appear to me (and I am open to correction by any statistically minded colleague) that this deduction is unsound. Surely it is since the introduction of these "tubes, taps, and turncocks" that surgery has become safer for a large class of patients who were poor risks under the open ether and chloroform techniques; and so a multitude of patients are submitted to surgery now who would not have been operated on at all previously. Thus it seems that if this mass of poorer-risk material is included in the statistics of anaesthetic deaths, the fact that the death figure is so constant is a credit to the newer methods. Furthermore, the percentage of deaths is not the only index of the success or failure of any anaesthetic method. The time the operation takes, the look of satisfaction or otherwise on the surgeon's face, the recovery time of the patient, and the inci-

dence of post-operative complications, pulmonary and otherwise, all must be considered. The anaesthetist usually sees only the first two of these. As a house-surgeon I have seen the others, and over a period of many months, with various classes of patient, I have been able to foretell with reasonable accuracy who was going to be "chesty" after operation, who was going to have to endure the agonies of prolonged sickness after operation, simply by looking at the anaesthetist's name and knowing what method he used. If an anaesthetist wants to know if he is a good anaesthetist or not, he should consult the people who see his cases in the post-operative period—the housemen and the ward sisters. They know very well indeed who is good and who is bad without ever, of necessity, seeing the person concerned, or seeing whether he is a "tube-and-turncock" or a "rag-and-bottle" merchant.

But from my experience it is the open-ether patient who suffers most with chests, "ether eyes," and sickness. These things naturally do not alter the percentage deaths very much, but they do mean much to the patient both in the matter of comfort and in the willingness to have an anaesthetic again. With open ether one can give a good anaesthetic, of that there is no doubt; but one can also shoot a rabbit with a blunderbuss, and doubtless shoot it very well. The advent of "tubes, taps, and turncocks" does not of course by itself make the anaesthetic better, but it does place in the hands of the operator better and surer ways of controlling his anaesthetic agent. It is the anaesthetist who controls his agent who has the best results, interpreted in terms of help to the surgeon and post-operative comfort of the patient. Of course, to use the newer and more complicated machines one must study them and learn their uses and limitations. Shockingly bad anaesthetics can very easily be given using one of the most efficient machines if the operator does not know how to employ the control methods at his disposal.

I am glad to hear Dr. Bellamy say that housemen cannot give open chloroform. I have never given chloroform nor seen it used. I hope I shall never have to give it so long as safer agents continue to be available. It is, I feel, quite true to say that really good anaesthesia by inhalation methods is "a cult known only to a favoured few," and this few is only favoured in so far as they have the intelligence and common sense to study their equipment, use it carefully, choose the agent most suiting the patient and the operation, and, above all, at every stage, to control the anaesthesia.

Modern machines are designed so that the anaesthetist has perfect control over what the patient is breathing and when he breathes it. There are no superfluous knobs, taps, or tubes. The careful and skilled anaesthetist has welcomed these machines because they give him ever-increasing control of the anaesthesia; and he will continue to use them to the benefit and comfort of surgeon, patient, and staff, irrespective of whether percentage deaths fall over a period of fifteen years or not.—I am, etc.,

Aberdeen.

MALCOLM R. MILNE.

SIR,—As an anaesthetist devoted to the art and banded together with Dr. A. H. Galley in the Anaesthetics Section of the R.S.M., I should like to congratulate him on his admirable reply (March 2, p. 332) to Dr. Bellamy's nostalgic wail over the otherwise unlamented passing of an era in anaesthesia characterized by a high incidence of post-operative morbidity. My feelings, however, were more poignant, since for twenty years I have striven to associate Aylesbury with progress in anaesthesia and have pleaded in the columns of the *Journal* for an eclectic attitude and flexibility of technique, whereby the drug or method calculated to produce the best result in each individual case may be employed.

With regard to "over-specialism," Dr. Bellamy's devoted head has remained so bowed that he has not noticed that the trend of the specialist anaesthetist is not to limit but to enlarge the scope of his activities, so as to include not only all branches of anaesthesia and analgesia, but also oxygen therapy, resuscitation, pre- and post-operative treatment, etc., the high value of his services in which has been abundantly proved in the late war. It would appear a far greater danger that he himself should become a super-specialist, such as an "avertinist" or "tribromethylalcoholist." Concerning simplicity, one of the

most famous last words (for the patient!) is, "Just give her a shift, old man."

I should like to invite Dr. Bellamy to journey into Ashbury and meet Mumbo and Jumbo (two fairly modern closed circuit machines so christened in his honour) and see for himself that they, in conjunction with their jungle pal Circe, are not so lethal or so complex as his perfervid imagination would lead him to believe—I am, etc.,

For the Hospital Ashbury H. W. LOFTUS DALE

Liver and Spleen Puncture

SIR—It has occurred to me that the production of apnoea by overbreathing would make the operations of spleen and liver puncture easier and safer. The danger of these procedures is haemorrhage from tearing on respiratory movement while the instrument used is *in situ*.

According to Yandell Henderson (*Adventures in Respiration*) a normal man at sea level can stop breathing for 40–60 seconds. After forced breathing of air he can hold his breath for 2–3 minutes. Breathing then recommences owing to oxygen lack and is periodic at first. If, after several minutes' forced breathing, he fills his lungs with oxygen he can hold his breath for 5–6–10 minutes. Breathing recommences without periodicity when sufficient carbon dioxide has accumulated. There is no oxygen lack.

Each patient could have one or more rehearsals to find out how long the apnoea in his case would be likely to last. Hyperventilation tetany is rarely produced by a few minutes' overbreathing, if it should occur and not pass off quickly when the overbreathing ceases inhalations of oxygen and carbon dioxide 5 to 7%, or rebreathing from a paper bag will stop it.—I am, etc.,

St. Benedict's Hospital
London S.W. 17

MARY WALKER

The E.S.R. Technique

SIR—I am sorry to find that Dr. H. S. Gaskell (Feb. 16, p. 255) is not to be persuaded that the tube-length within wide limits makes no difference to the result when the rate is normal. It is something to find that he does admit that we should both sink at the same rate (barring the effect of salt water) in the Pacific as in the local swimming-bath, and I can assure him that the same principle applies to the rouleaux of red cells in the sedimentation rate. Stokes's Law makes no allowance for the distance the sinking body has below it, as the body soon attains a constant velocity.

When on the Committee of the E.S.R. of the Empire Rheumatism Research Council, my colleague and I worked out the whole subject of tube lengths and bores at very great length, and I have voluminous records made on the automatic recorder of bloods put up simultaneously in tubes of widely varying bores and lengths. Even in tubes of 25-mm length the normals come out the same at the end of the hour, and it is only when more rapid rates are measured that the short tubes give lower results as a consequence of the earlier onset of packing. I can only imagine that Dr. Gaskell is thinking of these. I will gladly send him some of my charts if he is interested.

I am sorry to hear that Messrs. Hutchinson and Hunter have been so misguided as to call plasma "serum," especially in a test in which some authorities consider the fibrinogen to play a most important part—I am, etc.,

London W. 1

J. W. SHACKLE

Traveller's Oedema

SIR—Dr. Zaccopoulos's remarks (March 2, p. 322) about traveller's oedema reminded me of a similar condition which was prevalent among older people in a deep tube shelter to which I was medical officer during the "blitz." It was particularly noticeable before bunks were put up, the more select who did not wish to lie on the platform brought deck chairs, and I think the bar behind the knees was partly responsible.

In Sept., 1922, it was my fate to travel from Corfu to Trieste in a rather superior boat containing Greeks and a sprinkling of Armenians from the Smyrna "episode." These people had had their nerves frayed by what they had been through, and

they grumbled bitterly to the captain. His deck was so small that they had no exercise and were suffering terribly from swollen legs and constipation. I heard the exasperated Italian captain say, "Look at that Englishwoman over there. I don't know what devilry she is up to now, but she is never still, and I bet you she has no constipation or swollen legs." And he was correct—I am, etc.,

London N. 1

LINA M. POTTER

SIR—In his paper on traveller's oedema (March 2, p. 322) Dr. Zaccopoulos does not mention two important aetiological factors: (1) The severity of the condition is much aggravated by a hot, particularly a hot and humid, climate. It commonly occurs amongst the crew of ships in the Tropics, yet I have never seen it in Northern waters. The circumstances of Dr. Zaccopoulos's cases—a rail journey from Smyrna to Aleppo—suggest that the heat factor with its concomitant sluggish circulatory condition was present. (2) Tall asthenic people who have a poor circulation anyway, who faint easily, and whose extremities are always icy in cold weather, are usually first affected and develop the grossest swelling. It would be interesting to know the nutritional state of these soldiers. If the oedema of starvation were just around the corner, it might account for the very high incidence amongst them—I am, etc.,

Barking

G. S. WIGLEY,
Sergeon-Lieut.-Colonel, R.N.A.F.

Physical Therapy in Mental Disorder

SIR—Without wishing to enter any controversy regarding any comments of Dr. Leroy concerning Dr. Frank, may I associate myself with Dr. Leroy's letter (Feb. 16, p. 251) regarding convulsion therapy? What he says concerning its use as a punitive measure is unfortunately occasionally true. So is the indiscriminate use of a method which is valuable in the right cases. The following instance exemplifies the effects of its too facile use on the laity.

Recently while in the Middle East I was called into a hotel to see a middle-aged patient, who appeared to be developing a paranoid psychosis, though he had very good insight. He also had diminished ankle jerks. Nevertheless a doctor who had seen him the day before had, without more ado, prescribed ECT to be given in the hotel. Largely, I suspect, to rubberstamp this surprisingly popular prescription, three psychiatrists, including myself, were then called in. (In the country in question it is the custom for consultants, like troubles to come not single spies but in battalions.) We all agreed that a lumbar puncture was indicated, that a hotel, however luxurious, was not a suitable place for an incipient psychosis, and that, if the condition was not organic, in view of the good insight psychotherapeutic measures had a place in treatment. Also that certainly until investigations were completed ECT. was not indicated.

We explained this to the patient's mother. She vigorously resisted any question of investigation or hospitalization, and when we said that, at least pending investigation, we thought ECT contraindicated, she exclaimed in horrified tones, "What, you do not wish him to have electric shock treatment?" and burst into hysterical sobs. The mother was undoubtedly a foolish woman, but even making allowances for that, the fact that an over-solicitous mother should be reduced to tears because caution was advocated in giving her son repeated major convulsions, is surely a striking commentary on a tendency to lade out fits as though they were nothing more drastic than an aspirin tablet—I am, etc.,

W. LINDSAY NEUSTATTER

Homosexuality

SIR—I cannot claim the specialized psychiatric experience and authority which might be regarded as a *sine qua non* for participation in this discussion, but I have recently had the opportunity of debating the subject with a friend who in a past official capacity had considerable responsibility in the conduct of prosecutions for offences which included those under review, and I think the impressions I have derived are worthy of communication to your columns.

My friend was candid in admitting an innate hostility towards defendants whose acts tended towards any injury of children, and he had no hesitation in segregating homosexual offences between adults as wholly distinct from those where children were involved. And, perhaps in consequence of such acknowledged bias, he criticized the exaggerated emphasis laid by the majority of your correspondents upon the position of the defendant to the exclusion of the dangerous effects which might be caused to the victim. Unless defendants in such instances can be classed as insane in the eyes of the law, it was only to be expected that courts should regard their acts as calculated and deliberate *vis-à-vis* their victims, and in this respect any "pathetic" element—to use a phrase of one correspondent—should apply to the victim rather than to the malefactor. On that basis, sentences which superficially appear unreasonably vindictive are justified to ensure protection of potential victims.

In my friend's experience those offenders, the subjects of a perversion which demands a child as participant, were in nearly all cases irreclaimable.—I am, etc.,

London, W.1

ADOLPHE ABRAHAMS.

SIR,—I have followed this correspondence with interest and bewilderment. Surely the first letter concerned an individual charged and convicted not with homosexuality as such but with repeated assaults on several children over a period of years—and assaults on children, whether homosexual, heterosexual, or sadistic, are regarded with disfavour by community and law alike. What two like-minded adults may do in privacy is very possibly their own concern, but this does not seem to be the point under debate, and perhaps it is partly because homosexual practices not infrequently result in assaults, and receive publicity in this way, that the opinion of the majority disapproves of such practices. If the community takes power to protect its property by means of the preventive detention of habitual criminals it may surely protect its children by similar means.—I am, etc.,

Birmingham

KATHLEEN A. H. SYKES.

Stethoscope versus X Rays

SIR,—Dr. E. Weatherhead (Feb. 23, p. 293) states: "Moreover, clinical evidence will often give more information as to activity or non-activity of pulmonary disease than is to be got from x-ray examination alone." As the terms "activity" or "non-activity" are never applied to any other pulmonary disease but pulmonary tuberculosis, I assume that Dr. Weatherhead means pulmonary tuberculosis. I have no intention to argue about the correctness of this statement, and I am writing only to draw attention to a gross fallacy which is hidden in it.

If by *clinical evidence* Dr. Weatherhead means auscultatory findings obtained by the use of the stethoscope, then the statement is absurd. On the other hand, if in *clinical evidence* he includes—and I must assume that he does—the interpretation of the temperature chart, pulse chart, weight chart, the results of haematological and bacteriological tests, and the application of exercise tolerance tests, then the statement has no bearing whatsoever on the present correspondence or on the opinions expressed by some members of the Royal Society of Medicine in their debate on "Stethoscope versus X Rays," to which some participants of this correspondence, including Dr. Weatherhead, so strongly objected. Indeed, in the light of Dr. Weatherhead's statement, the poor stethoscope strongly resembles a fifth-rate provincial "soccer" club entering the field on a special occasion with ten guest players—of international reputation.

Don't let us confuse the issue. The debate in the Royal Society of Medicine was not on "X Rays versus the Rest." It was clearly on "Stethoscope versus X Rays," which can be summarized in two questions with two simple answers: *Question 1.*—What evidence of pulmonary disease can be detected by auscultation which could not be detected by x rays? *Answer.*—Rhonchi and pleural friction rub. *Question 2.*—What evidence of pulmonary disease can be detected by x rays which could not be detected by auscultation? *Answer.*—Innumerable.

I whole-heartedly agree with Dr. Weatherhead that "the importance of this controversy lies partly in the fact that some of the statements made at the Royal Society of Medicine

debate came from members of the teaching staffs of one or other of our own great London hospitals and might therefore be accepted as authoritative by junior members of the profession." The authority of Dr. James Maxwell, Dr. Peter Kerley, and Dr. Geoffrey Marshall needs no endorsement by the profession. Let us hope that the overwhelming majority of the junior members of the profession will take their teaching to heart and by insisting on x-ray examination, in spite of negative auscultatory findings, will succeed in saving many lives, which would have been inevitably lost without adequate radiology.—I am, etc.,

F. KELLERMANN,
Assistant Medical Officer, Essex County Council

Haematuria after Injection of Haemorrhoids

SIR,—I was interested in the case of haematuria after injection of haemorrhoids quoted by Dr. Kenneth Hazell (Dec. 15, 1945, p. 864), for I have had one case recently. In this case 3 ml. of 5% phenol in almond oil were injected submucosally above the haemorrhoid, and when the patient reported one week later he stated that during the evening after the injection, which was given in the afternoon, he had painless haematuria. This had ceased by the following day.—I am, etc.,

Melbourne.

S. L. STRANGE.

A Fundamental Principle

SIR,—At this hour it is encouraging to be able to assume that opinion is hardening against the introduction of a compulsory State service. I assume, that is, for one cannot suppose that you now depart in the least from your traditional policy of publishing a representative cross-section of all views, and there has recently been a sharp decrease in the number of letters in the *Journal* that truly support the planners' case.

Some of the exceptions continue to make strange reading. Whence does Dr. J. H. Wilson (Feb. 23, p. 295) derive the quaint conceit that doctors "never, never can be slaves" in virtue of their liberal and cultural background? In the first place, medicine is often pilloried as a technical body of men greatly inferior to those of other professions in regard to liberal culture. In the second place, a background of social and intellectual refinement does not confer the slightest immunity to enslavement; history may even be interpreted as suggesting that it may be an enervating influence conducive to slavery, as in the case of the ancient Greeks, for example.

The trite, poetic, and philosophic stress on the inalienable freedom of the mind hardly seems in issue when one is faced with the *de facto* legal status of slavery. If the antislavery workers in America a few generations ago had been impressed by these vague arguments they would have accomplished little. The physician-slave of ancient Rome seems to have enjoyed amazing freedom as contrasted with the position which his twentieth-century counterpart is likely to occupy: he had a wide discretion in technical matters, could often move freely about the land, could always take private patients, and was even encouraged to gain a fortune and perhaps to purchase his freedom with it. The Socialist student of history will be astute to prevent such lax abuses from recurring in future.

Again, Dr. Lennox Johnston (*Supplement*, Feb. 16, p. 35) deplors the reaping of the richest rewards in present-day practice by "the popularity-seeker and the humbug." One is amazed by the implied assumption that the seeker after popularity always obtains it, and that the humbug in England to-day can "fool all the people all the time." When will so perfect a State service be devised that popularity-seekers and humbugs can make no headway? The popular doctor (as opposed to the mere aspirant towards popularity) is in a position to do great good, and Mr. Somerville Hastings shows a wise and practical grasp of realities when he suggests popularity with patients as a standard for fixing remuneration in the new service, for general practitioners at least. His suggestion sounded strange in the mouth of a Socialist reformer, perhaps because it was such a good one.

And letters still emerge in print stressing *ad nauseam* how unthinkable and contrary to public policy would be a strike of medical practitioners. From the doctor's point of view the question of striking can never arise while independence is preserved; those who refuse to sign on the dotted line will not

have had the matter in their thoughts. From the public point of view the community can never even be threatened with deprivation of medical services unless and until the latter become a monopoly. And it seems possible also that rabid Socialists who enthusiastically surrendered their professional freedom too hastily and later became disillusioned and dissatisfied with their working conditions might find themselves obliged to stage a strike as the only available means of redressing their grievances. I can conceive of a medical strike within the ranks of a State medical service and nowhere else—I am, etc.,

Stratford-on-Avon

PETEP PARRY

SIR—From Dr J H Wilson's letter (Feb 23, p 295) it is clear that in order to obtain a supply of doctors for undesirable localities he prefers nationalization and compulsion of the profession to improvement in pay and conditions or service in such areas. Those who disagree with him are entirely selfish and unconcerned for the welfare of humanity as a whole. Would not humanity as a whole include the doctor's wife and family are they not to be considered? Or perhaps Dr Wilson might agree to further "direction" as to elabouration of the doctors concerned, it is quite conceivable from the tone of his letter.

With regard to the undesirable localities the first necessity or the welfare of the people is, of course, improvement in housing environment, sanitation, more attention to character training, etc., the presence of a few more doctors would hardly affect these matters which call for immediate attention.

It would be interesting to know what is meant by "the government is about to take the cure out of our hands" presumably by conscription and exploitation of the profession. While there can be little doubt that the planners of to-day may take every advantage of the fact that the ethics of the profession could interdict such a step as "striking," it should be apparent that if the profession or even a percentage of it were to adopt quite simple "non-compliance" procedure and still treat their patients, it would not be possible for bureaucracy to impose conditions which were not acceptable to the profession. It is surely obvious that this national medical service venture was not so much a political move as an attempt on the part of the State machinery to get complete administrative control of the medical profession. If in doing so they should be so injudicious as to antagonize the profession it is quite certain that it will not be for the benefit of the public—I am, etc.,

St Mawes Cornwall

B H SHAW

The Minister Listens

SIR—It is indeed pathetic to read the trend of so many of the letters referring to the forthcoming National Health Service—letters which are commencing to appear again after your article entitled 'The Minister Listens'. The trend of many of these can be summed up in the one word "sabotage". Sabotage is advocated before even the broad framework of the Bill has been put together, sabotage is enjoined before we know what the Bill proposes to do or how it proposes to do it. Sabotage he wishes of the electorate expressed so definitely less than eight months ago and reinforced in every by-election since, sabotage the acts of the elected representatives of the people—representatives poured into Parliament by a determined nation.

There has already been more than enough sabotage. We remember that Sir William Beveridge's report was kept in cold storage for two years by the forces of the last Government and was then followed by a White Paper which probably would have sufficed for another two years had not that Government been thrown out so decisively. We remember the protracted discussions with the B.M.A. and surely must assume that the Association's comments and objections to a National Health Service, and to the White Paper in particular, were all noted and annotated by a Minister who showed no trace of enthusiasm himself for taking concrete steps to make a reality of Assumption B.

The present Minister has before him, therefore, all the B.M.A.'s objections to even so milk and water a scheme as was set out in the White Paper, and the Association's suggestions to set up a few experimental health centres and proposal to report back on their working in the fullness of time. The present Government is one of action, and we cannot expect it

to fall for any more of these Fabian tactics. Hence 'The Minister Listens'. No doubt he could indulge in months and months more of argument with our Association in the old tradition, but he appears, strangely enough, to prefer to get on with the job for which he was appointed, and for which a vast electorate is waiting.

Is it necessary for so many writers to advertise that doctors are unable to consider this scheme from any but their own narrow professional viewpoint, and indeed do not pretend to do so? That they cannot see the wood for the trees? That it matters nothing to them whether the wishes of the nation are implemented—or indeed the welfare of the multitude improved—so long as they and their methods, their convenience and their emoluments are left unchanged in a world which is continually changing? And that, indeed, if there is any attempt on the part of some 40 millions to change the ways of some 50,000 of God's anointed for the benefit of their fellow men and to fit them into a more modernized, humane, and democratic framework for the national good, then they will call for the unity of all doctors to sabotage, sabotage, and again sabotage their share of the scheme, before even the proposals have been put into concrete form? Does any onlooker suppose that we are improving our chances of being allowed—yes, I say allowed—as responsible and important a part as we might otherwise have in the shaping of one of the memorable milestones of our history? The Minister listens—and the world looks on—I am, etc.,

London.

P G S DAVIS

A Critical Layman

SIR—Having happened on your issue of Feb 23, I find that it calls loudly for at least three lay comments.

1 *Diagnostic Acumen of the G.P.* (p 294)—Why are the general practitioners so shrinkingly modest? The G.P. knows the patient as a person, and treats a person, the specialist merely treats a diseased organ. It is the G.P. who matters, and the specialist is simply one of his tools like the stethoscope only noisier and more expensive. It can do what he can't out it cannot understand what it does. Dr Mackay (believe it or not) remarks that the day may come when everyone will be referred to the appropriate specialist by a sorting clerk. It may indeed if the medical profession loses the power of independent thought. The view of the specialist as executive to the G.P.'s sorting clerk, instead of departmental adviser to the G.P.'s prime minister, is simply a relic of a philosophy of science already recognized (outside medicine) as superficial in 1910 and now merely regarded as a regrettable digression in the history of science. The single factor theory of science died for ever with the advent of the quantum theory and the relativistic theory (to say nothing of Freudian theory and its derivatives).

2 Above all else it is the importance of the G.P. and his personal relationship with his patient that you need to drive into Mr Bevan's mind now when he is listening (p 296). Yes, what you allow him to hear is exemplified by Dr Gair Johnston's sentence on page 42 of the *Supplement*: "Nationalization has always been a failure wherever it has been tried and always will be until humanity become robots which God forbids!" Knowing the importance of what they must make secure in a State medical service (which, in some form or other, is quite inevitable), it must be bitter for many members of the medical profession to find themselves supported by statements that can only give the impression that they have no rational case because they have not tried to think of one. I cannot help feeling that it is a mistake to allow so unfortunate a sentence even to slip into print.

3 When health centres are discussed why is the Peckham Health Centre, the only one aiming positively at health ignored? When the profession discusses health centres with the Minister it apparently means merely centres where disease, not health is investigated and disease alone is treated. Why not call these places "disease centres" and keep the name "health centres" for organizations of the Peckham type? And may there be many 'health centres'? Incidentally, a family doctor is possible in a health centre where he sees the whole family, but not in a 'disease centre' in which he sees only sick individuals. The true G.P. must be a family doctor. Beware that with the march of pseudo-science you don't lose him altogether—I am, etc.,

Kn.gh on Radnorsh.ve

H W HECKSTALL-SMITH

Are the People More Healthy?

SIR,—Statistics such as those in your leading article (March 2, p. 318) are apt to leave one cold, particularly those issued by Government Departments for propaganda purposes, especially when one remembers the reception given to our attendance records on the last occasion we attempted to get a living wage for N.H.I. work. In my experience, and probably in that of all G.P.s, the general health is much below par. This is shown by the lowered resistance to trivial complaints, the time taken to recover, the tendency to relapse, and the prevalence of deficiency-type skin troubles. My visiting list is now longer than at any time during or before the war, in spite of the fact that I am not attending any patients of my absentee neighbours, who have returned to their practices. I consider that this is due to the strain of the war and the inadequate and monotonous diet on which we are still subsisting.—I am, etc.,

South Godstone.

H. E. GIBSON.

Tuberculosis in Childhood

SIR,—Dr. W. D. Gray's plea (March 2, p. 327) for more "preventoria" for children, suspect of tuberculosis but indefinite, seems to carry us back 30 years or more when medical opinion was far more favourably disposed to such provision than it is to-day. Some local authorities made quite generous arrangements, as instanced by an 80-bed sanatorium-school block added to an adult institution of about 120 beds; now only 25 remain allocated to children.

It is significant that Dr. Heaf's plea for more collective research is placed alongside Dr. Gray's letter. Lack of knowledge leads us to swing around with gusts of opinion for or against a given policy, with the result that "the infection continues to take toll of children and young adults as it passes through the population practically unchecked." A weighty indictment this from Dr. Heaf which Dr. Gray's subsequent letter illustrates with poignant clarity.—I am, etc.,

Moor Park, Middlesex

ESTHER CARLING.

The Colonial Medical Service

SIR,—If the leading article (Nov. 17, 1945, p. 693) was meant to "arouse interest among the younger members of the profession" as Mr. R. Ogier Ward says (Dec. 1, p. 781) then I think the many things that spoil the extremely interesting side of one's professional life should be brought to the notice of doctors intending to join the Colonial Medical Service.

In the advertisement periodically placed in the *Journal* by the Colonial Office for vacancies in the Colonial Medical Service, the service sounds most attractive with rosy prospects. "West Coast" (Jan 12 p. 65) has already mentioned some of the defects and grievances. I, too, do not think many offers will be received from specialists if the salary is to be £1,300 a year. It is grossly unfair to allow private practice, as there are not many stations where private practice is available, and, as "West Coast" says, this leads to endless intrigue. If £150 is given in lieu of private practice this should be over and above one's salary. Little recognition is given of postgraduate studies and improvement of one's qualifications, with the consequent deplorable state of affairs that if you sit down and "do not blot your copy-book" you will do just as well as the man who has higher qualifications and will get the same pay. This does not encourage initiative.

In the advertisement put in by the Colonial Office no mention is made of the administration which the M.O. is called upon to do. This may amount to quite a lot, particularly if the hospital is owned by the Native Administration; so much so, that it is often difficult to find time to practise medicine. Surely it should not be the responsibility of the M.O. to check inventories of linen, etc., as is the case in the more numerous smaller stations without a sister. Again, if the hospital is owned by the Native Administration the amount of correspondence to be entered into with the Administrative Department to obtain money for any extra needs, however urgent, is simply amazing. Furthermore, I do not think it ought to rest with an administrative officer, often only too ignorant of one's needs, as to how much money one can have to purchase drugs, etc.: rather like the butcher, the baker, and the candlestick-maker telling the doctor what he ought and ought not to have. It is an analogy of this that

we must prevent at home in the future under a State medical service.

Both Mr. Ogier Ward and Dr. R. B. Wellesley Cole (Dec. 22, p. 895) emphasize the importance of training more African doctors as an answer to the many difficulties that arise. But it is common knowledge that African M.O.s gravitate to the larger towns, entering private practice with the more attractive financial prospects. Even the African assistant M.O.s trained at the Government's expense leave Government service as soon as their contract expires, for the same reason.—I am, etc.,

"EXIT."

Final M.B. Examinations

SIR,—The memorandum on the teaching of tuberculosis to medical students (*Journal*, Jan. 12, p. 60) concludes by suggesting "that those diseases which have the highest incidence should receive priority in a teaching syllabus, even if it meant sacrificing time on the rare conditions which always have a fascination and often assume an exaggerated importance in medical education for a qualifying degree."

At the last Final M.B. examinations in two universities one question out of six on the medicine paper was on the subject of pink disease. This disease is described in Conybeare's *Textbook of Medicine* (6th edit.), under the heading of "erythroedema polynuritis," in twelve lines. Sir Henry Tidy is slightly more generous in his book and gives half of one of his thousand pages to the subject.

At one of these examinations I, as a so-called returning doctor, had decided to sit for my university degree. I had been invalided from the Services in 1943 with an apical lesion, and during the next two years had been in partnership in a busy general practice. Health reasons, however, forced me to give up the latter, and it was during an advised three-months rest that I decided to sit for the examination. My knowledge of the three final subjects was consequently based more on experience than on theory, and in my humble opinion was the average knowledge of an average general practitioner. My knowledge of pink disease was, of course, scanty, and my veiled attempts in my written reply to tell the examiner I thought it was a stupid question doubtless did not enhance my reputation with him. One of my surgery cases was an actinomycosis of the jaw, which had originally been referred to a general surgeon by a general practitioner and treated as an osteomyelitis. This treatment having proved unsuccessful, the case was eventually transferred to a great teaching hospital, and after some weeks there the ultimate diagnosis was reached. When I told the examiner that the diagnosis would not have occurred to me but for the suggestion of a friendly ward sister my reputation was again by no means enhanced. This was despite the fact that I knew the treatment. This examiner's partner in crime was even more ludicrous. I was shown a pair of artery forceps, which I described as a pair of Spencer Wells. This description was, however, rejected, and instead it was stated that they were a pair of 5-in. artery forceps with curved ends and a box joint.

The high-light of the examination to me was, however, when a consulting physician attempted (undoubtedly with success) to convince herself that I did not know the difference between chicken-pox and impetigo. This was during an oral examination. I do not know how many cases of either chicken-pox or impetigo the consulting physician had treated in the past ten years, but I have a fair idea of the number I have in the last two years, and as yet I have not used ung. hyd. ammon. dil., sulphathiazole, or penicillin to cure chicken-pox.

I submit, Sir, that the need for carrying out the suggestion put forward in my first paragraph is urgent and that the present system of examining for qualifying degrees is fundamentally unsound. Examiners ought not to be all specialists. The general practitioner is the backbone of the medical profession, and this particular branch absorbs a very high percentage of those obtaining qualifying degrees. Why, Sir, are they then not directly represented on examining boards? If they were it is just possible that less obscure and idiotic questions might be asked, more ordinary common sense might be required from the candidate, and altogether a healthier and more virile type of doctor might be produced.—I am, etc.,

"L.R.C.P.&S."

Diagnostic Acumen of the G.P.

SIR,—There can be no general practitioner, specialist, or consultant who has not made an error in diagnosis during his medical life. The difference is that the G.P. lives in the same town with his mistake, or the relations and friends, and is never allowed to forget it. His mistake teaches him a lot. Not so with the consultant; he gives his diagnosis and appears to

imagine that he is always right. I have had consultations with a large number of "experts" in the last twenty five years, but only one is humble enough to make inquiries later on as to the accuracy of his diagnosis.

If it were the custom, as it should be, not only to write a letter to the consultant on the patient's visit to him but to follow it with a second stating results, I think there would be more bowed heads in Harley Street than in the past. All G.P.s could give many cases of errors by reputable men. I have a patient now who has been seen by five physicians, each of whom has made an entirely different diagnosis, and each now thinks (if he thinks of the case at all) he is an astute physician, but four of the five must be wrong. I do not want to cause embarrassment to many of my friends, and ask to be allowed to sign myself

G.P. SURREY "

International Society of Medical Hydrology

SIR.—It has been decided to hold the first post war meeting of the International Society of Medical Hydrology on Oct 4 and 5 at Buxton, and all local treasurers of foreign countries are being circulated in order to try and obtain a reunion with our colleagues abroad. In addition to the annual business meeting there will be in October a series of papers and demonstrations on hydrology in its application to the rheumatic diseases. Lord Horder has accepted the office of president for the year, our last president in 1939 being the late Sir Farquhar Buzzard. Practitioners wishing further information should get in touch with the local treasurer for Great Britain, Dr Neliean of Droitwich.—We are etc,

J. BARNES BURT
Chairman of Executive Committee
GEORGE D. KERSLEY
Vice-Chairman of Executive Committee

The Disabled Persons Register

SIR.—I am interested in the correspondence on this matter and feel that Dr J. S. Laurie (Feb 2, p 183) has done us a service in opening the question. Although much of what he says has already been adequately answered, I think that more detail may not come amiss, and this might best be expressed in further answers to some of the points raised.

First, although it might appear to an outside observer that many employers act as Dr Laurie suggests, I do not think this is so. It must be remembered that employers are encouraged to help the authorities' efforts to get disabled persons to register under this Act for it is the specific intention to persuade every disabled person in the land ultimately to place himself on the register. This is not so easy as it would seem for there is a marked reluctance on the part of many disabled persons to label themselves as such because it seems to them that by doing so they would reduce their market value as employees. Most employers, in my experience, employ a number of disabled persons (both from the first world war and from industry) and are quite ready to employ more *provided these persons can do the work set them and so earn their pay*. The average employer does not care at all what ailments or deformities a man may have so long as he pulls his weight and maintains reasonably good attendance and punctuality.

Secondly comes the question of the disablement and the Act (Section 1) is quite clear on this point. The disabled person must be 'substantially handicapped in obtaining or keeping employment, or in undertaking work on his own account, of a kind which, apart from that injury, disease, or deformity, would be suited to his age, experience, and qualifications, and the expression 'disablement,' in relation to any person shall be construed accordingly."

There are, however, border line cases, and quite adequate machinery has been set up for dealing with these. When a person applies for registration his claim is carefully scanned by the appropriate Ministry official who is well versed in the Act and its requirements, and, unless the case is quite clear and straightforward, it is referred to one of the district panels. These consist of representatives of the employers, the employees, and of people who are neither and are quite neutral. The panel is advised by a doctor who is paid for his services and has a vote on the panel. The person claiming disablement and whose case is doubtful is first examined by a medical referee appointed by the Ministry, and, in due course is interviewed by the panel

whose members have before them all available information, including the certificate (if any) from the claimant's own doctor and the one from the medical referee. The whole case is then considered by the panel, whose doctor advises them, where necessary, as to the medical evidence, and the claim is then decided. I can assure Dr Laurie that very few frivolous or insufficiently substantiated cases get through. It must be remembered that the panel is answerable to, and works under the direction of, a district advisory committee, again composed of employers' and employees' representatives and of neutral members who are neither the one nor the other. The work is carefully done and carefully checked.

To return to the disabled person. Industries vary, and there is little room for the disabled in some of them while others lend themselves very well indeed to the successful and profitable employment of handicapped people. In the heavy or otherwise unsuitable industries the very limited number of suitable jobs are soon filled so that it is then impossible to do more, and it is here that the register will confer its maximum benefit, for the disabled people who cannot be absorbed into their own industry can be offered suitable work in other industries where they not only can earn their living but can be trusted and valued workers because they have suffered and learned and value their opportunity to justify their existence. If such people are not registered they will simply go on to the scrap heap, as they have done in the past, to become neurotics or embittered misanthropes. I, in common with all industrial medical officers, have repeatedly demonstrated that there are few people who cannot work at something and we have seen numbers of people with well nigh incredible handicaps working successfully at normal occupations and asking no indulgence. The work, however, must be carefully selected, and this means that the people have to be found and classified and the available posts into which they can be put have to be known and listed. Disablement has many surprises, and it sometimes falls out that a man who cannot do light work in one industry finds (sometimes to his own surprise) that he can do quite heavy work in another.

The effort to place handicapped people in proper employment is the main reason which leads the employer and his medical officer (who are encouraged to do so by the authorities) to urge many disabled persons to register. A number of these disabled people work hard and faithfully in circumstances that are bad for them and that need effort which is sometimes heart-breaking. Is it not utter stupidity for them to continue to do so if suitable work can be found for them? It must be remembered that all *substantially* disabled people are eligible whatever be the cause of their disablement, and it seems, to me at any rate, absurd to put them unnecessarily to hardship.

I am entirely in agreement with Dr Laurie when his conscientiousness impels him to insist that the onus of deciding whether a man is sufficiently disabled to be entitled to a certificate should not be placed upon the G.P. Human nature being what it is, there will always be a minority of workers who will want to wangle themselves into something easier than what they are doing and of employers who shirk the effort necessary if they are to give their maximum help in absorbing handicapped people, and the unfortunate doctor in practice may often be exposed to the risk of offending patients and courting unpopularity. I think it would be better if the candidate were referred directly to the Disablement Officer and examined by the Ministry's medical officer, who, of course, should be an experienced industrial medical officer. At the same time it must be remembered that the expert in industrial medicine has his difficulties too. He may know as much as anyone about industry but he knows only as much or as little, of the person's history as that individual chooses or is able to tell him. In many cases it is only the patient's own doctor who can give an opinion which is more than so much waste paper. As an example, is "A" really an epileptic? How often and severe are his fits? Does he wet himself in his fits? Are there any post epileptic sequelae? Is he in the early stages of degeneration? How much narcotic is he taking? How am I, for instance, to find out on one examination? Examples could be multiplied *ad nauseam*.

I would suggest, therefore, that the man's own doctor *must* be in the picture in a goodly proportion of cases. The objection, of course, is that the unfortunate G.P. already fills up all the medical forms which an industrious bureaucracy has devised to

date, and nobody sees any prospect of a stop in the steady flow of unpaid clerical work that flows in upon him. He should get a fee for his certificate, and the result of this, I think, would be, as I have already suggested, that the disabled person would be instructed to apply direct to the Disablement Officer, who would refer him to the medical referee. In cases in which the medical attendant's opinion was important or necessary his views would be requested and he would be paid for his advice.

It is intended under the Act to "designate" certain forms of employment, which means that these designated vocations will be set aside for disabled people, and that it will be illegal for an employer to give such work to a fit person unless and until there are no disabled people readily available. To my mind this is wholly good and will go a long way, not only to preserving the self-respect and material prosperity of a class of people who really need help, but also to checkmating the activities of that small but noisome minority of lazy and unscrupulous people who trade upon the laws designed to help the unfortunate, and who thus bring undeserved discredit and annoyance to their fellow workmen, who regard them and their practices even less kindly than I do. Equally it would make it impossible for that similarly small and unpopular corresponding group of employers to evade some, at least, of their responsibility.

The Act lends itself to modification and development (by Statutory Regulations and Orders and by memoranda, or even, later on, by amendment in Parliament), and it is possible to foresee a time when its provisions will be available to that class of people who, while not being "substantially handicapped" within the present meaning, are yet so affected by disease, injury, etc., as to be at a serious risk or handicap in the employment they follow. Numerous examples will occur to any G.P. of experience, and a little reflection will satisfy anyone of the tremendous possibilities opened by such a development in the cure and rehabilitation of that large group of the chronically sick whose conditions depend largely on various physical environmental maladjustments, and who, at present, are unable to avail themselves, except at the cost of their jobs, of the fullest opportunities of expediting their recovery or, alternatively, of preventing steady deterioration of their health.—I am, etc.,

Wear Shipbuilders' Association, Sunderland.

A. REFALAS.

The Metric System

SIR.—Perhaps I am trying to infuse fresh blood into a stale corpse, but your annotation (Jan. 5, p. 19) prompts me to make the attempt.

Pro.—The metric system is international.

Con.—When the Basle Nomenclature was introduced into anatomy about 1909 the same argument was used, the advocates never realizing that it was far more important for students to understand their own professors than for the latter to understand some erudite gentlemen in Basle or Berlin. Result, the unhappy student had, and I believe still has, to learn two systems of nomenclature, and the confusion still persists, "which," to quote your annotation, "is a sobering thought."

Pro.—The metric system is scientific.

Con.—We all know the therapeutic value of the apparently mystic symbols in our prescriptions, and it would be a thousand pities to destroy the public faith in this mystery by replacing our signs with something "understanded of the people." Change aqua menth. pip. to aqua chloroformi, and the patient will complain that "the new medicine is not the same as the old," the implication being that it is not so good. In this Eastern land, where faith abounds, I have even had a zealous patient swallow the prescription with both relish and apparent benefit.

Pro.—The metric system is easily remembered.

Con.—Perhaps it is in the larger doses, but what about the small? We can imagine a busy practitioner inadvertently misplacing a decimal point, or even waking in a cold sweat at 3 a.m., thinking, "Hyoscine, I know the dose is a two-hundredth of a grain, but is it 0.0003 of a gramme or 0.003? Is it 0.3 or 0.03 of a milligramme? Shades of Dr. Crippen, I must have poisoned the woman!"—I am, etc.,

H. WILLIAMSON,
Lieut.-Col., I.M.S.; Surgeon to
H.E. the Viceroy.

New Delhi.

Obituary

RALPH STOCKMAN, M.D., LL.D.

Ralph Stockman, emeritus professor of materia medica and therapeutics in the University of Glasgow, died in his eighty-fifth year on Feb. 27. Born in 1861 at Leith, the son of W. J. Stockman, a merchant in that town, he was educated at the Royal High School, Edinburgh, from which he proceeded to the study of medicine at the University of Edinburgh. After graduation in 1882 he spent two years at the Universities of Vienna and Strasbourg before returning to Edinburgh. In 1886 he obtained the degree of M.D. with high distinction, being awarded a gold medal for his thesis. He became a member of the Royal College of Physicians of Edinburgh, of which he was elected a Fellow in 1889. From his student days he was interested in the actions of drugs, and on his return to Scotland from the Continent began his life work in the teaching of pharmacology or, as it is called in Scotland, materia medica. First as an assistant in the University department at Edinburgh and then as a lecturer in the extramural school of medicine he established a reputation as a teacher which was enhanced after his appointment in 1897 to the chair of materia medica in the University of Glasgow. This appointment he held till his retirement in 1936. In the following year the degree of LL.D. *honoris causa* was conferred on him.

From his early days Stockman emphasized the importance of correlating pharmacological work with clinical experience. It was not therefore surprising that on his arrival in Glasgow he was appointed a physician to the Western Infirmary. In the following year he was elected a Fellow of the Royal College of Physicians and Surgeons of Glasgow. In Glasgow he exerted a profound influence on the development of the medical curriculum. During his tenure of the chair there was a great expansion in facilities for the teaching of the basic sciences, and his own department was greatly enlarged. In the conduct of his classes in the lecture-room, laboratory, and above all in the clinic he held to the view that the most important function of the teacher is to separate the grain from the chaff. Inevitably during a period when pharmacology was slowly being established as a science, his teaching tended towards scepticism which perhaps rather overwhelmed those who liked to lean on authority. The stronger minds, however, were infected by the enthusiasm of one with a full personal knowledge and with a sense of obligation to contribute to the sum total of human knowledge. They felt that they were in the presence of one with the viewpoint of Locke that the purpose of education is to "get a relish of knowledge." Throughout his teaching he stressed the importance of the historical outlook, without which one's appreciation of any problem, social or scientific, is limited.

For Stockman the study of disease began with the patient. As physician and clinical teacher he showed outstanding clinical acumen combined with an appreciation of the sick person as an individual possessed of hopes and fears and as a member of the community having social obligations. To take part in a ward round with Stockman was an experience never forgotten. He used the Socratic method of instruction and his remarks were illuminated by his vast personal experience, his knowledge of literature both medical and general, and his great critical faculty. He possessed those qualities of mind described by Hippocrates as indispensable for a physician—learning, sagacity, humanity, and probity. Throughout his career he was engaged in investigation, and his published papers include work on the coca alkaloids, the camphor group, the arrow poisons, lathyrism, and many other subjects. Worthy of special mention are his contributions to the pharmacology of iron and to the aetiology and treatment of chlorotic anaemia. This work has stood the test of time, to be confirmed by recent investigations with modern analytical methods. During his stay in Glasgow he became specially interested in the study of the chronic rheumatic diseases, and based on the results of this work is his monograph on *Rheumatism and Arthritis* published in 1920. This, a model of clear thinking and lucid writing, has done much to get rid of many useless beliefs, an essential prerequisite for scientific

work. In the words of Osler he believed that "to the physician a scientific discipline is an incalculable gift which leavens his whole life, giving exactness to habits of thought and tempering the mind with that judicious faculty of distrust which can alone amid the uncertainties of practice, make him wise unto salvation."

Throughout his occupation of the chair at Glasgow he took an active part in the communal life of the university. He was specially interested in the life of the students and for many years was senior vice president of the Union, which benefited greatly from his wise and kindly supervision. Among students he achieved a great popularity. Perhaps somewhat afraid of his wit, which at times was keen, they always came to realize that in Ralph they had someone who, realizing their weaknesses, was zealous in their defence and for their welfare. Many Glasgow graduates all over the world will hear with regret of the passing of one of the great figures of their student life.

After his retirement in 1936 he moved to Edinburgh but still took an active interest in friends and affairs. Till the very end there was no lack of mental energy and the freshness and pliancy of his mind did not for a moment fail. He is survived by his sister, to whom he owed much and who was his companion and counsellor, acting as hostess and endearing herself to all who know her by her wisdom, wit, and charm. Of Ralph Stockman one might say that he

'Loved no darkness,
'Sophisticated no truth,
'Nursed no delusion,
'Allowed no fear."

N M

Prof. Stockman had joined the British Medical Association as long ago as 1884 was awarded a B.M.A. scholarship in 1886, held office as vice-president of the Section of Pharmacology and Therapeutics at the Edinburgh Meeting of 1898 and as president of that Section of the Belfast Meeting in 1909. At headquarters in London he served on the Science Committee, on the Standing Therapeutic Subcommittee set up in 1919, on the Organization of Medical Students Subcommittee, and on the Medical Students and Newly Qualified Practitioners' Subcommittee.

W S A GRIFFITH, CBE, MD, FRCP, FRCS

'Dr W S A Griffith lived long enough to become the patriarch of his branch of medicine. After many years in retirement at Chelsea and later at Haslemere he died peacefully on Feb. 26 at the age of 91. He had been consulting physician accoucheur to St Bartholomew's Hospital since 1919, when he resigned from the active staff, and he was also consulting physician to Queen Charlotte's.

Walter Spencer Anderson Griffith was born at Brighton in 1854 and went to school at Brighton College, where his father, the Rev. John Griffith, LL.D., was headmaster. His younger brother, F. L. Griffith, D.Litt., professor emeritus of Egyptology in the University of Oxford, died twelve years ago. Walter Griffith began his medical study at the Royal Sussex County Hospital, Brighton, and went on to St. Bartholomew's, qualifying as M.R.C.S. in 1878, and after holding house appointments obtained the F.R.C.S. in 1881. Deciding to take degrees at Cambridge he entered Downing College and kept the statutory nine terms by sleeping at week-ends at Cambridge while he lived in London. He graduated M.B. in 1885 and proceeded M.D. in 1889, and was elected F.R.C.P. in 1893. The decision to devote himself to obstetrics and gynaecology had been taken in the early 'eighties, and his outstanding ability secured the posts of physician-accoucheur to the Great Northern Hospital, teacher of midwifery at St. Bartholomew's, physician to out-patients at the Samaritan Hospital for Women, and physician to Queen Charlotte's Lying-in Hospital. At that time James Matthews Duncan was at the height of his fame in London. On Duncan's death in 1890 Francis Champneys was recalled from St. George's Hospital to take his place as head of the obstetric department at St. Bartholomew's and Walter Griffith was made physician accoucheur with charge of out-patients. The chief things that Sir Francis Champneys and Dr. Griffith (colleagues for many years) had in common were their devotion to the memory and teaching of Matthews Duncan and their fondness

for music. Griffith succeeded Champneys in the senior post, and on retiring under the age limit at 65 was elected consulting physician accoucheur, a governor of the hospital, and a member of the house committee. He was also consulting gynaecologist to the Queen Alexandra Military Hospital, Millbank. He examined in midwifery for the Royal College of Physicians of London in 1893-7 and served on its Council in 1914-16, he represented the Royal College of Surgeons of England on the Central Midwives Board. He had joined the B.M.A. in 1880 and held office as secretary of the Section of Obstetric Medicine at the London Meeting of 1895 and president of the Section of Obstetrics and Gynaecology in 1900 at Ipswich, he had also been president of his section at the Royal Society of Medicine. He was created C.B.E. for his services during the war of 1914-18, and the Medical Defence Union made him president in 1932.

Dr. Griffith enjoyed teaching and mostly used the Socratic method. Bart's men of a former generation will call to mind his mornings in the shabby little out-patient room of those days, the tall central figure topped by a black velvet skull-cap and perched on a high stool, one hand pointing with a uterine sound to the student chosen for ironic interrogation, while beside the couch stood a nurse guarding the shrouded patient from the packed audience. Much was learnt at those clinics, but few could stand up long to the master's flow of questions without loss of composure, though a legend survives that one habitual wag, after angling for the dunce's chair, gave a tit-for-tat.

Now, Mr. Black, suppose I have tried all the interesting things you tell me to do in this emergency and have failed. What do I do next?" "If I were you, sir, I would send for Dr. Champneys." History does not say if Dr. Griffith joined in the laughter, but he had a sense of fun beneath a formidable manner. His lucid and practical teaching, both at St. Bartholomew's and at Queen Charlotte's, was eagerly sought and gave a long line of students their groundwork in the art of midwifery.

DAVID RORIE, D.S.O., M.D., C.M.

Dr. David Rorie, one of the most distinguished post-physicians of Scotland, died on Feb. 18 in his 79th year. He had long been established in practice in Culter, but had retired from the active work of his profession in 1933. At the outbreak of the present war, though full of years, he was anxious to render what service he could and continued to serve on medical boards till within a few months of his death.

He received part of his preliminary education in the Aberdeen Collegiate School and later matriculated at Edinburgh University, where he graduated M.B., C.M. in 1890, and in 1908 proceeded to the degree of M.D. In 1911 he took his D.P.H. with honours in the University of Aberdeen. After graduation he spent some years in general practice in the mining districts of Fifeshire, a period of his life to which he frequently referred, and in that work he laid the foundations of that deep understanding of human nature and sympathy with the underdog which was so characteristic of him in his later years, and which so deeply coloured his life's work both in medicine and in literature and is expressed so poignantly in some of his more serious poems.

At the outbreak of the first world war he was mobilized as a captain, R.A.M.C.(T.F.), but was rapidly promoted to major in 1915, and lieutenant-colonel in 1916, acting as O.C. 1/2 Highland Field Ambulance. Later he became full colonel and acted as A.D.M.S. to the 51st Highland Division, with which he served throughout the war. For his services he was awarded the D.S.O. in 1917 and in 1918 was made a Chevalier de la Légion d'Honneur. In addition he became the unofficial poet laureate of the 51st and was reported to be the anonymous author of many of the famous marching songs of that division, though to this he would never admit. In 1929 he published his own reminiscences in a volume *A Doctor's Luck in the War* which recounts the medical history of the gallant 51st. In the first chapter his satirical humour is given full scope and he recounts with gusto many a good story of the Colonel Blanks of that generation. Throughout his life he maintained his interest and affection for the ex-Service men and became one of their doubtless champions. Largely due to his efforts the local branch of the British Legion was founded, of which he was the president from 1922 onwards, as well as serving on the national council. His years in France remained for him a

happy memory, since, perfervid Scot as he was, he had an intense interest in the French—their history and their culture as well as a considerable knowledge of and facility in their language and literature—and to him it was historically appropriate that the 51st should be serving in the fields of France, for that was but a modern continuation of the "Auld Alliance." In the post-war years he remained an active member of the Franco-Scottish Society.

He took his full part in the communal life of the profession, a regular and enthusiastic member of the Aberdeen Medico-Chirurgical Society, and a loyal member of the British Medical Association, being chairman of the Aberdeen Division 1924-9 and president of the Branch 1932. At the Annual Meeting of the Association in 1914 he was honorary secretary of the Section of Medical Sociology and, for the 1939 meeting, editor of *The Book of Aberdeen*. He was much in demand as an after-dinner speaker, an art in which he was highly proficient. At the annual dinner of the Medical Society he generally contributed a poem composed for the occasion, in which, with great good humour and wit, he satirized the foibles and failings of his best friends and of medicine generally, all in the classic tradition of François Rabelais.

Deeply interested in folk lore and folk medicine he contributed many articles on these and kindred subjects to the *Caledonian Medical Journal*, the *Edinburgh Medical Journal*, the *B.M.J.*, and other lay and medical magazines. "Folk Lore of Mining Folk of Fife," one of the earliest, was published in the Folk Lore Society's County Series. For many years he was editor and later joint editor of the *Caledonian Medical Journal*. His own two volumes of poems, *The Auld Doctor*, 1920, and *The Lum Hat Wantin' the Croon*, and other Poems, 1935, were known to all Scotsmen and were sung or recited in all parts of the world where Scotsmen foregather. Perhaps his very facility in the use of the Scotch vernacular and his sparkling wit and humour were not altogether an advantage in that they tended to obscure the beauty of his more serious poems such as "Daylight has Mony Een" with its unforgettable last verse. In the preface to *The Lum Hat Wantin' the Croon* he gives his own too modest estimate of his poetry, where he describes himself as "leaving a gangrel's stance on the lower steps of Helicon."

Perhaps to those who loved him—and they were legion—the St. Andrew's Cross which formed his pall and the wreath of Flanders poppies were fittingly symbolic of the life and achievement of that serene and radiant spirit that was David Rorie.

A. GREIG ANDERSON.

David Rorie occupies a place of his own in modern Scottish letters. For over fifty years he has been known to Scotsmen and the friends of Scotsmen all over the world as the author and composer of the "Lum Hat Wantin' the Croon," a rollicking, humorous ditty which has probably been sung at more convivial entertainments than any other contemporary lyric. Unfortunately, while the "Lum Hat" made Rorie famous, in its way it did him some disservice by identifying him rather more closely than his talent and his philosophy warranted with the farcical and the extraordinary in verse. He certainly was the author of a long string of exceedingly funny songs like the "Pawky Duke," "Macfadden and McPhee," "The Speeshalist," and many more of that kind which, although a great deal of sense goes through the comedy, can hardly be expected to be remembered except as outbursts of high spirits. Rorie, however, could when he liked go better and deeper than that, and he wrote some lovely little pieces like, for example, "Daylight has Mony Een" in his younger days and some refreshingly sharp satire like "Neebors" and the "Obituary Notice" in his later years.

Many of his songs have not appeared in print, and some, though in print, are not easily accessible. He wrote for his friends and he wrote for social occasions, and during the 1914-18 war he was the author of many a camp-fire ballad that helped to keep up the hearts of the troops in miserable surroundings. Sometimes he wrote in English, but mostly his medium was the Scots dialect, which, though perhaps it hampered the full expressions of his philosophy because of its lack of words, at the same time imparted a raciness and a downright quality to his lines which in Scotland and among Scotsmen made them very memorable indeed!

A. K.

The following well-known medical men have died abroad: Dr. MARC TIFFENEAU, professor of pharmacology and materia medica in the Paris faculty of medicine, member of the Académie de Médecine and Académie des Sciences, aged 72; Prof. G. JEANNENEY, head of the departments of clinical surgery and gynaecology at Bordeaux; Prof. LÉON SRIÉNON, an eminent pathologist at Brussels, aged 95.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

Sir Howard W. Florey, M.D., F.R.S., professor of pathology in the University of Oxford, has been elected into an Honorary Fellowship at Gonville and Caius College, of which he was formerly a Fellow.

At a Congregation held on March 1 the following medical degrees were conferred:

M.D.—*C. Maynard Heath.
M.B., B.Chir.—D. A. G. Galton, A. C. Arthur, E. Ellis, J. S. R. Golding, R. H. Ellis, S. M. Hilton, *M. D. King.

*In person.

UNIVERSITY OF EDINBURGH

The Court of the University of Edinburgh and the Corporation of Edinburgh have appointed Mr. Andrew Logan, F.R.C.S., surgical registrar at the Royal Infirmary, Newcastle-upon-Tyne, to the combined post of lecturer in thoracic surgery in the department of surgery of the University and thoracic surgeon to the municipal hospitals of the Corporation.

UNIVERSITY OF GLASGOW

During April and May a series of postgraduate lectures in ophthalmology will be given in the Department of Ophthalmology of the University on Wednesdays from April 3 to May 8, both dates inclusive, at 8 p.m. The meetings will be open to all medical practitioners and senior students interested in ophthalmology. Details will be published in the diary column of the *Supplement* week by week.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The following surgery lectures will be delivered at the College at 5 p.m. on each day: April 1, Sir Heneage Ogilvie, "Inguinal Herniae"; April 3, Prof. John Morley, "Surgery of the Stomach"; April 4, Mr. R. Maingot, "Surgery of the Spleen"; April 8, Mr. L. E. C. Norbury, "Surgery of the Rectum, with Special Reference to Malignant Disease"; April 10, Prof. H. J. Seddon, "Peripheral Nerve Lesions"; April 11, Sir Gordon Gordon-Taylor, "Surgery of the Colon"; April 15, Mr. W. Rowley Bristow, "Joint Injuries"; April 16, Mr. E. W. Riches, "Surgery of the Prostate"; April 17, Mr. V. E. Negus, "Injuries of the Ear, Nose, and Throat"; April 24, Mr. J. B. Hunter, "Surgery of the Heart"; April 25, Sir Reginald Watson-Jones, "Fractures of the Pelvic Girdle"; April 26, Mr. T. Pomfret Kilner, "Pedicule Grafting." Fellows and Members of the College will be admitted free. A fee of 3 guineas for the course will be charged in the case of others. Tickets may be obtained on application to the Secretary of the College, Lincoln's Inn Fields, W.C.

The Services

Sir Alfred Webb-Johnson, Bt., President of the Royal College of Surgeons of England, has been appointed chairman of the Army Medical Advisory Board in succession to the late Viscount Dawson of Penn.

Col. (Temp. Brig.) F. Harris, C.B.E., M.C., late R.A.M.C., has been appointed Honorary Surgeon to the King in succession to Major-Gen. D. T. Richardson, C.B., M.C., late R.A.M.C.(ret.); and Col. (Temp. Brig.) H. A. Sandiford, M.C., late R.A.M.C., Honorary Physician to the King in succession to Major-Gen. L. T. Poole, C.B., D.S.O., M.C., late R.A.M.C.(ret.).

CASUALTIES IN THE MEDICAL SERVICES

Died on Sept. 27, 1945, by misadventure while carrying out research work at R.A.F. Station, Nijmegen.—Fl. Lieut. Donald Archibald Stickland, R.A.F.V.R.

Died.—Major Ian Donald Cruickshank Veitch, Capt. Bruce Carstairs Jeffrey, R.A.M.C.

Died in Greece as the result of an accident.—Capt. John Vaughan Shepherd, R.A.M.C.

Fl. Lieut. (Acting Squad. Ldr.) WILLIAM MCKEE BONNAR died on Feb. 25 of injuries received in a flying accident in India. He was born in 1917, studied medicine at Queen's University, Belfast, and qualified M.B., B.Ch. in 1939. He was demonstrator in physiology at Queen's University until commissioned in the Medical Branch, R.A.F. Volunteer Reserve, in October, 1941.

Medical Notes in Parliament

Industrial Injuries: A New Committee

The National Insurance (Industrial Injuries) Bill was read a third time without a division in the House of Commons on Feb. 22. In a closing speech Mr. JAMES GRIFFITHS said the Bill had been criticized because it did not provide compensation for nurses who contracted tuberculosis at their work. It did not specify a list of industrial diseases or of workmen who were entitled to claim. Clause 54 was sufficiently wide for him to schedule tuberculosis contracted by health workers if the evidence was strong enough. In the past the task of scheduling industrial diseases had been easier than it would be in the future. Miners' nystagmus, for instance, was fairly easily recognizable. But the Ministry of National Insurance was now reaching the stage where it was not easy to draw the line between disease which was constitutional or arose from natural causes, and the disease arising from industrial causes. That was becoming difficult because mechanization and speeding up were bringing a new range of problems and industrial diseases. A group of 'neurotic diseases' would have to be considered. He proposed, therefore, to set up a committee of persons, both medical and lay, to recommend some criteria which would help the Minister to decide the dividing line in these cases. At the moment he was considering the nurses' claim and also one for Raynaud's disease, which had suddenly come into prominence. It was claimed that in one factory scores of cases of this disease were due to the effect of vibratory tools on the hand.

Mr. HOUSE remarked that Mr. Griffiths had not referred to the right of the injured workman to preserve his freedom of choice of practitioner.

Mr. GRIFFITHS said he could not be expected to pronounce on that. Soon the House would consider proposals for a new health service. Mr. House's question would be much more relevant then. The matter must be dealt with in a general way and not as confined to the Industrial Injuries Bill. In conclusion Mr. Griffiths said the number of preventable accidents was still far too high. So was the number of industrial diseases which could be prevented. In South Wales alone the number of persons disabled in one year by pneumoconiosis and silicosis exceeded 5,000.

Pay of Service M.O.s

A White Paper proposing new rates and conditions of pay and allowances for officers in the Navy, Army, and Air Force has been submitted to Parliament. It does not apply to the medical or dental services. Further consideration is being given to the positions of these, but the decisions on them are not contingent on the Government's proposals for a National Health Service.

Medical Services in Singapore

Mr. H. STEWART on March 1 referred to the lack of health and hospital services in Singapore. He asked what the Secretary for the Colonies was doing to make available in Singapore the hospital accommodation now in occupation by S.E.A.C., and what progress was being made in recruiting European staff for the medical service.

Mr. CRECH JONES said the present administration was working strenuously to restore these services in the face of difficulties. It should be possible to announce soon the date of handing over from military to civil administration. A board had been set up in Singapore to ensure the speediest return by the services of civil property. A high priority would be accorded to hospitals. Medical officers who had been interned were returning as they became fit for a short tour of service. In addition a number of doctors had been or were being selected for appointment to the Colonial Medical Service for duties in Malaya. Others had been engaged on short-term contracts supply of medical equipment was steadily going forward.

Austrian Doctors at Home and Abroad

Col. STODDART SCOTT inquired on March 4 how many doctors of Austrian nationality who had been given a licence to practise were still in this country. Mr. BEVAN replied that a completely up-to-date figure was not readily available, but in November last the number of Austrian doctors in this country who were in the *Medical Register* was approximately 230. He did not now how many had returned to Austria since VE-Day.

On March 6 Col. STODDART SCOTT asked how many doctors here were 1,000 of the population in the British zone of Austria, and how many doctors in Vienna compared with pre-war. Mr. J. HYND replied that in the British zone of Austria

the average worked out at 0.934 per 1,000 of the population as compared with 0.816 before the war. In the city of Vienna there were to-day some 2,800 doctors compared with 4,100 before the war. Taking into account the decrease in population, the proportion of doctors had been only slightly reduced. The figures for the pre-war period in the zone were one doctor per 1,225 of the population and to-day one doctor per 1,070 of the population. In Vienna there was one doctor for every 468 of the population pre-war, and to-day one doctor to every 521.

Atomic Research in Britain

Mr. ATTLEE announced on March 5 that the programme of atomic research in this country was not limited by financial considerations but by the numbers of trained scientists and the material resources available, especially in building and engineering equipment. Within these limits this programme of research was being developed as rapidly as possible. Expenditure on it for the year 1946-7 was estimated at approximately £2,800,000.

Medical Care of Colonial Civil Servants

Squad Ldr. DUNN asked on March 6 whether members of the Colonial Civil Service invalidated home or having to undergo medical treatment while on leave could obtain financial help towards the cost of treatment when this was necessitated as a result of injury or disease contracted in the course of duties in the colony. Mr. CRECH JONES said it was the practice for Colonial Governments to pay the fee for an examination by a consulting physician together with any expenses incurred in the diagnosis of the officer's complaint. Except for those on very low salaries, Colonial civil servants were not entitled to free treatment in this country, but could get treatment including operations, at special rates under arrangements made with the Seamen's Hospital Society and the Royal Infirmary, Liverpool. Colonial Governments were usually willing to give sympathetic consideration to applications for assistance from officers whose medical expenses were unduly burdensome.

Hospitals in the National Health Service

On March 7 Sir P. MACDONALD asked whether the Minister of Health intending to include the voluntary hospitals in his legislative proposals for nationalizing the medical profession, and if he would make their position clear so as to enable these hospitals to make plans for the future. Mr. BEVAN said the Government's proposals for a National Health Service could be submitted to the House as soon as possible. He did not think he ought to anticipate them in any way at that stage.

Medical News

The Royal Society of Medicine has arranged a series of special meetings on practical problems which faced medical science during the war. They will be held from March 18 to 22, and March 25 to 29, at 1, Wimpole Street, at 5 p.m., the first week being devoted to problems of protection, and the second to problems of efficiency. The subjects of the first half of the series are: March 18, cold and heat, with Sir John Anderson in the chair; March 19, burns, B.A.L., ruses, and blast, with Sir Henry Dale in the chair; March 19, acceleration, with Viscount Falmouth in the chair; March 21, applications of anatomy and physiology, with Prof. E. Le Gros Clark in the chair; March 22, diseases in the field, with Lieut.-Gen. Sir Alexander Hood in the chair. During the second week problems of efficiency will be discussed, as follows: March 25, visual and auditory, with Sir Ernest Rock Carling in the chair; March 26, psycho-logical, with Sir Lionel Whitby in the chair; March 27, respiratory, with Sir Henry Tudor in the chair; March 28, nutritional, with Sir Frederick Lenth-Ross in the chair; March 29, restoration of efficiency, with Lord Horder in the chair. Fellows of the R.S.M. may be admitted without ticket, Fellows bringing guests should apply to the Secretary of the Society for admission tickets for their guests.

A joint meeting of the Microbiological and Nutrition Panels of the Food Group of the Society of Chemical Industry will be held on Wednesday, March 20, at 6.20 p.m. in the rooms of the Chemical Society, Burlington House, Piccadilly, W., to discuss a paper by Dr. E. C. Barton-Wright on amino acids and the metabolism of the cell.

Our obituary notice of Mr. Robert Weir, F.R.C.S., of Exeter, published on Aug. 25 mentioned that besides being one of the best known surgical specialists in the West of England he was also a man of more than local fame as an accomplished water-colour painter. During the last twenty years of his life he developed his native skill with the brush and devoted much of his leisure to water-colour. A memorial exhibition of his works is to be held in London at the rooms of the Fine Art Society in Bond Street, W., starting on Wednesday next, March 20.

The Lord Mayor of London took the chair at the 73rd annual general meeting of the Metropolitan Hospital Sunday Fund, held at the Mansion House. Mr. C. J. Holland-Martin, vice-president, said that they were anxiously awaiting the announcement of the Government's plans for the hospital system of the country. In the meanwhile there was danger that, in the uncertainty about the future, the immediate needs of the patients might be forgotten. Money would be needed by the hospitals in the interval before any new scheme could come into effect.

Workers in the motor-car branches of the Nuffield organization are being asked to take part in research to be conducted by Prof. J. A. Ryle, Fellow of Nuffield College and Director of the Institute of Social Medicine at Oxford, into the causes of gastric and duodenal ulcers.

At the meeting of Senate of the Queen's University of Belfast on Nov. 21, 1945, Mr. C. H. G. Macafee, F.R.C.S., was appointed Professor of Midwifery and Gynaecology. Prof. C. G. Lowry, F.R.C.S., who was appointed Professor of Midwifery in 1920 and Professor of Midwifery and Gynaecology in 1937, was accorded the rank of Emeritus Professor.

Mr. E. Stanley Evans, M.B., B.S., F.R.C.S., has been appointed medical superintendent of the Lord Mayor Treloar Cripples' Hospital and College, Alton, Hants, and took up his duties there on March 5. Mr. Evans was previously medical superintendent of Queen Mary's Hospital for Children, Carshalton.

At a meeting of the Royal Society of Edinburgh, held on March 4, the following members of the medical profession were elected Fellows of the Society: Prof. Daniel Fowler Cappell, M.D., Hugh Shaw Dunn Garven, M.D., Prof. Stuart M'Donald jun., M.D., and Prof. Richard Loraine de Chasteneay Holbourne Saunders, M.D.

Sir Drummond Shiels, M.B., is a member of the committee appointed by the Prime Minister to "consider the future of the terraces adjoining Regent's Park from all aspects, architectural, town planning, and financial, and to make recommendations as to their future adaptation, or replacement, to meet modern requirements."

It is announced that Bournemouth Council is to take over the U.S. Army hospital at St. Leonards, near Ringwood in the New Forest, consisting of huts, for use till a permanent hospital can be provided.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* there was a further fall in the notifications of acute pneumonia (262), but other infectious diseases increased in prevalence. The rises included whooping-cough 303, dysentery 151, measles 98, diphtheria 21.

The largest falls in pneumonia were Lancashire 79, Middlesex 54, Warwickshire 35. Cases of diphtheria showed increases in Lancashire 19 and London 10, and a decrease of 12 in Yorkshire West Riding. The only county with a marked increase in the notifications of measles was Lancashire 61. The rise in whooping-cough was greatest in Yorkshire West Riding 86, Lancashire 38, Middlesex 34. The only marked fluctuations in the local returns of scarlet fever were increases in Lancashire 39 and London 26.

Notifications of dysentery increased in many areas. The only new outbreak during the week was in Hertfordshire, Bushey U.D., where 74 cases were notified. Other large returns were: Lancashire 54, Leicestershire 30, London 29, Northumberland 22, Bedfordshire 17, Worcestershire 15, Middlesex 14, Northamptonshire 14, Essex 14, Yorkshire West Riding 14, Norfolk 13, Warwickshire 13, Gloucestershire 12.

In *Scotland* fewer cases of primary pneumonia (91) and scarlet fever (42) were notified, while an increase was recorded for measles 201, diphtheria 21, and dysentery 21. The chief centres of dysentery were the cities of Glasgow 12, Dundee 12, and Edinburgh 10.

In *Eire* there was a rise in pneumonia (59), and in enteritis and diarrhoea (17). In both instances the rise was due to the experience of Dublin C.B.

Scotland's Birth Rate

The preliminary returns for 1945 show that the birth rate of 16.9 per 1,000 was the lowest ever recorded; the previous lowest was 17.1 in 1940. The infant mortality was 56 per 1,000 live births, and the maternal mortality reached a new low level at 2.9 per 1,000 live births.

Week Ending March 2

The notifications of infectious diseases in *England and Wales* during the week included: scarlet fever 1,232, whooping-cough 1,605, diphtheria 501, measles 1,583, acute pneumonia 860, cerebrospinal fever 70, dysentery 323, paratyphoid 23, typhoid 8. Five of the eight cases of smallpox were imported. There were 123 deaths attributed to influenza in the great towns.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Feb. 23.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London) (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	71	8	24	—	—	76	3	37	2	1
Deaths		2	—	—	—		1	2	—	—
Diphtheria	510	33	136	51	19	457	17	136	104	25
Deaths	12	1	2	2	—	8	—	1	2	—
Dysentery	406	29	62	—	2	393	34	135	3	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	2	—	—	—	—	3	—	1	—	—
Deaths										
Erysipelas			41	12	4			47	17	3
Deaths										
Infective enteritis or diarrhoea under 2 years				40					23	
Deaths	52	7	10	9	4	52	8	8	7	2
Measles*	1,587	389	393	69	1	23,216	977	453	55	93
Deaths	1	—	2	—	1	21	2	2	—	1
Ophthalmia neonatorum	64	4	15	1	1	78	3	11	1	—
Deaths										
Paratyphoid fever	4	1	—	—	—	6	1	—	1(B)	—
Deaths	—	—	—	—	—	1	—	—	—	—
Pneumonia, influenzal ..	1,125	57	66	25	15	1,118	61	12	13	7
Deaths (from influenza)† ..	141	17	13	9	4	51	4	4	—	1
Pneumonia, primary			333	87				279	12	
Deaths		34		13	14		39		19	10
Polio-encephalitis, acute	1	1	—	—	—	—	—	—	—	—
Deaths										
Poliomyelitis, acute	4	1	—	1	—	3	—	—	3	—
Deaths										
Puerperal fever		5	24	—	—		3	12	—	—
Deaths										
Puerperal pyrexia‡	171	12	17	—	1	153	16	18	—	—
Deaths										
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths										
Scarlet fever	1,307	116	162	18	33	1,544	49	228	22	46
Deaths	2	—	—	—	—	—	—	—	—	—
Smallpox	18	—	—	—	—	—	—	—	—	—
Deaths										
Typhoid fever	7	—	1	8	—	6	1	1	7	—
Deaths	—	—	—	1	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths										
Whooping-cough*	1,632	133	98	43	6	1,539	69	151	72	20
Deaths	6	1	—	1	—	6	—	2	—	1
Deaths (0-1 year)	414	57	64	38	17	445	47	67	57	22
Infant mortality rate (per 1,000 live births) ..										
Deaths (excluding still-births)	5,195	820	687	259	167	5,503	763	730	275	130
Annual death rate (per 1,000 persons living) ..			15.1	16.6				16.6	17.7	
Live births	7,263	1,035	910	416	251	7,010	792	821	441	247
Annual rate per 1,000 persons living ..			18.3	26.7				16.4	28.5	
Stillbirths	256	37	39	—	—	192	17	27	—	—
Rate per 1,000 total births (including stillborn) ..			41	—	—			32	—	—

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Imported case.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: A.M.C.O. If possible, the original articles and letters forwarded for publication are understood to be offered to the British Medical Journal alone unless the contrary be stated.

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ANY QUESTIONS?

Chronic Villous Synovitis

Q.—A woman aged 45 has had a chronic synovitis of the right knee for ten months. X-ray examination shows no bony change, but some thickening of synovial membrane is now evident. What is the condition and what the cure and would a biopsy prove anything?

A.—The case appears to be a chronic villous synovitis of the type to which women at or near the menopause seem to be especially susceptible. The condition is often very resistant to treatment, but tends to pass into osteoarthritis which is not usually of a severe type and with this change acute pain gives way to slight stiffness and crepitus on movement. While endocrine factors may have a predisposing influence, it is doubtful if they have any causative effect and when one joint only is affected a slight strain is the most usual direct cause. Careful investigation should be made for any infective focus or source of toxic absorption particularly in the pelvis and alimentary canal, and the blood ureic acid might be estimated to exclude chronic gout. It is important to support the joint and to avoid long standing and any unnecessary movement: a blocked leather knee cap or a Howard Marsh cage splint might be worn with advantage for a few months, the joint should be moved through the full range morning and night to guard against the formation of adhesions. Drug treatment is of doubtful value but a combination of iodine and thyroid might be useful and full doses of vitamin C have been advised. Locally, ionization with potassium iodide may help. If these measures are ineffective and the symptoms are severe enough to demand more drastic treatment the opinion of an orthopaedist should be sought as to the expediency of synovectomy, which is practised in the U.S.A. more often than in this country and, it is claimed, with good results.

Nail Growth and Nail-biting

Q.—What are the factors governing the growth of the finger nails? Is there any method whereby such growth can be speeded up? What are the best methods to stop nail biting in a child who seems to have a peculiar liking for aloes and other deterrents?

A.—The growth of the nails, like that of epidermis and hair, is governed by the vascular and nervous control of the part. On an average nails grow about 1/8 in. (3 mm.) a month, but there is variation between individuals and in the same individual, depending upon variations of health. Growth cannot be influenced by drug treatment, though x-ray therapy locally appears sometimes to retard it. I know of no method of increasing the rate of growth.

Nail biting has nothing to do with nail growth and is a problem in psychological medicine, though commonly of no major significance. The temperament and environment of the child and the make up and attitude of the parents probably call for attention and a child guidance or psychiatric expert might be consulted. A minor disturbance may start what becomes merely a bad habit and it is probably wise to avoid giving the matter undue prominence and wasting time on local treatment to the nails which may only increase the child's desire to bite them. (See also answer given on March 24, 1945 p. 432.)

Oedema in a Hemiplegic Limb

Q.—A woman of 61, who has had varicose veins and a poor circulation all her life had a thrombus of the uterine capsule seven years ago causing paralysis of her left side. Since then she has had swelling and oedema which disappears on lying down of the left foot and leg. Massage helps it but produces no permanent benefit. What treatment should be adopted?

A.—Oedema in a hemiplegic limb is usually due to mechanical immobility and retarded venous circulation. The presence of varicose veins would enhance the tendency to oedema and there is of course the possibility of an associated thrombosis of one of the veins of the leg. No active treatment is indicated, but the patient should prop the foot up when resting in a chair. The massage to the limb should be accompanied by passive and if possible active movements of the ankle and knee joints.

Trench Mouth

Q.—What is the best treatment of so-called trench mouth?

A.—Experience earlier in the war led workers to concentrate on the treatment of trench mouth by local measures. For this purpose a 20% solution of chromic acid was used, followed by the application of 20 volume hydrogen peroxide. For sub-acute cases and for the later stages of the acute cases packing between the teeth with a paste of zinc oxide and oil of cloves was most effective. Recently, however, it has been shown that the spirochaetal infection of the mouth and throat which is responsible for trench mouth can be completely overcome in the great majority of cases by intramuscular injections of penicillin, 100,000 units a day for three days or less with or without the use of mouth washes of hydrogen peroxide. It is probable therefore that the ideal treatment for trench mouth is a short course of systemic administration of penicillin plus subsequent dental treatment to clear up gingival flap, caries, malocclusion, etc.

Causation of Schizophrenia

Q.—In Huntington's chorea when an affected female marries a normal male only 33% of the children have the disease instead of 50% in the remaining 15% the necessary determining circumstances are not there. In schizophrenia many who are believed to possess the hereditary tendency do not develop the disease owing presumably to lack of determining factors. This implies that hereditary potentialities may be dormant throughout life or may be precipitated only by appropriate influences. At the age of 30 a patient whose personal and family history was good with no evidence of mental disorder had to leave his home and a lucrative calling to join the Navy. He was suddenly introduced to unfamiliar surroundings, he went through severe bombing and for the rest of his career was faced with the certainty of personal danger. He developed schizophrenia and is now in a mental hospital. Is it possible that these circumstances initiated a mental disorder which in times of peace might have remained hidden and unsuspected?

A.—The present state of our knowledge is very much as described. Even in a clearly hereditary illness such as Huntington's chorea not everyone who has the genetic potentiality develops the disease. In schizophrenia the proportion who do is probably still smaller, studies with uniovular twins indicate that not more than two-thirds of the genetically predisposed become schizophrenic. Environmental factors must therefore play a part. But we have practically no knowledge of their nature, apart from some evidence that head injury may precipitate the illness. The incidence of schizophrenia does not go up in wartime, which would lead one to think that the hardship and stress, which are prolific causes of neurotic breakdown are not the factors which have a causative effect in schizophrenia. In the case described there is certainly a presumption that the radical change in life associated with war service provided a necessary precipitating cause for the illness, and this view would probably be shared by a Ministry of Pensions tribunal. Another point is worth raising. Quite a number of men are invalided from the Services with a diagnosis of schizophrenia which time proves to be incorrect. Men who break down in combat sometimes show clinically a schizo-

phrenic type of picture; and they may still be so regarded at the time of invaliding. Recovery, however, takes places without subsequent deterioration or relapse. The possibility of a mistaken diagnosis should perhaps be kept in mind in the present case.

Vitamin E in Neuromuscular Disorders

Q.—*What are the clinical applications of vitamin E in the treatment of neuromuscular disorders?*

A.—Vitamin E has been widely used in the treatment of neuromuscular disorders—conditions of differing pathology which have in common wasting and weakness of voluntary muscles. These disorders include particularly the motor neurone diseases and the myopathies. In assessing the results of treatment with vitamins it must be remembered that they have all been used in all the incurable diseases, and that both the patient and the observer look for some benefit. It is natural, therefore, that good results should be described, and that these results should be ascribed by some to a specific action of the vitamin upon the causal lesion. So with the distressing progressive diseases of the neuromuscular mechanism, enthusiastic reports have been given of the effects of administration of vitamin E in patients with these diseases. Although the manufacturers of vitamins still quote the enthusiastic papers, these reports have not withstood the test of time; investigations, one of which was carried out by workers of the Medical Research Council, have failed to show any improvement which was not paralleled by other forms of treatment used as controls.

Varicella and Herpes Zoster

Q.—*A person with herpes zoster may infect another with varicellæ, but is the reverse the case?*

A.—Although varicella following contact with herpes zoster is common, the converse is so rare that coincidence may be the explanation of the occasional examples in some people's experience.

Quinine and Impotence

Q.—*What is the justification, if any, of the idea prevalent among civilians and soldiers that quinine causes impotence?*

A.—It is probable that the idea that quinine causes impotence is derived from the use of quinine as a constituent of contraceptive pessaries; quinine salts in sufficient concentration when brought into contact with spermatozoa do kill them. There is no evidence that the administration of quinine reduces the number of motile spermatozoa in the seminal discharge. It should also be remembered, so far as soldiers are concerned, that some soldiers always suspect that any medicine prescribed for regular use is intended to depress sexual desire.

Examining for Drunkenness

Q.—*What are the usual methods of examination in the case of persons said to be drunk in charge of a motor-car? Are blood tests usually done in England? Is the doctor bound to inform the person beforehand that he is examining at the request of the police? What view is a judge likely to take in the event of a doctor's refusing to go to the police station to examine?*

A.—Examinations for drunkenness are dealt with in the standard textbooks of forensic medicine by Glaister, Sydney Smith, and Taylor. Briefly, the examining doctor must direct his mind to the question whether the prisoner was, while he was driving the car, so much under the influence of alcohol as to be unable to control the vehicle properly. The doctor should consider the prisoner's behaviour, speech, gait, breathing, and clothing. Evidence that alcohol has been taken may consist (Glaister) of its smell in the breath, suffusion of the conjunctivæ, flushing of the face, tachycardia, certain abnormal conditions of the tongue, lips and pupils, and tremors. To determine whether the alcohol taken has disturbed normal behaviour the doctor may ask the prisoner the date and time, his address, what he was doing when arrested, and where he is now. He should test the prisoner's vision, co-ordination, and writing. He should be on his guard against neurological disorders, an overdose of insulin, and idiosyncrasy to drugs. All these conditions may be masked by the presence of a small quantity of alcohol.

Blood-alcohol tests are not often done in England, because they need special apparatus and skill which are rarely available. Moreover, their result is not precisely connected with the question of the prisoner's ability to drive a motor-car, though of course a negative finding will dispose of an accusation of drunkenness, and a high positive finding may be conclusive evidence against the prisoner. The urine-alcohol test is just as useful, and has the advantage that urine is easier to obtain. Specimens of either blood or urine should be taken by, or under the direction of, the pathologist who is to make the test. No prisoner is obliged to provide evidence against himself, and examination without consent is technically an assault. The doctor must, therefore, not only inform the prisoner that he proposes to examine him, stating truly the purpose of his examination, but must obtain the prisoner's consent. If the prisoner is unconscious or inaccessible consent to any reasonable examination may be presumed, for his health may be in danger. Blood should not be withdrawn from an unconscious person for test, but if he voids urine this may be tested without his consent. A doctor requested to go to examine a prisoner is not obliged to comply; his action in the matter will not be relevant to subsequent proceedings, and even the fact that he has been asked to go is not likely to come before the court.

Sunbathing in Pulmonary Tuberculosis

Q.—*Why is sunbathing contraindicated in pulmonary tuberculosis? One reason sometimes stated is that sunbathing may, by dilatation of the pulmonary blood vessels, precipitate hæmoptysis, but this cannot be the whole story. Is it the ultra-violet light, the burn, or the rise of body temperature during sunbathing that causes the damage?*

A.—Sunbathing is contraindicated in pulmonary tuberculosis because there is a general belief, founded upon good evidence that extensive exposure of the skin to sunlight produces a focal reaction around tuberculous pulmonary lesions, leading to their extension. It is this activation which causes hæmoptysis, no dilatation of the pulmonary vessels. The causal factor seems to be the action of ultra-violet light on the skin, but the mechanism is unknown. Ultra-violet irradiation of the skin is known to produce chemical changes—e.g., the elaboration of vitamin D—which affect the body as a whole, and the liberation of some chemical substance may be responsible for the unfavourable effect of ultra-violet light in pulmonary tuberculosis. Patients suffering from this disease should expose themselves to the sun as little as possible.

Side-effects of Pituitary Irradiation

Q.—*Is there any literature on x-ray therapy of the pituitary with reference particularly to the untoward side-effects, such as obesity?*

A.—A quick glance at some of the literature rather bears out the implication of this question—namely, that although the theoretical dangers of pituitary irradiation are mentioned by nearly all writers there appear to be few published records of cases where ill effects have been seen. J. B. DeLee and J. R. Greenhill in the 1937 and 1938 *Year Book of Obstetrics and Gynecology* review several articles on x-ray therapy to the pituitary, and mention temporal alopecia and parotitis as recorded complications. C. Mazer and G. Boer (*Amer. J. Obstet. Gynec.*, 1939, 37, 1015) noted temporary amenorrhoea in 1 out of 26 women with regular menstrual cycles treated with low-dosage irradiation, and conclude that the margin of safety is small.

It would appear that most workers who have used x-ray therapy for conditions such as states of menstrual tension, anovular menstruation, and menopausal symptoms have been so impressed with the possible dangers of interfering with various functions of the pituitary (gonadotrophic, thyrotrophic, diabetogenic, etc.) that they have used very small doses, and adverse effects have therefore rarely been seen. This does not mean, however, that rather larger doses—as might be necessary for some cases of menstrual migraine—are also free from side-effects. Thus C. Mazer and S. L. Israel (*Menstrual Disorders and Sterility*, Heinemann), after a large experience of low-dosage irradiation, say that "large doses, such as are employed in the treatment of pituitary adenomas, may produce lasting pituitary deficiency and alopecia. The risk is considerable." The writer

has personal knowledge of three patients treated with moderately large doses, one with diabetes mellitus and two with menstrual migraine thought to be associated with calcification of the roof of the sella turcica. Thereafter two of these patients rapidly gained in weight to the extent of 2 to 3 stones (12.6 to 18.9 kg)

Inheritance of Acquired Characteristics

Q.—Are acquired characteristics ever inherited?

A.—The generally accepted view of biologists to-day is that there is no evidence that acquired characteristics are ever inherited in the straightforward manner presumably implied in the question. For example, parents who live in the Tropics and are heavily sunburned do not have children with darker skins than their cousins whose parents live in England, nor have generations of house training of dogs produced puppies which need no training.

The accepted view is that the genetic mutations responsible for variability occur in a random manner, and the most favourable in any given environment are then selected and so tend to become the most frequent. Many experiments have been done which purport to show a straightforward inheritance of acquired characteristics but so far not one has been satisfactory, or has been impossible to explain on some other basis, as, for example, selection in a population which was not homogeneous at the beginning of the experiment.

To ask, "Are acquired characteristics inherited?" is not to put the question in its most useful form. Since any hereditarily determined character of the offspring must be transmitted in the germ cells of an organism, it is more profitable to ask whether, and if so how, external agencies can affect the germ cells. They will do so only provided they affect the immediate environment of the germ cells by causing some alteration in the metabolism or chemical constitution of the parent. They will do so most easily in organisms whose germ cells are least protected, and whose own constitution is most easily affected by external alterations. Looking at the question from this angle a considerable amount of work has recently been done on yeasts, bacteria, etc. in which there is no clear distinction between soma and germ plasma, and the reproducing cell can be directly acted on by an external agency. It has been found possible, for instance, to accustom *Bacterium lactis aerogenes* to utilize maltose, which it is normally incapable of doing. After a number of generations this acquired ability becomes fixed and inherited. The exact way in which the altered metabolism becomes hereditarily fixed is still unsettled, but if a gene can be reached by an "external" agency and acted upon in such a way as to alter it, there is nothing surprising in the fact that the gene reproduces itself in the altered form. It would be much more surprising if it did not. This direct altering of the chemical processes going on in a reproducing cell by changing its environment is, however, something very different from what is usually implied in the expression "inheritance of acquired characteristics" in higher organisms.

Summing up, an acquired characteristic can be inherited only if it is of such a type as to affect the germ cells directly and in such a way as to alter their constitution in a manner which not only will be reproduced in their subsequent divisions but will also cause the same structural or physiological changes in the resulting offspring as were originally produced in the soma of the parent. Such an event would seem highly improbable in any organism of high complexity, and there is no satisfactory evidence of its ever having occurred.

Infection from Dead Bodies

Q.—The bodies of persons who have died from an infectious disease in a fever hospital may be removed to their homes before burial. Is there any evidence that infective organisms can survive in a body after death and, if so for how long? Has infection ever arisen from the body of a patient who has died from diphtheria? What is the current practice among hospital and health authorities on this question?

A.—The diphtheria bacillus is known to survive outside the living human body—for example, in dust—for as long as 102 days. It has been isolated in the virulent state from secretions of corpses shortly after death, but obviously bodies are not kept without preservation for a sufficient length of time to determine how long the bacillus may survive in this medium.

It may reasonably be assumed that it does so for the short time before burial.

The procedure is governed by Section 163 of the Public Health Act, 1936, which enables the M.O.H. or other registered medical practitioner, by certificate, to prevent the removal of a dead body from a hospital except to a mortuary or a place of burial. The practice no doubt varies, not only from place to place but also locally in different circumstances, depending on such matters as the housing conditions of the family. The tendency is to attach less weight to this procedure as the risk of expulsion of diphtheria bacilli from a properly laid out corpse is slight. The writer knows of no proved instance of transmission of infection from a dead body, but the tracing of channels of infection is so difficult that negative observations of this kind cannot be regarded as conclusive.

Local Penicillin in Gonococcal Urethritis

Q.—In the literature on penicillin I have not seen mention of its local application in gonococcal urethritis. Has any work been done on urethral instillations by means of a small bulb syringe retaining the solution for a time by a light clip or tie penis? Provided retention of the solution could be comfortably borne for a specified period would it not be a more economical method of using penicillin?

A.—We have not come across any published work on the above procedure, but we know (personal communications) that it has been tried. Results have not been very satisfactory, presumably because in the vast majority of cases of gonorrhoea if not in all, the posterior urethra is infected before treatment is begun, and it is neither usual nor wise to attempt to instill a solution of a drug past the compressor urethrae muscle during the acute stage. Simple instillation of a solution of penicillin would be more economical than injection and might prove effective if it were carried out in the very early stages, but even in treating infected wounds surgeons commonly use penicillin parenterally as well as locally. (See also answer to a question published on Jan 19 p 115).

INCOME TAX

Sale of Practice

W. I. sold his practice last October and has had a request from the local inspector of taxes for details of the sale considerations and a copy of the written agreement for sale. He asks whether the inspector has any legal authority for such a request. The practice has been assessed on the basis of "bookings".

* The inspector has no such legal authority, but in those matters he acts as an officer of the Inland Revenue endeavouring to agree the taxpayer's liability before the case goes to the Commissioners who, in the event of an appeal, can call for such evidence as they may require. The request is one which is sometimes made on the ground that the sale price of a practice is to some extent an index of the probable gross earnings. Unless **W. I.** has some reason for declining to give the particulars it may be best to comply with the request, an alternative would be to refuse compliance until the demand is formally endorsed by the Commissioners.

Pay as-you-earn: Employment in Forces

E. R. was a salaried worker before he joined the Forces in January, 1942. As he was in the Forces throughout 1943-4 he received no "forgiveness" of tax for that year, although he had to clear off seven months' arrears of tax while suffering "current" deductions from his pay. Has he any claim to refund?

* The promise of the former Chancellor—to which **E. R.** refers—was that some equitable adjustment should be made where there was an overlapping tax payment and where the tax holiday which the taxpayer was entitled to expect had been lost through the operation of "pay as-you-earn." If **E. R.** becomes an employee when he leaves the Forces (but no if he then becomes assessable under Schedule D) he will apparently come within the promised arrangement. It is understood that particulars can be obtained from the Chief Inspector of Taxes, The Hydro Llandudno, but **E. R.** can do nothing effective in the matter until he leaves the Forces and has subsequently been in employment.

Casual Locumtenency

D. J. while holding a hospital appointment obtained a general practitioner by acting as a locum tenens during a holiday. Is the payment he received liable to income tax?

* Yes. The payment is not liable under Schedule D, but falls within the scope of Schedule E.

LETTERS, NOTES, ETC.

Early Diagnosis of Malignancy

Dr. FRED A. M. LUCAS (London, E.9) writes: Is it possible that there is any member of the profession who feels free to cast a stone concerning the early diagnosis of malignancy? I saw first about four months ago a patient who had a painless swelling in the upper medial quadrant of the breast. No glands were palpable. There was evident mastitis; but there was undoubtedly a hard core to the fairly defined area of mastitis, which had to be considered suspicious. I referred the patient to a particular surgeon (of an excellent voluntary hospital), who concurred regarding the nature of the case and wished to operate. The patient, however, was rather alarmed at the "free hand" naturally required by the surgeon, and asked me for another letter to another hospital recommended by the ubiquitous relative. As this second hospital is also a well-known London (voluntary) hospital, I complied; and the patient attended on about four occasions, seeing both senior and assistant surgeons. Far from satisfied, however, that the belladonna plaster with which they adorned her breast was indeed helping, she returned to me, and I persuaded her to put herself in the hands of the first surgeon and hospital. The breast was removed, but no glands were cleared.

I have just heard, from the department to which she has now been referred for x-ray therapy, that pathological examination of the excised tissues revealed early but definite malignant changes. I humbly suggest that not only the general practitioner need fear the spectre of the "missed" case, and that, while no branch of the profession can or should claim infallibility, it suits us all better to walk warily, and be mindful of the beam in our own eye ere we judge the mote of others.

Miscarriages and Congenital Syphilis

Dr. C. W. F. MCKEAN writes from the Prince of Wales's General Hospital (Tottenham): May I comment on your expert's answer to the question on miscarriages and congenital syphilis (Jan. 12, p. 75). He states that third-generation syphilis is usually regarded as proved possible, if very rare, and that a congenital syphilitic can become reinfected after all evidence of active disease has subsided. I presume the latter must refer to a serological as well as a clinical cure, but it is not clear whether cure by treatment or by Nature is meant. Actually, statistics suggest that a surprisingly large proportion of acquired infections are cured by Nature without any treatment, and this must be regarded as more surely proved than the possibility of third-generation syphilis. The proportion of congenitally infected babies similarly cured would surely be as high, and some infections serious enough to cause congenital stigmata to develop may be so cured. Certainly we have all seen people who we suspected were congenitals but had negative bloods. Therefore, those very rare cases of apparent third-generation syphilis may actually be babies born to mothers who, though themselves congenitals bearing stigmata, were cured by Nature and then reinfected, thus rendering their blood Wassermann-positive again. The extremely high incidence of syphilis certainly renders reinfection easily possible.

Abortion and the Birth Rate

Dr. ANNE M. ANDERSON (Edinburgh) writes: A letter from Dr. B. Dunlop (Feb. 2, p. 192) advocating a relaxed abortion law does not come as a surprise in a largely pagan country such as this, but it calls for comment. Dr. Dunlop's proposal is to have the existing abortion law relaxed so that that section of the community which is producing and bringing up large families may be allowed to kill off its unborn children if and when it so desires. Is it likely that this very section of the community that has been, and is, doing the right thing before God and by the State in bringing up these large families, and which neither knows nor wishes to know birth prevention methods, would accept such an invitation to murder as would be extended to it under a relaxed abortion law even in the name of "liberty"?

Service Conditions and the Ethical Code

"SURG. LIEUT., R.N.V.R.," writes: The letter from "Hippocrates" (Jan. 12, p. 76) is an example and a warning of what can happen under a State system. The indifference displayed to this dental officer's feelings is all too common, and the attitude engendered by the doctrine, so persistently taught in the Services, that one is a medical officer before a doctor. Having seen this in practice most of us believe that this is really detrimental to the Service that preaches it; certainly a fighting man's first duty is to his Service, but he fights better for believing that his M.O. is his friend rather than his superior officer, or his padre his confidant and not the mouthpiece of his C.O. In a recent letter to the *Birmingham Post* Dr. Stanley Barnes writes: "If the doctor is to be paid by the State—in other words, if he is paid indirectly and

not directly by his patient—can anyone with his eyes open believe that the State will not insist upon disclosure not only of diagnosis but also of facts leading up to diagnosis? Whatever promises of official secrecy may be given, there can never be that feeling of security against disclosure which exists where the secrecy of a private doctor is alone at issue." If the new health services are to be a success—and there is no reason why they should not—it is important that their organizers should realize that our first duty is to the sick man or woman not to the local authority, and that we ourselves should reaffirm our discipleship to Hippocrates not to the newer loyalty of the modern State.

Chilblains and Nicotinic Acid

Dr. LEONARD S. CALVERT (Welton, E. Yorks) writes: The interesting letter by Dr. W. Gordon (Feb. 9, p. 218) prompts me to write of yet another condition treated by nicotinic acid with success. A young woman aged 22 had suffered from chilblains of both legs every winter for 6 years, the legs hardly becoming normal in the summer. When first seen she had large bluish, raised, cold, indurated patches the size of a hand extending from the ankle to the knee on both legs. Another woman aged 27 had suffered from chilblains with ulceration on the lower half of both legs every winter for 10 years. Both patients had previously received thyroid, calcium, etc., and, in the second case (? Bazin's disease), gold on several occasions without success. Each patient was given nicotinic acid 100 mg. t.d.s. and vitamin B, 3 mg. t.d.s. A slight transient flushing or pricking sensation of the skin of the whole body, more particularly in the legs, was experienced by both following each dose. In both the chilblains rapidly subsided. The legs assumed a normal contour and warmth. All burning and irritation disappeared. Only a slight bluish discoloration remained. This occurred in three weeks.

Medical Supervision in Boys' Clubs

Mr. IAN M. LESLIE (chairman, London Federation of Boys' Clubs, 222, Blackfriars Road, S.E.1) writes: Recently through your columns (Jan. 12, p. 69) I asked doctors in London if they would be prepared to give a few evening hours, weekly or fortnightly, to "vetting" working boys in clubs affiliated to the London Federation of Boys' Clubs. May I report progress? Twenty-two replies have been received, and as a result nineteen doctors have been or will shortly be placed in direct touch with clubs in convenient districts—to the great benefit of the clubs and their 14-18-year-old members and, I also dare to hope, to the enjoyment of the doctors concerned. Two replies came from consultants who have offered their services to our boys in their particular fields; I have no doubt that club leaders with boys needing special treatment will gratefully make use of this generous offer. There remains one reply for which I have not yet accounted—from a young doctor anxious to help but shortly taking up an appointment in Bristol. He has been placed into touch with the Bristol Federation of Boys' Clubs, who are delighted to have his services, and it has occurred to me, so generous has been the response from London, that there must be many medical men outside the Metropolis who would similarly be glad to help in a boys' club near at hand. There are over 2,000 such clubs affiliated to the National Association of Boys' Clubs in England, Scotland, and Wales, and hardly a city or town that has not got at least one. I am sure that the chairman of the National Association would be glad to place doctors outside London into touch with their nearest club. His address is: The Lord Aberdare, chairman, N.A.B.C., 17, Bedford Square, London, W.C.1. Meanwhile, it only remains for me warmly to thank those who have responded to London's appeal and you, Sir, for setting rolling a ball which I hope will achieve perpetual motion.

First Aid for Cresol Burns

Dr. L. B. BOURNE (London, N.5) writes: In the answer to this question (Feb. 2, p. 191) no mention is made of prevention. A large number of burns come under my notice during the course of the year as a result of splashes from hot zinc chloride, usually caused by a soldering iron being dipped in fluid. We also use hydrofluoric acid in quantity, and this is likely to cause burns if preventive measures are not used. A good barrier cream will reduce considerably the risks not only from hot cresol but from most industrial skin hazards. It must be emphasized that a specific barrier cream against cresol should be used. There are a number of creams being offered by the makers to protect against "all risks." These should not be used under any circumstances.

Disclaimer

Dr. C. B. MOLONY, resident medical superintendent, Waterford Mental Hospital, writes: My attention has been drawn to a sensationally headed and luridly worded article on schizophrenia which appeared in an English Sunday newspaper on Feb. 24, and in which my name and address have been quoted. I wish to dissociate myself from the article in question, and have written a letter of protest against its publication in the form in which it appeared to the editor of the paper.

LONDON SATURDAY MARCH 23 1946

THE HEALTH PROBLEM IN BERLIN

(JULY, 1945, TO JANUARY, 1946)

BY

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As a political experiment in international co-operation the government of a city such as Berlin by four Allied Powers—with different outlooks and different aims—is unique. The importance of the success of such an experiment is widely realized, and it was thought that an account of the problems facing and the work done by the Public Health Section of the British Military Government would not be without interest. These problems will be described as they presented themselves to the Public Health Section. The situation was chaotic on arrival—in spite of the existence of a German administration, normally very efficient, struggling to resuscitate itself. It must be appreciated that it was always very difficult to obtain information as to exactly what was occurring, but anyone who saw the city last July and sees it to-day cannot but be struck by the general improvement of the health conditions.

General Situation

The story of Berlin during the year 1945 is well known. Until the Russian advance early in the year the city's Health Department had, in spite of the heavy bombing, managed to keep the health services functioning. In the early months of the year the city became more or less an operational area and disintegration started, culminating in complete chaos with the battle for Berlin and the city's capture on May 2. There then followed a period of Russian occupation, when military and political considerations were paramount and the health of the population was of secondary interest. The British troops arrived on July 4, and British military government began to function on July 12.

Berlin, a city with a pre-war population of 4,306,500, is governed by a "Magistrat," which includes a Health Department headed by a Medical Officer of Health. The city is subdivided into 20 districts, or Bezirke, each with its municipal authority and health department. Unlike the Metropolitan Boroughs of London, the Bezirk is not an independent authority, but comes completely under the control of the city's Magistrat.

The actual German administration was left unchanged by the Allied Powers, but each Power became responsible for a section of the city*—comprising a number of Bezirke, as shown on the accompanying map (see p. 425).

Control over the German Magistrat is exercised by a joint Allied body known as the Kommandatura. Policy is determined at meetings attended by the Commandants (the general officers commanding the four Allied contingents in Berlin). Technical matters are dealt with by committees of the Kommandatura, comprising a representative of each Allied Power. Meetings are held weekly, or oftener if necessary, when problems are discussed, and if agreement is reached appropriate instructions are sent—in the case of the Commandants' meeting, to the Magistrat of the city, or, on technical matters, by the committee concerned to the appropriate department. The four Allied Powers provide a chairman for the main meeting and committee meetings in rotation, each chairman holding office

for one month. The Allied Power providing the chairman is responsible for the secretarial work of the Kommandatura.

The experiences of the different committees vary, but the Public Health Committee was generally successful in agreeing on all measures to be adopted. In such a committee the language difficulty is a real one and agreements have to be couched in general terms, a certain latitude in interpretation is inevitable.

Like any other great city Berlin is not self-sufficient and obtains supplies from all parts of the country. Of particular importance from the health point of view is the food supply, which in normal times largely comes from the rural country surrounding the city. It is a cardinal principle that the four Allied Powers accept responsibility for feeding the population in their own sector. As Berlin is situated in the Russian zone the normal larder of the city is not available for the British United States, and French authorities. The communications, with their respective zones for road transport, are along the autobahn from Berlin to the west. The nearest point in the British zone is Helmstedt, some 100 miles from Berlin and transport is limited to this road. Military traffic is unrestricted, but German civilian traffic requires a Russian clearance before it can pass over the border. Rail transport from the west is now running, but there is only a single-track line functioning on the 80 miles between Berlin and the Elbe at Magdeburg. This line is under Russian control and the fact that it is a single and not a double track reduces its carrying capacity some twenty times.

The above sketch of the conditions in Berlin is intended to give an idea of the background against which public health problems must be judged. It is now proposed to describe some of the main health problems encountered.

Staffing of Health Departments

It is well known that the Nazi party permeated the public services in Germany. The Allies all agree on the necessity for denazification but the policies of the different Powers vary somewhat. The Russian policy insists on complete elimination of any party member. British policy recognizes that party membership may have been merely nominal, and allows such persons, after "screening" by Special Branch officers, to be retained in and appointed to office. (In certain categories—e.g., SS—removal is mandatory.)

The Russian policy was applied for two months before the British occupation. The medical officer of health of the city was an extremely capable man, of the Bezirke's, one medical officer of health was an old but very experienced man, two were inexperienced and had got their position more on political than on professional grounds, and the fourth was "hopeless."

The medical officer of health described as "hopeless" fully justified the description, and attempts were made to find a substitute. The city medical officer of health recommended a suitable medical officer who had, unfortunately, become a nominal member of the Nazi party. This doctor was "screened" by Special Branch officers, and no objection to his appointment was made. He has proved himself a most capable official in spite of a campaign of anonymous letters and

* The French took over their sector on Aug. 12, 1945. Previously this sector came under British administration.

posters on walls abusing both the British Military Government and himself.

Other similar difficulties arose. For instance, the Director—viz., the lay superintendent—of one hospital was found to be ignorant of the number of beds in his hospital—his only experience of the job being a short period in the hospital office as a clerk some years ago.

"Nazi-ism in reverse" constituted another problem. The fact that the Nazi system was one of the most abhorrent institutions known to mankind did not, in itself, make those who fell foul of it into saints! A large number of the finest Germans suffered from this system, but unfortunately some of the less reputable victims (or self-appointed victims) obtained positions of influence and started victimization of their rivals. This victimization took the form of dismissing persons from their positions on the grounds that they "belonged to the party." To prevent this victimization the British Military Government reserved to itself the power of dismissal. Cases frequently came to light involving such persons as hospital nurses who, when "screened" by Special Branch officers, were found to have been mere nominal members of the party, and in some cases had been forced into it.

This problem is stressed, as much criticism of British Military Government policy in connexion with de-nazification has arisen. The problem is a difficult one—especially for a technical service, such as public health, where replacements are not easily made; its solution is not simply deciding between black and white.

General Sanitation

In normal times Berlin had an extremely well organized system of water supply, sewage disposal, and refuse disposal. On the arrival of British Military Government the organization was chaotic and much of the equipment and installations had been damaged. The city obtains some 90% of its water from shallow wells and the remaining 10% from surface water. There are normally 87 interconnected pumping stations. No gravity reservoirs exist, the maintenance of pressure depending on the functioning of the pumps. It was estimated that in the city there were 3,111 known major breaks to the mains as a result of the bombing and fighting. The waste of water was enormous. In July the estimated measured consumption was 50 gallons per head, but the bulk of this water was running to waste. The pumping machinery worked intermittently, causing frequent negative pressure.

The sewage organization of Berlin consisted of three systems leading to sewage farms and sewage plants. There had been 2,323 known major breaks, and only some 20% of the sewage reached the disposal works. The rest seeped away into the sandy soil, but did not cause as much nuisance as might be expected. Its presence was, however, very obvious in the city's many waterways and canals.

The above description will make clear the danger of water contamination. The only radical cure was the complete repair of the water and sewage systems, and such work was given the highest priority by the Public Works Department. By January 106 major defects to the water system and 399 sewage defects remained to be repaired. As a stop-gap measure the water was chlorinated. It was necessary to get quadripartite agreement to such a measure; this caused some delay in its inception. The water was examined by the "Reich Institute for Water- and Air-Hygiene" for signs of contamination, and by a British Army hygiene section for the presence of residual chlorine. Results were also checked by a British mobile laboratory, and were more or less consistently satisfactory after heavy chlorination. All water for British troops was specially chlorinated in military water-carts, etc. As an additional precaution the population was advised to boil the water—rather a counsel of perfection when it is remembered that very few people had even enough fuel for cooking. That these methods were effective is shown by the fact that, so far as is known, the typhoid epidemic which raged from August to November was not water-borne.

On our arrival the refuse-disposal system was more or less non-existent—the main trouble was that of transport. The Germans largely used a very cumbersome refuse-wagon requiring two heavy horses to move it; the only horses available were underfed light-draught animals. Much of the refuse was normally

taken outside the city by barges, but the waterways were blocked through war damage. At first refuse was disposed of by burial in gardens and open spaces. Where this was not possible refuse-carts were left at suitable points of the street and moved when filled to overflowing. It was necessary to clear the waterways before an adequately organized system could be instituted.

Casual fouling caused a certain amount of difficulty, which was not surprising, as few public lavatories were functioning and thousands of German refugees were thronging the city: a city of ruined buildings gives extensive opportunities for such habits! Energetic measures were taken to supply public lavatories, whose provision overcame this nuisance.

Nutrition and Fuel

The feeding of such a city as Berlin is an immense problem, and the difficulties, due largely to the transport situation and the cutting off of normal sources of supply, have already been briefly indicated. The conditions on arrival were bad. The casual observer going about the streets could not fail to note the high proportion of pale anaemic faces, and the extremely slow rate at which gangs of labourers, etc., did their work. As an illustration of this, some British medical stores supplied for the use of Berlin had to be unloaded, and it was estimated that 18 labourers were required. In actual fact 50 had to be pressed into service to get the work completed in the allotted time. The medical observer would have noticed other signs. The time spent by patients in hospitals was above the average. Dysentery had a case mortality of 28%. Cases of hunger oedema could be seen in almost any hospital.

The rationing system in force divides the inhabitants into five broad classes:

	July, 1945	Jan., 1946
Class I: Heavy workers ..	2,443 cals.	2,443 cals.
Class II: Workers ..	1,957 "	1,957 "
Class III: Sedentary workers ..	1,581 "	1,581 "
Class IV: Children up to 15 yrs.	1,500 "	1,500 "
Class IVa: " 6-9 yrs.	—	1,375 "
Class IVb: " 6-9 yrs.	—	1,473 "
Class IVc: " 9-14 "	—	1,543 "
Class V: Non-workers ..	1,200 "	1,504 "

* Milk ration: Children up to 1 yr., $\frac{1}{2}$ litre per day.

" 1 " 6 yrs., $\frac{1}{2}$ " "

" 6 " 9 " $\frac{1}{2}$ " "

Mothers: 2 months before and 4 months after birth, $\frac{1}{2}$ litre per day.

Hospital patients: $\frac{1}{2}$ litre per day.

It must be remembered that, apart from the black market, Berliners had little opportunity of supplementing their rations. During the autumn many Berlin families spent the week-end walking into the surrounding country and trying to buy extra food from farmers—who, in the Soviet occupation zone, must hand over 75% of their produce to the authorities, but are permitted to dispose of the other 25% as they wish. The more enterprising Germans certainly obtained some food in this way—mainly vegetables. Most of the food was obtained by barter and was liable to looting on the way back to Berlin. In addition to this innocuous type of black market, food could be obtained on the real black market, but at an exorbitant price. One doctor used most of her salary for two months to give her parents a present of a kilogramme of butter—at the cost of 800 RM.=£20 nominal value.

The Class V ration was, with grim humour, known by the Germans as the "death class" and did mean slow starvation. It is true that in actual fact comparatively few people had to subsist on this ration alone—the majority of families having someone on a higher scale. The housewife received a Class V ration card in spite of the fact that she had a most strenuous job in catering for her family. This important class of citizen always seems to get "more kicks than ha'pence."

The effect of a diet of 1,200 calories alone was well illustrated in one of the prisons. Even prisoners sentenced to hard labour received this diet and could obtain no supplement. Many had to be kept in bed as they were too weak to work. Some deaths occurred from malnutrition alone. There were many cases of hunger oedema. When oedema developed, the prognosis was bad and death usually occurred within 14 days, as it was quite impossible to provide the correct treatment. An improvement has now been made, and working prisoners receive Class III ration.

In the early days of the British occupation (July to August) it frequently happened that the ration cards were not honoured.

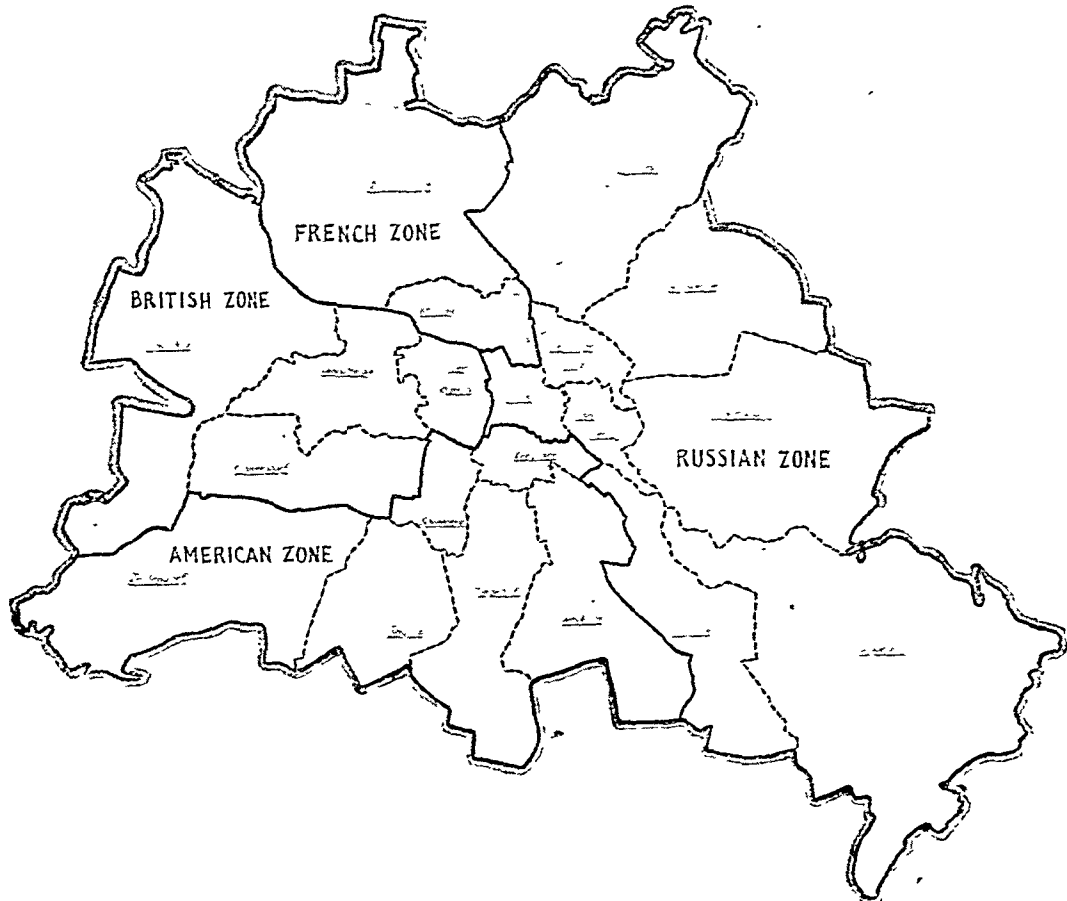
the scanty ration of fats being as much as two months in arrears. The nutritional condition of the population gave rise to much anxiety—especially with the knowledge that a winter had to be faced. Fortunately the mechanism of rationing was greatly improved by the Food Section of Military Government. By November the ration cards were being honoured and many improvements were made, which will be seen in the foregoing table. After 6 months of occupation the nutritional state of the people was much improved, and, while the winter is not yet over at the time of writing, it appears that serious epidemic disease may be avoided.

The protective foods—fats, milk, etc.—were extremely scarce, but in the early days the difficulty of the food situation was such that never once was the Public Health Section asked to advise

and distribution of the rations are so irregular that even such basic foods as bread and potatoes are bought for the week and eaten up in a few days, after which time the dietary intake is extremely low until the next ration becomes available, not necessarily at the beginning of the next ration period. This impression is substantiated by values from one-day diet histories, which give figures ranging from 1,830 calories to 384 calories from rationed foods alone on a basic ration of 1,163 calories."

Fuel was also extremely short in Berlin. Supplies had to be brought from the Ruhr, and from Silesia in the Russian zone. In addition to being scarce, much coal was of the soft brown variety which was not suitable for many of the furnaces in use in the city.

Public utilities had the first call on fuel, after which hospitals had a high priority. Distribution was irregular at first; large



on what foodstuffs should be brought into Berlin. This was not due to any lack of interest in the medical side of the problem—it meant that any food possible was obtained. In such circumstances nutrition experts will perhaps think leniently of the Public Health Section when it is stated that vitamins were not a priority demand! By November the question could be considered, and the same policy of "get what one could" was adopted. Cod-liver oil and vitamin tablets were sent in from the British zone and distributed to children.

The above description of the food situation is based purely on observation and knowledge of the administrative machine. Berlin was visited by a British nutritional team in September, 1945, and the following is an extract from their report:

"Dietary information covering the previous week has been collected on 65 households (176 people) and dietary intakes of a single day's meals have been recorded for approximately 80 of these people. Few of these daily records equal the rationed amount the people alleged they were able to buy. There is no peak period of consumption as in Dusseldorf. The impression is that the availability

of hospitals were often running with only the most meagre reserves and had to curtail their work as no steam was available for sterilizing. The Economic Section of Military Government appreciated the importance of hospital needs, and by November a sufficient if not a liberal amount was available. Economies, such as not heating corridors, had to be exercised, but during the winter no hospital had to close down on account of lack of fuel.

The supplies available allowed no coal for domestic purposes, and the gas and electricity supplies were strictly rationed. Use was made of the extensive wood in the forests which surrounded Berlin. The population shivered, but, by the use of wood fuel and by whole families occupying one room only, deaths from exposure were prevented. The lack of fuel was probably one of the factors in the high death rate from respiratory disease among old people and infants. One result was a high incidence of skin disease in young children due to the lack of washing facilities.

Dysentery

When the British took over their sector in July they found a dysentery epidemic in progress. The reason was not far to seek: disorganized sanitary services, lack of personnel to advise on precautions, and flies breeding in the hot weather. The extent of the epidemic is shown by the following statistics:

	British Sector		Total for Berlin	
	Cases	Deaths	Cases	Deaths
July, 1945	1,203	62	4,332	906
Aug., "	985	170	3,398	1,014
Sept., "	279	57	1,764	608
Oct., "	217	84	923	268
Nov., "	256	57	1,029	215
Dec., "	233	77	871	276
Jan., 1946	55	11	306	51

The preventive measures adopted consisted in the reconstitution of the normal sanitary services. The improved conditions began to make themselves felt by August, but it was perhaps fortunate that this month was exceptionally cool.

The disease was mainly of the Flexner type. Of great interest is the high case fatality—28% of all cases from July to November. This high mortality can be explained by the poor nutritional state of the population. Visits to hospitals indicated that many of the fatal cases, although infected with the dysentery bacillus, were in fact cases of debility and malnutrition.

It must be remembered that treatment facilities were also lacking. No sulphonamide drugs were available, and the food supplies—black bread, etc.—did not allow proper dietetic treatment. Necropsies on many cases showed a large intestine with no inflammatory reaction, in spite of the fact that the Flexner bacillus had been demonstrated.

Typhoid Fevers

The extent of the typhoid epidemic in Berlin is shown by the fact that 12,740 cases occurred in the city (2,397 in the British sector) from July 12, 1945, to Jan. 12, 1946. It was known that many cases were occurring in July and August, and all doctors, nurses, and others likely to come into contact with the disease were protected by inoculation. About the middle of August, however, the number of cases suddenly increased, coincident with an increase of refugees, and it was felt that some more drastic measures should be taken.

Typhoid differs from dysentery by its long incubation period. It was estimated that some 80% of the cases were imported and were occurring among refugees arriving in the city from the east. The health conditions and standard of hygiene of these people were poor, and many cases resulted from direct contact. In view of the fact that between 700 and 800 cases were occurring each week, careful epidemiology was out of the question, and "shot-gun" methods had to be adopted. Compulsory immunization was decided upon, and an order was issued to this effect on Aug. 24—the other Allied sectors adopting the same procedure. It is interesting to note that such a, to us, revolutionary order was accepted by the German health authorities more or less as a matter of course. Stations were soon set up in the districts, and ration cards afforded an easy method of checking those who had been treated. Some delay was experienced in collecting supplies of vaccine and syringes, and inoculation started early in September. In the British sector over 90% of the population had been treated by the end of October.

Statistics of typhoid cases are given below:

	British Sector		Total for Berlin	
	Cases	Deaths	Cases	Deaths
July, 1945	79	—	245	22
Aug., "	444	27	1,688	177
Sept., "	688	53	3,922	406
Oct., "	508	65	3,059	336
Nov., "	354	61	1,979	328
Dec., "	240	47	1,452	256
Jan., 1946	84	17	395	75

Clinically the disease showed no special feature. The proportion of each type is not known, as bacteriological facilities were limited; the bulk of the cases were true typhoid. The

case fatality was approximately 12%. The explanation of this more or less normal fatality rate is probably that the poor diet did not have such a bad effect on a disease for which a low diet is part of the treatment. Hospital accommodation was fully taxed and many patients had to be treated in their own homes.

The inoculation of the Berlin population against the enteric group was carried out in the presence of an epidemic, and there was evidence that the "negative" phase made people more susceptible. Doctors were continually reporting the occurrence of the disease in inoculated persons, with a considerable number of severe and fatal cases. One physician thought that the disease was just as severe in inoculated persons but that complications were less frequent.

At this stage it has not been possible to analyse results and assess the efficacy of inoculation in the presence of an epidemic. The point to be remembered is that it is likely that in the spring of 1946 large numbers of refugees will be passing through the city and inoculation ought then to prove its value.

Typhus

The advances made in the control of epidemic disease cannot be better illustrated than by Berlin's experience of typhus since July, 1945. Apart from the fortunate fact that it was summer-time, British Military Government found a stage that seemed to be set for a large-scale epidemic. The chaotic and semi-famine conditions have already been described. In addition there was an extensive movement of population from the eastern districts, where typhus was known to be prevalent, into a community which had no immunity against the disease.

A few cases were reported in other sectors of the city towards the end of July. It was known that the refugees who arrived were lousy, and arrangements were immediately made for their delousing: nothing could be done with those who "filtered" in to relations. Fortunately the Berlin population has a high standard of hygiene. Effective delousing was made possible only by the use of D.D.T. and the provision of necessary dusting equipment—from Army sources. R.A.M.C. sanitary officers and N.C.O.s soon taught the German health department staff the necessary technique and supervised the work. Without D.D.T. dusting, louse control would have been almost impossible, as most disinfection stations were damaged and fuel was difficult to obtain.

There was not enough typhus vaccine to carry out a wide-spread inoculation campaign, but this protection was given to doctors, nurses, refugee workers, and others likely to come in contact with cases. This was completed by the end of September.

A number of cases occurred in the other sectors, but the British sector remained free until the end of October, when some 10 cases or suspected cases occurred among refugees. Since then a few cases have been occurring every week, but there has been no epidemic outbreak. All cases in the British sector, with two exceptions, were infected before arrival. The eastern part of the city had the largest number of cases, partly because west-bound refugees arrived in this sector, and partly because the conditions of overcrowding were worse owing to more extensive damage.

The following statistics cover the first 6 months (July 12, 1945, to Jan. 12, 1946) of British occupation:

	British Sector		Total for Berlin	
	Cases	Deaths	Cases	Deaths
July	1	—	1	—
Aug.	1	—	18	7
Sept.	2	1	26	7
Oct.	2	—	27	4
Nov.	4	2	25	21
Dec.	20	6	126	14
Jan.	7	3	61	—

Clinically the disease was moderately severe, with an 11% case fatality. Typical exanthemata were only rarely seen, and perhaps the most striking symptom was the "typhoid" state and delirium—a fantasy of one German P.O.W. returning from Russia being that he was the Tsar. The Weil-Felix test was used throughout for diagnostic purposes. Convalescence was slow—not surprising in debilitated patients.

One German physician who had much experience of typhus gave it as his opinion that the disease had not become more widespread because lack of fuel caused all German households to be cold and the low temperature discouraged the louse from miterating. Be that as it may, the occurrence of typhus was more or less inevitable in Berlin. The limitation to sporadic cases rather than an epidemic is a great tribute to modern preventive methods—especially as, while exact information is not available, reports indicated that the disease reached epidemic proportions in certain other cities in Eastern Germany.

Veneral Disease

Many lurid articles have appeared in the lay press with regard to prostitution and venereal disease in Berlin, and it cannot be denied that the position was bad. The Germans had experienced a rise in incidence on account of war conditions, as had occurred in Great Britain. As already noted, the health services had been completely disorganized, Berlin had been the scene of much fighting and after its capture the inevitable licence and promiscuity took place. Families had been separated, and many women had no news of their menfolk for months. Food was desperately short, and many were no doubt driven to prostitution to obtain extra nourishment.

It is very difficult to obtain accurate figures of the incidence. A survey in one district disclosed the fact that 10% of the total female population were infected with venereal disease. It is likely the incidence was even higher, and has been put at 40% of the total female population.

The problem resolved itself into the tracing of infected females and ensuring they were treated. A "Vice Squad" of British military police was formed to work with the German civil police in tracing the contacts of Service cases. At first the proportion traced was small, but after the system was properly organized about 80 to 90% of contacts were traced. These persons were, if infected, retained in a special hospital till rendered free from infection.

A variant of this method was the organization of raids on "black spots"—e.g., notorious cafés where much "picking up" took place. The war has not altered completely the habits of a city, and many of the "black spots" were well known to the German criminal police. Other "black spots" developed owing to the presence of Allied troops. When a raid took place all women who could not produce a suitable identity card or were "known to the police" were apprehended and medically examined by the German health authorities. It is probable that many "amateurs" have been missed by this method, but the results of some raids are interesting.

	No. of Women Sent to P.H. Dept. for Examination	No. of Cases of Syphilis	No. of Cases of Gonorrhoea
Sept. 1945	247	10	60
Oct.	52	—	3
Nov.	52	1	2
Dec.	27	10	53
Jan. 1946	238	14	71

The raids did not seem to cause much resentment among the German population. Except for a few instances, all were carried out with almost excessive politeness on the part of everyone concerned. No doubt the presence of British military police had a deterrent effect on any male partner who was inclined to be truculent. After a number of raids had been made in a particular district the proportion of women found infected decreased.

Such raids might not be tolerated in normal times but, in the peculiar situation of Berlin in the autumn of 1945, it is considered the results justified this procedure.

Another factor in encouraging the spread of the disease was the inadequacy of treatment facilities. In Berlin the system of public V.D. clinics has not been developed as in Great Britain, and most of the treatment is in the hands of specialist doctors, who see patients in their own consulting rooms. Such doctors were short of sulphonamides. British stocks were brought into Berlin, but it was impossible to supply such drugs to doctors working privately, as there was a flourishing black market in this commodity. A compromise was effected by issuing drugs to the health departments and insisting that they supplied drugs only to recognized hospitals and centres set

up for the purpose. The illicit treatment of venereal disease by black-market drugs undoubtedly caused the development of many sulphonamide resistant cases.

Refugees

The end of hostilities brought with it the necessity for returning millions of people to their homes. Allied nationals—"displaced persons"—were given priority over Germans, and in the British zone their care absorbed most of the energy of the Military Government detachments. In Berlin "displaced persons" never constituted a problem, as they were few in number, but the German refugee question very soon began to cause much worry. Food was short and additional mouths to feed threw a great strain on the available food supplies.

Attempts were made to prevent refugees coming to Berlin at all unless they were bona fide residents of the city. In theory their entry was forbidden, but in actual practice they came in large numbers. Early November was probably the peak period, and it was estimated that they were reaching the city at the rate of 20,000 a day, of whom some 2,000 remained in the city. As a matter of interest, the population increased from 2,947,500 in August to 3,038,777 in December, a considerable number never registered.

The problem was one of refugees from the east. This point is stressed, as the British authorities had no control over and very little information concerning the source of refugees—the ceded territories—or their entrance into the eastern part of the city. Refugees arrived in the city by train and on foot. The conditions of rail travel were beyond description. An everyday sight was famulus groups, usually without any menfolk, trudging through the streets carrying their belongings on their back or, if lucky, on hand-carts. Accounts have appeared in the lay press about the terrible conditions of these people; these reports, although somewhat sensational, gave essentially a true description.

In some of the refugee camps that, as described later, were set up it was possible to see sights which showed only too well the aftermath of war. Sick bays were provided, and they were largely occupied by moribund cases which hospitals would not accept. One curious sign was the unemotional way in which a mother with perhaps four children would state that she had heard nothing of her husband for months or even years. Many seemed to have lost all normal human emotions.

When the stream of refugees began in August it was imperative that something should be done and refugee camps were set up in the British sector under the supervision of the Displaced Persons Section of Military Government, which was responsible for dealing with the refugees. These camps were run by the Germans themselves—much credit going to a number of German Red Cross workers. Conditions in the camps were not good but they did provide the minimum of care and, what was more important, prevented large numbers of potential disease-carriers from becoming lost in the city. Typhus was an ever present danger and the concentration of refugees in camps allowed effective delousing with DDT powder.

With the co-operation of the authorities of the British zone, many refugees were evacuated to the west in October. Towards the end of this month and early in November the numbers increased alarmingly. One camp for 1,500 at one time housed almost 8,000 people and it was essential to make definite arrangements for dealing with them. It would have been preferable, from the point of view of the city, to prevent the arrival of refugees altogether but such a course was impracticable, and it was necessary to set up camps where refugees could be under control. By January, 1946, accommodation for some 10,000 had been provided. In addition a more or less regular evacuation of refugees to the west was arranged, trains running when the occasion demanded it. By December and January the numbers reaching Berlin had declined and the accommodation provided was not taxed.

The main problems were accommodation and feeding. Accommodation in a heavily damaged city like Berlin was not easy to find, but use was made of barracks, etc. Until enough camps were set up, large numbers disappeared "underground" and lived in cellars and rooms in bombed buildings. Many appeared from nowhere when there was any chance of evacuation to the west. Refugees were not given ration cards, but

were fed from soup kitchens at the camps. In the estimated requirements of the city the Food Section had a 10% reserve which was available for such needs.

From the medical point of view the refugees caused many problems. They brought with them much disease—some 80% of the typhoid and almost all the typhus cases. Many suffered from debility and took up much hospital accommodation. The minor-treatment rooms and sick-bays in the camps required medical supplies at a time when the shortage was acute. Lacerated feet in undernourished people were particularly difficult to treat.

Another problem was the returning prisoners of war passing through Berlin. The responsibility for such men belonged to British Troops Berlin, and a transit camp was set up on the outskirts of the city. The Public Health Section arranged for a near-by civil hospital to admit any needing hospital treatment. Many had infected wounds necessitating a long stay in hospital. Anyone wishing to see to what a condition the once proud Wehrmacht, in ragged uniform, had fallen had only to visit this camp. It would discourage the most belligerent from wishing to take the risk of starting a war.

The subject of refugees has been described fully, even though the responsibility was not merely a medical one. It showed the aftermath of war at its worst. Many more refugees are still to be moved, but it is to be hoped that the agreement to move people in a more humane and orderly fashion will be carried out, as the terrible conditions of the autumn of 1945 must lead to bitterness.

Good work was done by both Allied and German authorities and voluntary societies in the relief of suffering, under difficult conditions. On the British side, mention will be made only of the fine work of the Friends Ambulance Unit stationed in Berlin, and the way in which the ordinary British soldier gave help to refugees with whom he came in contact—far beyond what mere duty demanded.

Personal Health Services

The first stage in the development of the modern health service dealt with problems of environmental hygiene and the control of infectious disease; the conception of personal health services was a later development. It is curious to note that in the rescue of the Berlin health services from the chaos into which war had thrown them the same sequence was followed, and only after some three months of occupation was it possible to give much attention to the personal health services.

As might be expected, tuberculosis has greatly increased. The environmental conditions—poor food, bad housing, etc.—encouraged its spread, and the lack of hospital beds prevented the isolation of cases. Like any modern city, Berlin owned many sanatoria outside its boundary, and such beds were now largely unavailable. Transport difficulties prevented use being made of institutions in the British, French, and American zones of occupation. A large tuberculosis hospital centre just outside the boundary of the city in the Russian zone was in use by the Red Army for military purposes.

The fact that very little could be done had to be accepted. It is true that a general improvement of living conditions and food supply was taking place, but no immediate steps could be taken. As many hospital beds as possible were made available for tuberculous cases. Persons who could produce evidence that accommodation in a sanatorium was available for them in some other part of Germany were granted travel permits, but there was always the feeling that the signing of such a recommendation merely absolved one of the responsibility of doing nothing. Undoubtedly some got safely to sanatoria, but it is certain many suffered from the rigours of the journey.

The following statistics for the city of Berlin are of interest:

1938: Incidence of tuberculosis per 10,000 per annum = 25.8
July 12, 1945, to Jan. 12, 1946: Incidence of tuberculosis per 10,000 per annum = 48.9

Maternity and child welfare clinics caused no special difficulties. It so happened that the premises in which such clinics were held had not been so badly damaged as to make them unusable, and the German health authorities soon got them working again. They were largely staffed by women doctors, which meant that there were no special staffing difficulties. The functions of the clinics are the same as in Great Britain.

The Germans seem to use these clinics freely, and it is claimed that all children are either seen by health visitors or attend the clinics at least once. Some 70% of children under 1 months attend regularly. The work of the clinics was handicapped by the lack of medical supplies and supplementary nourishment. They served, however, a particularly useful function in instructing mothers how to make the best use of the child's ration.

In the British sector of Berlin there was no actual shortage of general practitioners, but they worked under considerable difficulties. Hardly any had motor-cars—even a medical officer of health 68 years old in a semi-rural district did most of his visits on a bicycle—and only a few had a telephone. Conditions are gradually improving, and doctors now receive priority in the provision of telephones, motor-cars, etc. Many minor difficulties over accommodation arose, but it was agreed that a doctor's house should not be requisitioned by the military, and arrangements were made for a special issue of fuel for heating surgeries.

Many specialists had been evacuated from their hospitals and others were prisoners of war. The hospitals soon tried to collect their staff again, and when anyone was specially required application was made to the Control Commission for this particular person. A considerable number of medical men thus returned to Berlin at a comparatively early date.

Hospitals

Hospitals, like other buildings, suffered from the effects of bombing and the battle for Berlin. While comparatively few hospitals or hospital blocks were completely destroyed by direct hits, all in the British sector had been damaged to a greater or lesser degree. A number of institutions outside the city were no more available for Berlin's population. The pressure on the hospital beds was great. In July there was a dysentery epidemic—shortly to be followed by a typhoid epidemic. The city was full of refugees with no homes who, if ill at all, had to be admitted to hospital; there were many wounded requiring treatment. There was another cause for the strain on the bed accommodation. Owing to the poor nutritional state of the population and the lack of drugs and supplies, many patients had to be kept in hospital longer than usual.

The first step was to arrange for the repair of the hospitals, as in August it was estimated that 60% of the beds would be put out of commission in bad weather. It was agreed by all sections who had a call on labour and materials that hospital repair must have a high priority. There are in the British sector of Berlin a few large municipal and voluntary hospitals of over 500 beds, a considerable number of medium-sized hospitals of 100 to 500 beds, and many small hospitals of 50 to 100 beds. Many of the small hospitals are what in Great Britain would be looked upon as nursing homes. In September the Health Branch of the Control Commission initiated for the British zone of Germany and the British sector of Berlin a Winter Plan which, so far as Berlin was concerned, meant the finding of 2,000 more beds in the British sector. In a badly damaged city, buildings for 2,000 beds were not easy to find, but it was done. Equipment was the difficulty, but simple if not lavish equipment was sent up under British auspices from the British zone. This was immediately issued to these reserve hospitals.

The following statistics give the hospital position in July, 1945, to January, 1946. They refer to the British sector only:

	July, 1945	Jan., 1946
No. of hospitals over 500 beds	3	5
" " from 200 to 500 beds	5	9
" " under 200 beds	29	30
Total No. of hospitals in section	37	44

No. of beds available: July, 1945—5,817; Jan., 1946—9,143

By January, 1946, the position was such that, in the absence of epidemics, the hospital provision could be considered satisfactory.

† Sepsis in wounds was one of the commonest causes of long stay in hospital. Many German prisoners of war arrived on their way to West Germany in a terrible state—septic amputation stumps were frequently seen. The German hospital is normally a well-run institution, but one of the most noticeable features in wards being used for prisoners of war was the all-pervading stench of pus. It made one imagine one had returned to the pre-Listerian era.

Medical Supplies

In July there was an acute shortage of drugs and other medical supplies. The position was such that numerous hospitals had to curtail or stop their surgical work on account of deficiency of anaesthetics. Sulphonamides were practically unobtainable in hospitals and chemist shops were empty. The repercussions on a population suffering among other things, from a dysentery epidemic need not be stressed.

The matter was so urgent that it was decided to take steps to relieve the position in the British sector. Early in August some 60 tons of mixed medical stores were received from British sources, and a British medical store was set up. On account of the extensive black market—one ampoule of penicillin would fetch the equivalent of £75—the drugs were issued to hospitals only. The system worked well, and by December some 500 tons had been brought in from British sources.

At the early meetings of the Kommandatura an attempt was made to develop a uniform drug supply policy for the city of Berlin as a whole. The idea was that the Magistrat would inform the Kommandatura of what drugs were short, and demands would be made to the four Allies who would so far as possible, agree on what each would supply for the city as a whole. It, however, was more or less impossible to get enough information from the city authorities. The British view was that an urgent need existed which could not wait until the actual or potential German stocks could be accurately determined. Complete agreement could not be reached on this point by all four Powers and therefore the need of the British sector was met from British sources, other Powers dealing with their sectors in their own way. By December the hospitals in the British sector, to which issues were first limited, had an adequate if not liberal supply of drugs and it was then possible to agree to the dispensing of out-patient prescriptions normally obtained from chemists.

The German pharmaceutical industry is a powerful one, and a number of big firms have factories in Berlin. They may soon begin to try to re-establish their production, and if the firms are regarded by the medical officer of health of Berlin as producing reputable and essential drugs the British Military Government might give such manufacturers assistance to obtain raw materials and finished products from outside the city.

Considerable stocks should soon be obtainable through normal trade channels, but it is claimed that the action of the British authorities in making drugs available during the period August to December prevented a serious breakdown in medical treatment in the British sector. The urgency of the situation justified a departure from the general policy of treating Berlin as a whole in agreement with the other Allies.

The difficulties in getting German production going are well illustrated by the experience with typhus vaccine. The rickettsiae had to be flown from Frankfurt-on-Main, and arrangements were made to obtain 2,000 eggs from outside Berlin. The rickettsiae arrived, but at the last moment the arrangements to get eggs failed. No animals were available to keep the rickettsiae alive so the whole process had to be started again.

Summary

A description has been given of the main medical problems which were met with during the first six months of the British occupation of Berlin. Many more arose—ranging from the de-nazification of the German Red Cross and its reconstitution on democratic lines and the encouragement of learned societies to the tracing of doctors wanted as war criminals, but such subjects are perhaps out of place in an article on health matters.

In September and October a somewhat gloomy view was taken as to Berlin's fate during the winter 1945-6. At the time of writing with the winter more than half over, it would seem that fortune has been kind and the expected epidemics have not occurred.

The following statistics may be of interest in illustrating the improved vitality of a city after the ravages of war.

	Population of Berlin	Birth Rate per 1,000	Death Rate per 1,000	Infantile Mortality per 1,000 Live Births
Pre-war 1939	4,306,500	15.1	14.3	49
During 1944	2,863,600	8.6*	16.2	123

* This figure is low as a large number of pregnant women were evacuated.

Figures are not available from January to June, 1945, but the following are given for the period of British occupation (population, Berlin, British Sector 527,000).

	Birth Rate per 1,000 p.a.	Death Rate per 1,000 p.a.	Infantile Mortality per 1,000 l.b.
July 12-Aug 12	Accurate figures not available		
Aug 12-Sept 12	15	44	231
Sept 12-Oct 12	15	34	231
Oct 12-Nov 12	13	44	168
Nov 12-Dec 12	12	46	246
Dec 12-Jan 12	7	46	246

† This low figure is probably one of the results of the battle for Berlin and the subsequent occupation of the city.

Acknowledgment.—The above description deals with public health matters but the functions of military government are even more extensive than those of a big city in Great Britain. Any progress would have been impossible without the co-operation of all sections of Military Government and of British Troops Berlin. One cannot enumerate the many sections, but the support of the Senior Military Government officer, Brig. W. R. N. Hinde, D.S.O., and the assistance of the A.D.M.S. British Troops Berlin, Col. E. C. Beddows, O.B.E., V.C., made any success attained possible. We would also like to acknowledge the pleasant experience of working with Allied medical colleagues: Col. Pigareff, U.S.S.R.; Col. Freyche, French Military Government; and Lieut.-Col. Scheffer of U.S. Army. As at home, a Health Department does not only depend on medical men. We were fortunate in having Capt. G. H. Chambers, R.A.M.C., and Capt. W. Stapleford, R.A.M.C. (who died while serving in Berlin), as sanitary officers, and Capt. G. Smitham, R.A.M.C., as quartermaster and general staff officer. We would also mention Sgt. V. A. J. Pavitt, R.A., chief clerk, who in addition to his ordinary duties has given great assistance in the revision of this article. Our thanks are also due to Mr. Boucher, O.B.E., and Brig. T. Kennedy, O.B.E., of the Health Branch Control Commission, for their support in the work in Berlin.

NUTRITION OF SCHOOL-CHILDREN IN LEEDS. WINTER, 1943, AND SUMMER, 1944

BY

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In order to obtain some idea of the total nutrition of the children in those schools in which we were investigating the nutritional values of the school meals (Bray *et al.*, 1945) we have carried out a survey on the home dietaries by an adaptation of a method commonly recommended. Children in the age groups 8-11 and 11-14 from five schools were interviewed individually during either the winter of 1943 or the summer of 1944. Two of the schools on new housing estates and a third in a poorish-class neighbourhood were examined over both periods. The fourth, examined during the winter period also served in part a new housing estate, and it was changed for one in a poorer district in the summer period. The total number of children interviewed was 150 of whom 60 were seen during the winter period.

The children were selected at random, except that equal numbers of boys and girls were taken in each age group from each school and that a proportionate number of children receiving free meals were included in each selection. It is interesting to note that this random sampling was satisfactory since the proportion of children in the sample taking school milk was the same as the proportion for the whole city. The children were asked individually what they had eaten for breakfast and up to dinner time that day, and for tea, supper, and at other times since dinner the preceding day. They were then shown previously weighed samples of the foods they had mentioned and were asked to select the amounts of the foods they had eaten. A high degree of precision cannot be attributed to the results of this survey, but, on the basis of work carried out with our students, it seems likely that most of the estimates are accurate to $\pm 10\%$, and the results provide an outline of the diet into which the school meal must fit.

In an endeavour to get some spread of meals three groups include Sunday tea and supper the rest being weekday meals. Breakfasts over the two periods consisted mainly of tea but

occasionally cocoa, and bread-and-butter, buns, or tea-cakes, sometimes with jam, dripping, or syrup instead of butter. In the winter period in a few instances a cereal was included, and in a very few bacon or egg; in the summer these foods occurred rather more frequently, and fresh tomatoes and milk were taken in some cases. Most of the children have school milk in the morning, but 7 in the winter and 15 in the summer did not; nowhere did we find anything eaten with the mid-morning milk. Tea consisted usually of bread-and-butter, sometimes jam, tea-cakes, and cake, although chips, meat, sausage, etc., occasionally appeared; and in the summer fresh fruit, mixed salad, cheese, and eggs were also taken by a few. Some had a snack for supper, in which fish and chips frequently appeared, and milk or cocoa. Food on points—e.g., spam, apple rings—appeared only in Sunday teas, and there was a conspicuous absence of cheese in the diets.

Results

In the presentation of results the letter J or S after the initial identifying the school signifies the age groups 8-11 and 11-14 respectively. The standard requirements listed by the United States Research Council are as follows, and we have related our results to them:

Age Group	Calories	Protein	Calcium	Iron
8-11	2,000-2,500	60-70 g.	1.0-1.2 g.	10-12 mg.
11-14	2,500-3,200	70-85 g.	1.2-1.4 g.	12-15 mg.

In the interest of economy of space we have recorded all the collected figures as mean values for each group with their corresponding standard deviations, to indicate the spread of the results within the group. Table I records the adequacy of the

TABLE I.—Proportion in the Group of Diets Adequate in Calories, Protein, Calcium, and Iron

School Group		Calories	Protein	Calcium	Iron
B. J.	Winter, 1943	0/11	3/11	1/11	9/11
	Summer, 1944	8/11	6/11	7/11	4/11
S. J.	Winter, 1943	5/9	7/9	8/9	7/9
	Summer, 1944	6/12	4/12	2/12	11/12
C. J.	Winter, 1943	2/13	8/13	0/13	9/13
	Summer, 1944	6/11	7/11	0/11	11/11
G. J.	Summer, 1944	2/12	2/12	2/12	4/12
P. J.	Winter, 1943	4/12	11/12	0/12	11/12
B. S.	Winter, 1943	0/8	1/8	0/8	4/8
	Summer, 1944	3/11	4/11	6/11	4/11
S. S.	Winter, 1943	0/7	3/7	2/7	2/7
	Summer, 1944	2/12	1/12	2/12	11/12
C. S.	Summer, 1944	6/11	7/11	2/11	11/11
G. S.	Summer, 1944	1/12	2/12	0/12	11/12

dietary in terms of calories, protein, calcium, and iron, and the number of children examined in each group. The original intention was to have 12 in each group, but some results were excluded either by mischance or because we had satisfied ourselves that the particular children were unreliable witnesses. No vitamin values are given, since in our opinion calculations of these values from tables are not yet satisfactory. The vitamin C values for the midday meals were recorded in the previous communication, and in most cases represent by far the greater proportion of this component in the diets.

The results show that during the winter period of 1943 the diets of the 60 children examined were unsatisfactory in calories and protein and generally unsatisfactory in calcium, but (assuming the iron in the diet was readily available) generally satisfactory for iron. The spread of these figures shows that some of the individual diets were most unsatisfactory. The school meals and milk did at least account for 32 to 50% of the calories, 34 to 55% of the protein, 44 to 69% of the calcium, and 31 to 56% of the iron in these diets.

The nutritional position of the 95 children seen in the summer of 1944 was much better, since the mean energy values for the junior children in three out of the four schools visited approximated to the lower standard level of energy intake for this age group, though the wide spread in these results again underlines the low levels of intake of some of the children in these schools. The fourth school (C.L.), which produced such low values, was one of the two schools examined in a poor part of the city, and itself possessed poor facilities for school

meals. It is possible that the lessened intake in this school be a reflection of a lack of appetite related to undernutrition. The energy values of the diets of the senior children were greatly improved over the winter levels, but they are clearly under standard. There was little variation in the levels.

TABLE II.—Energy Values of Diets

School Group	Winter, 1943		Summer, 1944	
	Mean Value (Cals.)	School Meal + Milk (Cals.)	Mean Value (Cals.)	School Meal + Milk (Cals.)
B. J.	1,628 (194)	519	2,149 (394)	727
S. J.	1,944 (299)	703	1,962 (416)	569
C. J.	1,817 (487)	637	2,058 (373)	598
P. J.	1,937 (313)	958	—	—
C.L. J.	—	—	1,682 (388)	533
B. S.	1,687 (254)	723	2,443 (493)	961
S. S.	1,621 (333)	703	1,761 (277)	622
C. S.	—	—	2,491 (404)	1,092
C.L. S.	—	—	1,933 (324)	673

The figures in parenthesis represent the standard deviation.

TABLE III.—Mean Intakes of Protein, Calcium, and Iron

School Group	Winter Period			Summer Period		
	Protein (g.)	Calcium (g.)	Iron (mg.)	Protein (g.)	Calcium (g.)	Iron (mg.)
B. J.	54 (22)	0.66 (0.33)	13.0 (4.6)	58 (26)	1.00 (0.64)	9.1 (3.0)
S. J.	69 (28)	1.20 (0.72)	13.3 (4.2)	55 (17)	0.76 (0.34)	13.6 (7.1)
C. J.	62 (21)	0.80 (0.35)	11.6 (5.7)	68 (38)	0.70 (0.42)	13.9 (7.2)
P. J.	71 (39)	0.76 (0.40)	12.7 (6.8)	—	—	—
C.L. J.	—	—	—	50 (17)	0.69 (0.36)	10.6 (3.5)
B. S.	52 (21)	0.68 (0.33)	13.0 (7.3)	79 (33)	1.37 (0.76)	12.3 (4.0)
S. S.	63 (28)	1.05 (0.72)	12.1 (4.2)	49 (19)	0.72 (0.36)	13.3 (8.4)
C. S.	—	—	—	76 (36)	0.98 (0.47)	17.9 (8.0)
C.L. S.	—	—	—	59 (24)	0.76 (0.42)	14.3 (7.0)

The figures in parenthesis represent the amounts of the various constituents furnished by the school meals and milk.

protein, calcium, and iron within the two periods. The proportions furnished by the school meals and milk to the total diets of the children in the summer period were: calories, 29-44%; protein, 31-56%; calcium, 50-64%; iron, 32-63%.

Conclusion

Without making any sweeping claims from these results or can state: (a) that in the winter period of 1943 many of the children attending these schools were receiving much less than the recommended amount of food; (b) that in the summer period of 1944, with an improved nutritional picture, the standard of nutrition in quite an appreciable proportion was still far from satisfactory; (c) that the value of the school meals and milk in these diets is well justified by the high proportions of the diets furnished through the schools; and (d) when in the summer period the diets had been improved by a marked betterment in the home diets, the school feeding was still providing a high percentage of the total for intake.

Indeed, it is difficult to visualize what the nutrition of many of those children would have been like had it not been for the communal feeding within the schools.

We are indebted to the Director of Education in Leeds and Dr. Willcock, school medical officer; also to Miss Washington for the facilities granted for these investigations. We should also like to record the marked improvement in the school meals which occurred despite a greatly expanding service and under conditions of difficulty.

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The Minister of Health, in conjunction with the Secretary of State for Scotland and the Secretary of State for the Home Department will shortly make a new Scarce Substances Order which will come into operation on April 1, 1946. This Order rescinds all earlier Scarce Substances Orders except S.R. & O. No. 795 of 1944, generally known as the Ipecacuanha Order, which is amended by substituting as the authorized alternative for tincture of ipecacuanha a mixture of one volume of tincture of squill and one volume of water.

UNUSUAL GUNSHOT WOUND OF THE INTERNAL CAROTID ARTERY

BY

S. L. SCHWARZWALD, L.R.C.P.S.E.d., L.R.F.P.S.

e unusual development of this case, which remained unsus-
pected from the time of injury to the post-mortem examination.
y warrant recording.

Clinical History

Mr. J. W., aged 33, was injured when handling a small mine which exploded. He was admitted immediately to a near-by hospital. There were abrasions and shallow lacerations, some 3/4 by 3 cm. in extent, on the left temple, 2 cm. from the eye; a small punctured wound just below the angle of the jaw on the left; and several minor abrasions on the limbs. He was shocked and only semiconscious. From the neck wound came a scanty but steady trickle of blood. An exploration was attempted under general anaesthesia, but it had to be abandoned because the patient's respiration became very "difficult" and the threat of asphyxia grew. Intubation was attempted but not accomplished. The presence of glottis oedema was suspected. Subsequently the onset of "cerebral irritation" was noted; his pulse rate rose from 70 on admission to 120 four hours after the operation. A cranio-cerebral injury was suspected, and accordingly he was transferred to Hurstwood Park Hospital. The findings here were as follows.

The patient was stuporous to a marked degree; he opened his eyes and moved on application of pain stimuli and grunted when so roused. Loud speech had a similar effect, but no comprehension was apparent. His general physical condition was moderately good; his pulse rate 90; temperature 99.2°; the respiration stertorous, rather deep, and at a rate of 19 a minute. The blood pressure stood at 160/110, and his cardiovascular system showed no abnormality beyond a bounding pulse and rather loud first sounds. On the left temple there was the wound described above, and a sutured, incised wound with a rubber drain was seen at the level of the upper edge of the thyroid cartilage, extending, parallel to the body of the mandible, nearly as far as the angle of the latter. The neck itself was swollen and distended; the mandibular margin and clavicle were just palpable on the left, and a little more easily on the right. No details such as muscles or trachea could be made out, and the whole swollen neck pulsed with the heart-beat; it was hard to the touch. The sternal notch was obliterated.

The nervous system clearly showed signs of left-sided cerebral damage. The retina of his left eye was detached and located at -20 D, and the eye itself was slightly proptosed. The pupils were equal, central, and circular, the right one reacting sluggishly to light and the left one not at all. There was a diminished reaction to pinprick in the second and third divisions of the right trigeminal nerve, and a right facial palsy of upper motor neurone type. The auditory meatuses were of normal appearance, as were the drums; auditory acuity could not be assessed, but he could perceive sounds on both sides. Apart from weakness of his left sternomastoid and trapezius, which probably had local causes, no further cranial nerve abnormality was found. Both right limbs had an increased muscle tone and were scarcely moved at all even on application of strong pain stimuli; this state of affairs was more pronounced in the arm than in the leg. The reflexes on that side were brisker than those of the other side; knee clonus and ankle clonus were present, and the plantar response was extensor. Curiously enough, sensitivity to pinprick was not as acute on the left as on the right.

The patient could not utter any recognizable words, but only stertorous grunts on stimulation: apart from being aphasic he must have had aphonia as well, due to the local condition of his larynx.

Radiography did not reveal any bony damage, but at the level between C3 and C4 vertebrae, in the neighbourhood of the carotid bifurcation on the left, there was a foreign-body shadow of rugged outline, measuring less than a centimetre across. A lumbar puncture yielded blood-stained fluid under a pressure of barely 100 mm., the fluid soon clotting.

To begin with, the patient's condition did not change much, or only very slowly, for the worse. Eight hours after admission, however, the respiration became quite distressed and loudly stertorous, and his colour was cyanotic; the pulse rate had risen to 140 and the quality was even more bounding than before. Elevation of the jaw did not alter the respiratory distress. On inspection of the larynx it was seen that a good deal of oedema was present and also a hematoma in either ary-epiglottic fold; blood and blood-stained acid had been vomited shortly before.

Endotracheal intubation was performed under pentothal and the distressing signs vanished quickly, the colour improved, and the

pulse rate settled presently to 80. The stupor, however, and all the other neurological signs were, if anything, graver and did not improve: on the contrary, the patient slid back into deepening coma. Within a few hours the pupils were fixed, complete hemiplegia was established, and very little motor response resulted from stimulation of the patient's legs; both plantar responses were now extensor. The pulse rate rose once more, but without the bounding force. Death ensued some 20 hours after admission to this hospital and some 40 hours after his initial injury. The face, and the face alone, showed extreme cyanosis before death.

Findings at Necropsy

Upon dissection of the neck a small amount of blood was found in the opening of the wound and between skin and platysma; the rubber drain, lying in the superficial fascia, led downwards and forwards into an artificial cul-de-sac. The investing layer of the deep fascia showed a very small opening directly under the entry wound, and a track ran from there backwards and upwards, through blood-clot and disorganized muscle; it contained a little semiliquid blood. The whole space between the investing layer, from its attachments above and below, to the prevertebral layer of fascia was filled and distended with clotted blood, which visibly exerted enormous pressure upon all structures within that space. This clotted mass of blood reached upwards to the base of the skull at the pharyngeal tubercle and downwards into the upper mediastinum. It encroached particularly upon the larynx, appearing under the mucous membrane, upon the pharynx, the glottis, and the base of the tongue. The most striking feature was the extent to which the carotid sheaths were compressed, and especially the jugular veins. The lumina of the latter were compressed—considerably so on the right and to almost complete obliteration on the left.

The track ended between the external and internal carotid arteries on the left. At its bottom, exactly in the bifurcation, lay a metal foreign body (mine splinter), measuring 1 by 1/2 by 1/2 cm. The anterior aspect of the internal carotid showed an oval regular opening occupying about one-third of the vessel's circumference. To the upper edge, inside the vessel, there was firmly attached a small amount of clot. It was insufficient to obstruct the blood stream by itself, and inside and about the vessel near the opening fluid blood was actually present.

The brain and its membranes showed a considerable degree of vascular engorgement—again more so on the left than on the right. Macroscopically, the cortex of the left hemisphere showed early softening along the upper edge of the convexity, affecting mostly the Rolandic area. Microscopically, there was practically universal vascular congestion, most noticeable in the capillaries. There was considerable extravasation of blood along the vessels and extensive myelin changes in the subcortical layers. Many cells of the cortex showed pyknosis and some nuclear fragmentation.

Comment on the Findings.—The necropsy report suggests strongly that obstruction of venous return from the head, due to bleeding from the internal carotid artery into the fascial space, was the direct cause of the patient's death. This diagnosis had not been made during life. The smallness of the opening in the enveloping layer of deep fascia, caused by penetration of a high-velocity missile through an elastic membrane, no doubt accounts for this unusual mode of development of a main-arterial injury of the neck; the presence of a rubber drain lying across the unsuspected opening of the real track may conceivably have made things more difficult by helping to occlude the opening in the fascia.

Discussion

Carotid injuries and their serious sequelae have been observed widely during both recent wars, and definite lines of treatment were evolved. To summarize the range of possible events, injury to the main arteries of the neck may be followed by: (1) fatal haemorrhage. (2) Extravasation of blood and rapid formation of a thrombus, with (a) maintained patency of the vessel (embolism may occur at any stage after injury, and the development of a false aneurysm is a common late consequence); (b) quickly or gradually developing obstruction of the injured vessel. Both the latter possibilities expose the cerebral hemisphere concerned to grave danger of partial or complete anaemia, and the severity depends upon the extent to which collateral circulation can be established—a factor depending in turn on anatomical conditions, such as available channels, and also upon time. The danger of embolism falls under a different heading because it concerns the cerebral branches of the internal carotid, some of which, at least functionally, may be considered as end-arteries. The picture, then, resulting from carotid artery injury may range from death to but slight and fleeting hemiparetic signs and symptoms.

As to treatment, repair would seem the ideal; but in most cases the patient does not reach a surgical establishment soon enough,

nor is the technical problem one which can be overcome successfully in a relevant proportion of cases. Thorough exploration and assessment of the injury, in most cases ligation or ligation and division of the vessel, have been largely accepted as the method of choice.

The present case does not comply with the scheme outlined; in retrospect the steady development, step by step as it were, and the persistence of cyanosis of the head after intubation, were the only guides in differentiating the case from other forms of vascular catastrophe in the neck, and this diagnosis could not easily be distinguished in that instance from direct cerebral traumatism, particularly in the absence of a detailed history of the incident.

My thanks are due to Mr. Harvey Jackson for permission to publish this case, and for his advice and help.

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CONGENITAL MALARIA

BY

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Opinions are still divided as to the incidence of this disease. Manson-Bahr (1940) states that "congenital malaria is very exceptional, and probably only occurs when accidental tears of the placenta allow passage of parasites from maternal to foetal circulation." In Ceylon, Wickramasuriya, who has had a wide experience of malaria and ankylostomiasis in pregnancy, is of the opinion that pyrexia in children whose mothers have had malaria may be due to transmission of the parasites during pregnancy. It is possible that they are transmitted through the placenta as the result of pathological changes due to the infection. We should go further and suggest that during the intense shivering associated with the ague fits it would be possible for the placenta to be damaged.

One of us (A.E.) has been working for nearly ten years in Turkey and has travelled widely in rural areas, examining children. During this time there were many opportunities for observing the protean nature of the manifestations of malaria from birth to adolescence. The recognition of congenital malaria as a clinical entity needs to be emphasized. The following case, seen by both of us, is of unusual interest.

Case History

Case 1—On July 30, 1944, Sefak Nahi, 20 days old, was sent to the Numune (Model) Hospital, Ankara, because of a pyrexia of 40° C. (104° F.) that had persisted during the previous three days. The infant was well nourished, having been breast-fed since birth. On examination the spleen was found to extend three fingerbreadths below the costal margin. The W.R. was negative, but blood films revealed gametes and ring forms of benign tertian parasites in both mother and infant. The latter was immediately given an intramuscular injection of 0.03 g. of mepacrine (atebrin). The injections were continued daily for six days. The temperature, which on admission was 40° C., fell to 36.5° C. after two days of treatment and had remained below 37° C. since then. By the third day the spleen had diminished in size to two fingerbreadths below the costal margin. The infant was discharged on the tenth day, and the spleen was now only one fingerbreadth. Breast-feeding was maintained throughout.

The mother's history is most interesting. She was 30 years old and had for many years suffered from malaria. She had had five abortions, always in the second or third month. During the present pregnancy she had an attack of malaria at the fourth month. She took mepacrine (0.1 g.) thrice daily for

three days, but did not continue with this for fear of inducing an abortion. After an interval of three days she took pamaquin (plasmoquine) (0.02 g.) daily for three days. The course of her pregnancy was punctuated with attacks of "shivering" and high temperature, for which she received no treatment. The delivery was normal and the baby weighed 3,200 g. (7 lb. 1 oz.).

Further Cases

Two cases of congenital malaria have already been reported (Eckstein, 1942). Four other cases will be briefly described.

Case 2—Baby admitted to hospital when 3 weeks old because of loss of weight. Birth weight 3,950 g. (8 lb. 11 oz.), but had lost 200 g. although breast-fed. Temperature varied between 37.2° and 38.9° C. The spleen had been palpable since the eighth day from birth. Blood film—malignant tertian gametes. W.R. negative. Mepacrine treatment.

Case 3—Baby 2 months old; had had intermittent fever since it was a fortnight old. It was admitted because of anaemia. Temperature varied between 37.3° and 37.8° C. Spleen enlarged to two fingerbreadths below costal margin. Blood film—benign tertian gametes. W.R. and Widal test negative. Mepacrine treatment for six days resulted in a normal temperature and reduction in size of spleen. During the last month of pregnancy the mother had had an attack of fever, and the day after delivery had a rigor.

Case 4—This baby when a fortnight old was admitted to hospital as the mother developed malaria during her confinement and could not breast-feed. On admission the baby was very ill: cyanosed, temperature 38° to 39° C.; spleen 2½ fingerbreadths below costal margin. W.R. negative; blood film—malignant tertian ring forms. Baby died.

Case 5—Baby, one of twins, aged 22 days; brought to hospital suffering from diarrhoea. Temperature, 38.1° C. Splenomegaly—3 fingerbreadths. Blood—benign tertian ring forms. Mepacrine treatment; two days later diarrhoea ceased. The other twin was examined. Its spleen was enlarged; there were no symptoms of malaria except that the blood film showed benign tertian ring forms. This was a case of "occult congenital malaria." The mother had had an attack of malaria in the seventh month of her pregnancy and was treated only with mepacrine for five days. In the last month and immediately after delivery she had pyrexia. Blood—benign tertian ring forms and gametes. W.R. of mother and baby negative.

Commentary

The cases described were brought to hospital in an area where malaria is not endemic. We are of the opinion that where the disease is endemic congenital malaria is not uncommon. The majority of malaria-infected persons in rural areas where malaria is endemic are never seen by doctors. This applies especially to infants who die in their early weeks and never reach hospital. The true nature of their disease is never suspected. The mother when questioned will say that her child died from meningitis, convulsions, coma, diarrhoea, indigestion, anaemia, etc. The clinical manifestations of malaria are of such diversity that it has been described as the great mimic of other diseases. Hughes and Bomford (1944) have re-emphasized this. Such was their experience when dealing with British troops in West Africa. Congenital malaria may be symptomless, as in the second of the twins (Case 5). Occult malaria is one of the varieties of malaria in childhood that are not uncommon (Eckstein, 1943). The existence of such a condition has been known for some time in Turkey, for there is a special descriptive term for it in Turkish—"gizli sitma" (hidden or secret malaria).

We suggest that the high infant mortality could be lowered if adequate suppressive and prophylactic treatment were practised during pregnancy. If a pregnant woman develops malaria she should be given the recognized course of mepacrine and pamaquin (not quinine). During the succeeding months of her pregnancy prophylactic treatment should consist of mepacrine (0.1 g.) thrice a day for two days—for example, Wednesday and Saturdays—in every first and third week.

With regard to the baby of such a mother we would emphasize that, in the event of pyrexia or other clinical features developing, malaria should be immediately suspected and appropriate measures taken. In the absence of pyrexia and if a baby that appears quite normal, one must always remember the possibility of "occult malaria" and examine for splenomegaly. We are not in favour of prophylactic treatment of infants, but only suppressive treatment once the diagnosis of malaria has been made.

The problem of malaria is global. Those authorities who are responsible for the rehabilitation of Europe will find the incidence of this disease assuming astronomical figures. Malaria is one of the greatest scourges in the Tropics and sub-Tropics. The loss of infant life is appalling. It is one of the commonest causes of abortion. Russia, the Balkans, Poland, Italy, Spain, and Holland are countries where the disease may become pandemic. With the shifting of large population groups, districts and countries that have happily escaped hitherto may find themselves faced with this dread disease. The Ministry of Health in England is fully alive to the danger and has issued a circular (January, 1944) warning general practitioners. Without wishing to appear pontifical we should remind those who are responsible for blood transfusion of whole blood, not plasma, of the risk of malaria transmission from donors who have served abroad.

Now that the hounds of war have been leashed there still remains the battle against disease. Combined operations have proved their worth in war. And so in peace it will be the active and energetic co-operation between hygienist, obstetrician, and paediatrician that will reduce the heavy infant casualties from malaria.

Summary

Congenital malaria is not infrequent where malaria is endemic.

Five cases are recorded (including one of twins). Two other cases have already been published.

Prophylactic treatment during pregnancy, and suppressive treatment (0.03 g. of mepracine daily for six days intramuscularly) of the infected infant, are described.

Co-operation between hygienists, obstetricians, and paediatricians is essential for the reduction of infant mortality due to malaria.

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HYPERTENSION IN RUPTURED KIDNEY

BY

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Experimental hypertension was first reported by Goldblatt *et al.* (1934) when they showed that by the application of a specially designed adjustable silver clamp which constricted both renal arteries the blood pressure was elevated with only little depression of the secretory function of the kidney. Hypertension was produced by Page (1939) in dogs, cats, and rabbits by enclosing a kidney in "cellophane." The "cellophane" gave rise to a fibrous-tissue reaction which enclosed and compressed the renal parenchyma and by interfering with the blood supply caused hypertension. It is now known that this rise in blood pressure is the result of an enzyme—rennin—produced by the kidney when the blood-flow through that organ is impeded. The rennin acts on a serum globulin—hypertensinogen—to produce a pressor substance, hypertensin. A series of 198 cases of nephrectomy for hypertension in chronic unilateral renal disease was reported by Braasch (1942). In 65 of these the blood pressure at the end of a year was still normal.

During the last four years I have seen five cases of recent renal injury, and in four of these there was a raised blood pressure lasting some days. During this period seven other cases of ruptured kidney were admitted to the Radcliffe Infirmary. The blood pressure was not taken in five cases. The other two cases each had one recording of the blood pressure; in one of them it was raised.

Records of 4 Cases

Case 1.—November, 1941. A boy aged 15 had an injury at rugby. Seen four hours later, there was gross haematuria; pulse 100, blood pressure 160. Some rigidity was present on the left side and a haematoma could be felt. Expectant treatment was given, and the blood pressure fell to normal in three days. An intravenous pyelogram taken a month later showed that both kidneys were normal.

Case 2.—On Dec. 31, 1944, a man aged 25 slipped and fell flat on his abdomen. There was pain in the right loin, with haematuria. On Jan. 2, 1945, he was admitted to Radcliffe Infirmary with gross

haematuria; blood pressure, 170/110. There were rigidity of the left side and increased dullness in the left flank. Jan. 3: Urine clear; blood pressure, 150/95. Jan. 8: Blood reappeared in urine, and persisted for two days. Jan. 23: Intravenous pyelogram normal; blood pressure, 120/80.

Case 3.—A boy aged 4 was struck in the abdomen by a tractor-driven wagon on March 4, 1945. Haematuria occurred the same day. He was admitted to Radcliffe Infirmary on March 5 with haematuria, and rigidity and tenderness in the right renal region. Blood pressure: Morning, 170/110; evening, 150/70. Haematuria occurred during the day, but an evening specimen of urine was free from blood. March 6: Blood pressure, 130/70; no haematuria; no rigidity. March 12: Blood pressure, 110/80.

Case 4.—On Nov. 17, 1945, a young man aged 19 was injured at rugby. He was admitted three hours later with pain in the left loin and haematuria. There was rigidity in the left flank; no haematoma was felt. Haematuria persisted for 6 days. Nov. 18: Blood pressure, 140/90; this pressure persisted for a week. Nov. 25: Blood pressure, 130/85. Nov. 27: Blood pressure, 120/80. An intravenous pyelogram taken two months later showed normal kidneys.

Comment

A raised blood pressure occurs in some cases of ruptured kidney, and returns to normal after some days. This pressor effect is not dependent on the formation of a perirenal haematoma. The only clinical application is that if the blood pressure is raised it rules out associated injuries such as ruptured spleen.

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Medical Memoranda

Penicillin Treatment of Malignant Diphtheria

While diphtheria is listed as one of the conditions for which penicillin may be given, we have so far seen only one report of its use (Symons, 1945). The following two cases may therefore be of interest. Both were caused by the intermediate type of diphtheria bacillus, and in each case the organism was sensitive to penicillin, as proved by laboratory tests.

CASE I

A boy aged 15 was admitted to hospital on April 18, 1945. He had typical bull-neck diphtheria, and his parents had at first thought he was suffering from mumps. Membrane covered tonsils and uvula, and there was marked nasal discharge; haemolytic streptococci grew in both nose and throat cultures, as did diphtheria bacilli.

On admission he was given 40,000 units of diphtheria antitoxin intravenously, and 40,000 units intramuscularly. Next day a further 40,000 units was given intravenously. On admission sulphamizide, 1 g. four-hourly, was given, being continued for four days. On April 20 he received 50 mg. of vitamin B, and 500 mg. of vitamin C intramuscularly, and these injections were repeated daily until May 4, when vitamin therapy was continued by mouth. On April 20 petechiae were noticed around the base of the neck and on the upper chest, and it was decided to try penicillin. He was given 100,000 units daily by three-hourly intramuscular injections for five days. A spray containing 500 units per ml. was also used locally on the throat, hourly while awake.

Two days after starting penicillin therapy the throat was clear of membrane apart from one small speck on the uvula, and we were struck by the rapidity with which this very bad throat had cleared. His subsequent progress was uneventful except for some complaint of blurred vision during one day in his fourth week. He was allowed up on June 20, and showed no sign of any other complication.

CASE II

A youth aged 17 was admitted on May 12, 1945. On the evening of May 8—VE Day—he had been out all night celebrating, and on the evening of May 9 was on duty as a page-boy, so that his illness was not more than three days old on admission. He had massive bull-neck adenitis, especially on the right side, where the swelling extended over the parotid region. There was a mass of membrane smothering the right tonsil and extending forward to within half an inch (1.25 cm.) of the incisor teeth. The uvula was coated but was difficult to see, and the left tonsil was embedded in oedema. Swabs showed both haemolytic streptococci and diphtheria bacilli.

He was given 40,000 units of antitoxin intramuscularly and 60,000 units intravenously. Penicillin was started on the day of admission—100,000 units daily for six days. Penicillin spray, as in the first case, and vitamin injections were also given. The patient was very restless and required morphine for the first few days to give him rest. On May 14 his condition was unchanged: the contour of the throat was very difficult to make out, as a large lump of thick membrane was hanging down from the hard palate. This separated later that day, and was so extensive that we felt that mucous mem-

brane had been sloughed, but section proved this was not the case. On May 20 immobility of the palate was noticed. On May 22 he had attacks of vomiting, the pulse rate was very slow, and there were occasional extrasystoles. These attacks continued until May 24, when the pulse rate was about 30 and the blood pressure 85/60. The patient died on May 24—a typical case of early cardiac failure.

DISCUSSION

Had we had only the first case under treatment we should have been inclined to think that penicillin had had a dramatic effect. The appearance of petechiae is usually regarded as an ominous sign. There is a high mortality in such cases, and those that recover usually have a hazardous passage: in this boy the striking features were the rapidity with which the membrane cleared and the almost complete absence of complications.

On the other hand, we have occasionally seen patients quite as ill, including one with haemorrhages from nose, throat, and rectum, who have recovered with very few complications on antitoxin and vitamin therapy. Also against too ready an acceptance of the effect of penicillin is the complete failure in our second case. It is possible that increased dosage might have helped. Symons (1945) gave almost double the dose in his successful case. He was convinced on clinical grounds, by the "most unusual, unexpected, and rapid disappearance of the extent of gelatinous membrane," that penicillin saved his case of bull-neck diphtheria. His description corresponds fairly well with our first case.

We are indebted to Dr. J. S. B. Penfold, who carried out the bacteriology, and to the medical officer of health for Southend-on-Sea for permission to publish.

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Sigmoidoscopy: Perforation of the Rectum

In view of the many cases which to-day require sigmoidoscopic examination, the following notes may perhaps be useful, since they emphasize one risk of this procedure which is so well known as to be almost ignored.

CASE RECORD

An Italian prisoner of war aged 28 was admitted to a British military hospital with a history of having had amoebic dysentery in 1941. Since then he suffered from bowel irregularity, which had recently become more troublesome. A routine sigmoidoscopy was done at 9 a.m. by the Italian medical officer in charge of the case. This medical officer, who is experienced and competent in this form of investigation, noted that no blood or mucus was visible, but that at 8 in. (20 cm.) there were "two small superficial ulcers." It was recorded that at 6 p.m. the patient complained of some abdominal pain and his temperature was 99.8° F.

The surgeon specialist was called to see the patient the next day at 1 a.m., and found him very ill—pulse 130, respirations 60, and temperature 100.6° F.—and in considerable distress. The abdomen was much distended, tympanic in all parts, generally tender and rigid, and silent to auscultation. Laparotomy was done at 11 a.m. under general anaesthesia. On incising the peritoneum a large volume of gas whistled out and the distended parietes collapsed like a pricked balloon. The peritoneum of the small gut and parietes were dark red and injected. The pelvic contents were bathed in thin foul-smelling pus and the depths were sealed off by plastic incisions of bowel and omentum. About 2 in. (5 cm.) above the ileo-vesical fold the anterior wall of the rectum showed a narrow darkly stained area of peritoneum extending horizontally half-way round the circumference of the bowel. Patches of similar appearance were seen in the caecum and lower sigmoid; in these two places the wall of the bowel did not appear to be thinned, but that the rectum was actually perforated by a small tear near its centre; through this gas and liquid faecal contents bubbled on any manipulation. This tear was closed by three Lambert sutures, and these were buried by a flap of oversewn omentum. A colostomy would have been difficult without freeing the bowel and exposing extraperitoneal issues, so a caecostomy was carried out; a large drainage-tube was put into the pelvis, and after the patient had returned to bed a tube was passed through the sphincter and secured by a stitch.

The patient's convalescence was stormy and precarious. Collapse of the left lung became manifest after 24 hours. Immediately after operation an intravenous glucose-saline drip and stomach suction were instituted. He was given 18 ml. of multivalent anti-gas-angrene serum at once. Sulphathiazole therapy was started after 4 hours, 36 g. in all being given. The abdominal tube discharged foul-smelling pus profusely, but the wound itself united well. Cysts of *Entamoeba histolytica* were found in the caecostomy fluid on the fourth day. The abdominal drainage-tube was removed on the fifth day, but discharge continued through the sinus for 21 days. The caecostomy tube came away on the sixth day and the stoma healed without further discharge. The bowels moved normally on the seventh day, when the patient became, and remained, afebrile. The routine treatment of the amoebic infestation was begun on the sixth

day after operation, and from the eleventh to the fourteenth day 10 g. of sulphaguanidine was given daily by mouth.

It was considered that in all probability air inflation during the sigmoidoscopy, and not direct injury with the instrument, caused the above lesion.

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Volvulus of Small Intestine

In view of the recent communications on cases of intussusception and volvulus, I feel that the following case is worthy of note

CASE RECORD

Mrs. A., a Jewess aged 39, was admitted here on Nov. 26, 1945, at 4.15 p.m., having collapsed in a shop about half an hour previously. She had already been seen by a general practitioner, who had administered 1/3 gr. (22 mg.) of omnopon to allay her severe abdominal pain, which had started suddenly and gradually increased for about half an hour previous to her collapse. On questioning, the patient stated that she had a constant sharp pain in the upper and middle abdomen which passed through to the back at the same level and was unrelieved by the injection. She had had no other similar attacks. The bowels were constipated and micturition was normal; she was nauseated but had no vomiting. In 1938 she had undergone Caesarean section, and during the past month had been treated with antuitrin-S for menorrhagia, but her last injection in this course had been nearly one week before admission.



On examination areas of tenderness to palpation were elicited in the epigastrium, in both iliac fossae, and in the left costo-vertebral area. There was no rigidity, guarding, or palpable masses. Heart and lungs, N.A.D.; T. 101.6° F.; P. 80; R. 24; B.P. 175/80; urine normal. A pelvic examination was abandoned because of severe shivering. Four hours later her pulse rate had increased to 90 and her B.P. was 160/80. There had been no more shivering, but the patient had vomited twice. The abdomen was tender below the xiphisternum and in both iliac fossae. A bulky uterus was the only abnormality noted on vaginal examination.

Laparotomy was decided upon, and the abdomen was opened in the right paramedian line under spinal analgesia after an intravenous drip had been started. By this time the B.P. was 140/70. Some blood-stained fluid was found in the peritoneal cavity and several enlarged tense black coils of twisted small gut were delivered. A volvulus of the small intestine was diagnosed and the gut was untwisted through almost a complete circle. The remaining part of the twist could not be undone, and the cause was found to be an irreducible intussusception involving the distal ileum to within 6 in. (15 cm.) of the ileo-caecal valve. Nearly two feet (60 cm.) of small gut was resected and enough terminal ileum remained to perform a side-to-side anastomosis. The peritoneum was closed without drainage and the patient returned to the ward. Intravenous therapy and gastric aspiration were continued for four days. The patient made an uneventful recovery, and was discharged 18 days later to complete her convalescence at home.

On examination of the specimen after operation no cause for the intussusception was found, although a Meckel's diverticulum had been confidently sought. (See accompanying photograph.)

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The Minister of Labour has made regulations entitled the Patent Fuel Manufacture (Health and Welfare) Special Regulations, 1946, which provide for the observance, in patent fuel works, of various specified requirements with regard to ventilation, the suppression of dust, washing facilities and clothing accommodation, medical supervision and examination, the protection of the eyes and skin of work-people, and messrooms.

Reviews

SYMPTOMS OF VISCERAL DISEASE

Symptoms of Visceral Disease. A Study of the Vegetative Nervous System in its Relationship to Clinical Medicine. Sixth edition. By Francis Marion Pottenger, M.D., F.A.C.P. (Pp 442, 87 illustrations and 10 colour plates 25s.) London: Henry Kimpton.

This book was first published in 1919, and seems therefore to have established itself firmly in medical literature. The author begins by describing the anatomy and physiology of the vegetative nervous system, the effect of the ionic content of the cells on nervous responses, and the reaction to various drugs. The reflexes arising in health and disease are described, and this leads to a general discussion of the phenomena of disease. The innervation of the important viscera and the reflexes and symptoms arising from them are finally studied in detail. The general thesis of the book is the idea that most symptoms can be explained as disturbances in normal reflexes. When Mackenzie preached this idea a generation ago it seemed so stimulating that it is puzzling that we are so little interested in it to-day. Dr Pottenger's book is avowedly a study of man as a segmented organism and the whole trend of biochemistry and psychology in these last years has been away from neural segments to cells and ferments in the one direction, or to the total organism in the other. Moreover, we have been more interested in the aetiology and prevention of disease than in the mechanism of symptoms. It seems probable, however, that the development of psychosomatic medicine will give a new impetus to the study of symptoms, and workers in this field will find Dr Pottenger's book a valuable source of information.

VITAMINS IN MEDICINE

The Vitamins in Medicine. By Franklin Bucknell, D.M., M.R.C.P., and Frederick Prescott, M.Sc., Ph.D., M.R.C.S. Second edition, revised and enlarged. (Pp 916, illustrated 50s.) London: William Heinemann Medical Books, Ltd. 1946.

It is good evidence of the value of a book that a second edition is required within four years of the publication of the first. The authors of *The Vitamins in Medicine* have found much fresh material to add to their book, particularly in connexion with the vitamin B complex. There are claims in the literature for the existence of 22 members of the B complex, eleven having been identified chemically. The existence of the rest has been recognized from animal feeding experiments, though some of these indicate the probable identity of certain vitamins which have been given different names by different workers—e.g., B₁ is probably the same substance as B₆, pyridoxine. The subject of riboflavin alone occupies 69 pages (31 in the first edition) and nicotinic acid 68 pages (41 in the first edition). Other chapters also have been enlarged somewhat. A chapter has been added on essential unsaturated fatty acids and other minor fat-soluble vitamins. No evidence of a shortage of unsaturated fatty acids in human beings has been found yet. Only two other "minor" fat-soluble vitamins are at present thought to have been found—a growth factor in butter, active on calves and rats, and an antistiffness factor in greens and raw cream active on guinea-pigs. The tables of vitamin content of foods have been revised and the numbers of references to original papers and of illustrations have been brought up to nearly 4500 and 208 respectively. Both the authors and publishers may be congratulated on producing a very fine work.

PATHOLOGY OF TUMOURS

Kettle's Pathology of Tumours. By W.G. Barnard F.R.C.P., and A.H.T. Robb-Smith, M.D. (Pp 318, illustrated 21s.) London: H.K. Lewis and Co.

In the first edition of this book, published in 1916 E.H. Kettle set out to "provide a manual for students which should contain the generally accepted teaching on the pathology of tumours without the mass of detail proper in a more ambitious work of reference." His efforts achieved this object and a great deal more. His book, stamped with the impress of his personality and illustrated by his own hand, crystallized years of wide and accurate observation in a relatively small and beautifully written monograph.

The authors of the new edition express the hope that its publication may keep Kettle's name fresh in the minds of

students of pathology. They have attempted—and have succeeded—to preserve as much as possible the character and happy phraseology of the earlier editions, and from recent studies in experimental and histological researches have selected those most likely to form permanent additions to knowledge. It is indeed gratifying to find how well the original character of Kettle's work has been preserved, and to be able to recommend this edition to students as a sound, reliable, and clearly written introduction to tumour pathology.

THE CRIMINAL PSYCHOPATH

Rebel Without a Cause. By Robert M. Lindner, Ph.D. Introduction by Sheldon Glueck, Ph.D., and Eleanor T. Glueck, Ed.D. (Pp 259 21s.) London: Research Books Ltd. 1945.

This is one of a series of research studies dealing with psychiatric problems. Its subject is a young man serving a long prison sentence who would be diagnosed by most authorities as a criminal psychopath, a group well recognized as extremely resistant to treatment and as to whose psychopathology there is no agreement. This patient is a recidivist who has continued to commit many crimes from an early age, ranging from petty larceny to attempted murder. No punishment had any effect and until the successful treatment described in this book he was obviously heading for a continuous career of crime. He also suffered from a severe blinking tic of his eyes supposedly dating from an attack of measles in very early childhood. By means of a concealed microphone the author has secured a verbatim record of 46 hours of analysis. This was not entirely orthodox psychoanalysis, as from time to time the patient was put into deep hypnosis, during which deep-seated memories were elicited which were afterwards rediscovered while the patient was conscious. In this way we could be fully understood by him and integrated into his conscious personality. The result is of great interest since it would seem that memories dating from the 7th or 8th month of life were restored, the operative event being observation of parental coitus, with consequent development of a full fledged Oedipus complex and fear of castration, culminating in the attempted murder of a father surrogate. As a result of treatment not only was the ocular tic cured but the whole attitude to life of the patient was changed. It may be noted that the use of hypno-analysis reduced the duration of treatment to 46 hours which is much less than would have been required for an orthodox psychoanalysis.

The author points out the uselessness of the ordinary penal treatment of these psychopaths—a conclusion with which we should all agree. The subject of this account is one of six treated in the same way, and it would appear that the procedure holds out definite promise that such intractable cases might be successfully dealt with by these means which, though still lengthy and difficult, are not outside the bounds of possibility. All those concerned in psychiatric and medico-legal problems should read Dr Lindner's book with care, and they will be rewarded by a fascinating clinical study.

Notes on Books

The 73rd annual volume of *Whitaker's Almanack*, for 1946, has now been published from 13, Bedford Square, London, W.C.1. It includes a chronicle of the war from the invasion of Poland to the unconditional surrender of Japan, also the results of the General Election of 1945, with the new Ministry and newly elected House of Commons. These and other additions of current interest swell the book beyond its former limits. It is published in three editions: the complete edition, cloth bound, with 1,088 pages, at 12s. 6d.; the abridged edition, in paper covers, with 704 pages, at 7s. 6d.; and the library edition, bound in leather, with 13 coloured maps, at 25s.

The text of the second edition of *Modern Anaesthetic Practice* (Eyre and Spottiswoode Ltd., 12s. 6d.) has been completely revised. In spite of variations in style and detail inevitably attendant on multiple authorship, the advice is everywhere sound and can be safely followed by the occasional anaesthetist. As is right in a book not intended for specialists, practical details predominate, and no attempt is made to lead the reader into academic byways.

A booklet of *Hospital Prayers* was compiled in response to an instruction of the General Assembly of the Church of Scotland in 1944. It is printed by William Blackwood and Sons, Ltd., of Edinburgh, for the Committee on Public Worship and Aids to Devotion. The price is 1s. 6d., and Part I (which may be had separately, being chiefly for use by patients) costs 9d.

Nova et Vetera

CESALPINO AND THE CIRCULATION

The Circulation of the Blood and Andrea Cesalpino of Arezzo. By Dr. John P. Arcieri. (Pp. 193; illustrated. No price given.) New York: S. F. Vanni, 30, West 12th Street. 1945.

Dr. Arcieri is an Italian who has long practised in America. He is well known as a passionate claimant for the importance of Italian civilization. Few can believe that the unique part of Italy in the revival of learning needs advocacy, but, since nationalism is bedevilling the world, the reviewer must treat such feelings with all tolerance. Dr. Arcieri revives for the fiftieth time the claim for Cesalpino (1519-1603) as discoverer of the circulation. He holds that an underhand designing knave, William Harvey, cunningly and basely filched his due honour.

The facts are these. Scattered in the works of Cesalpino, and notably in his *Peripateticæ Quaestiones* (Venice, 1571 and 1593), are passages which, when placed together, can reasonably be regarded as an unclear expression of a belief in the circulation. The lesser circulation had, as is well known, already been enunciated by Servetus and Columbus. It is also now well known that an Arabic writer in the 13th century had guessed at the circulatory movement of the blood as a whole and expressed it clearly. Harvey possibly gained a hint from the work of Cesalpino. Certainly he attended lectures by one of his pupils. Scientific investigators are, in general, eminently receptive of suggestions. Cesalpino, however, did not stress the circulatory idea, or found any doctrine or practice on it, or support it by experimental proof, or give it a prominent place.

Now science is not "bright ideas." If it were every sixth form would contain several scientific geniuses. Nor is it a grand scientific merit to make suggestions. If it were Plato would constantly be studied by students of geology and Lucretius by students of chemistry. Science is the process of demonstration by carefully described experiment and/or observation and the making therefrom of such deductions as lead to further demonstrations. That is where Harvey comes in. That is where Cesalpino goes out.

It is not the historian's task, or indeed within his power, to place scientific figures in order of merit. Cesalpino was a very able man cursed by an obstinate philosophic conservatism and a poor literary style. In these respects he resembled Harvey. His scientific interests were wider than Harvey's. Beside his medical writings he made significant contributions to the nascent sciences of mineralogy and botany. To mineralogy Cesalpino contributed *De metallicis* (Rome, 1596), which is a basic work for modern crystallography. Moreover, he had a pupil, Mercati (1541-93), who predeceased him but whose beautiful *Metallotheca* (Rome, 1717), published long after, carried on the master's tradition. In botany Cesalpino's *De plantis* (1583) contains the first attempt at a "natural" classification of plants, which leads through Joachim Jung, Bauhin, and Ray to Linnaeus, as has been generally acknowledged by botanists. Cesalpino is thus an important if secondary figure in an age of scientific giants Copernicus, Vesalius, Galileo, Stevinus, Kepler, Descartes, etc. In the reviewer's judgment Harvey too is below the rank of these, since, though a superb experimenter—which Cesalpino was not—his field was relatively narrow, he lacked wide generalizing power, could not free himself from Aristotelian prejudices, and was backward in philosophic outlook.

We would place the total achievement of Cesalpino as high as does Dr. Arcieri. Unfortunately that ardent advocate of everything Italian devotes most of his not unuseful book to unmasking a supposedly widespread Anglo-American plot to belittle Cesalpino. But the difficulty of historians is to give exact meaning to what Cesalpino did say on the circulation. In his last work he bursts into sudden and unexpected clarity with the statement: "The fount of the blood in the heart is distributed into four vessels—namely, the cava, the aorta, the pulmonary vein, and the pulmonary aorta—[and] irrigates the whole body like the four rivers going forth from Paradise." This seems a plain contradiction of a circulatory doctrine.

In denying that this is so Dr. Arcieri places his hero in the position of a famous Cambridge character:

"There once was a man on a syndicate
Who arose his opinions to vindicate;
He wished to deny
That he meant to imply
The ideas which his words seem to indicate."

In truth Cesalpino was not quite sure himself what he meant about the movement of the blood. Such vague uncertainty is common among scientific pioneers. But on this matter Harvey was sure, and that is his special merit.

We must all try to keep our tempers, and the reviewer is confident that, for the blessing of peace, all his fellow conspirators will gladly accept Dr. Arcieri's estimate of Cesalpino on other matters. They would prefer that he should not defame the character of Harvey if they cannot persuade him of his scientific merits. As to his treatment of their own character they will, he is sure, show themselves much less sensitive.

GEORGE OWEN: PHYSICIAN TO HENRY VIII

What little is known about Owen will be found in Munk's *Roll of the Royal College of Physicians*. He has been credited with having performed Caesarean section on Jane Seymour at the birth of Edward VI. It is known that in company with Sir William Butts (then Dr. Butts) he signed a report on the Queen's health on Oct. 24, 1537. Here is an early example of antenatal care. Henry was desperately anxious to have a legitimate male offspring and may have been genuinely concerned about the Queen's health. Jane Seymour died in childbirth later in the year 1537. Perhaps the operation was performed at the point of death of the mother.

Owen was born in Worcester diocese and was educated at Oxford. Doubtless he was of Welsh ancestry. The King appointed him an executor of his will and left him £100. He died on Oct. 18, 1558, and was buried in St. Stephen, Wallbrook. From the State Papers of the period we learn that he received considerable grants of monastic property, much of which had belonged to Abingdon. He had also an annuity from St. Augustyne's, Bristow (Bristol), in 1542. In the same year he had a licence to alienate the meadow called Bewley Mede, on the N.W. side of the stone causeway leading from Osney Bridge to the new bridge over Bulstake water, to Robert Morwent, Clerk. This is one of several licences obtained at this time, and he appears to have had a part interest in the lordship of Cumnor Place in company with John Bridges, M.D.

Owen's will (P.C.C. Chaynan 11), dated 5. Philip and Mary (1558), was proved May 26, 1559. He left his "Soule to Jesus Christ. Body in the earth. To my wif all such stuff and goodes as in her house at Marten and here in London: my plate that I had before I was marryed onely excepted. Sonne William, Goddes blessing and myne. Sonne Edward £10 yerely at hands of Sonne Richard and to be ruled by him till 24. Daughter Lettice £100, to have meate and drynke with my sonne till she marry. I forgive Henry Jusse debts and rents due. To Thomas Crowe reversion of Galburys hole at Whatley, paying £4. To Ryse reversion of Harparishold at Woolvercot. Henry Colley and John Lambe a hole yeres wages William Jonys 20/- Lewes, my bayly, half a yeres wage. Mister Collins, a white mare. To Woolvercot church a young cowe to be put to some use that I may always be prayed for." The will was witnessed by John Collins, priest, and Henry Jusse, of Yarnton. The executors, Sonne Richard Owen, Mr. Secretary Boxall, Mr. Wendy, and Sir Leonard Chamberlayne, were empowered to sell land at Chorlton, Watly, Fincote, and apparently his wife's manors of Budcombe and Congresbury. Of these Wheatly, Woolvercot, and Yarnton are all near Oxford. Chorlton I imagine is Charlton-upon-Otmore, also in Oxfordshire. Congresbury is in Somerset.

What lies behind the queer legacy to Sonne William: was he already provided for, or had he been an unruly, troublesome son? I much fear the latter. And the legacy of the young cow to Woolvercot Church is most unusual. Had it been with the idea of keeping the churchyard cropped, a few sheep would have been better. Did he contemplate a supply of free milk for the children? One would like to know, but I cannot offer an explanation. We have all heard of parish bulls, and those who are fond of *Tristram Shandy* will remember that Mr. Walter Shandy, "whether by ancient custom of the manor, or as impropiator of the great tythes, was obliged to keep a bull for the service of the parish"; but this was a manorial matter, not an ecclesiastical, and had Owen wished to leave a memento to the parson he would surely have been more definite. I suspect that the John Collins, priest, who witnessed the will left the white mare for his legacy.

R. R. J.

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HOW LONDON SAW IT THROUGH

Population statistics, like weather forecasts and other useful or interesting information, were withheld during the war, and now that the figures can be released they furnish some surprises. For many years, even since the beginning of the century, the population of the county of London has been regarded as four millions or so—in the middle 'twenties it reached four and a half millions—though even before this last war it was declining in favour of Middlesex, Surrey, and Kent; but it comes as a shock to realize that, according to the Registrar-General's estimate, the population of London in the war years fell to two and a half millions. Those who lived in London throughout the war were hardly conscious of the absence of so large a number of their fellow-citizens, but evacuations, official and unofficial, were larger than might have been supposed. The general death rate mounted during the war, but such was the solicitude for the child and its mother that in spite of all adverse conditions the infant mortality in 1944—namely, 51 per 1,000 births—was considerably lower than the average (57) for the years 1936–40, and the maternal mortality also declined to 1.70 in 1944 from 2.02 in the earlier period. The maternal death rate was the lowest recorded; the infant death rate was the lowest except for 1942, when it was 50. This is the more remarkable achievement when it is remembered what disorganization resulted in London from air attack, how frequently antenatal care must have been interrupted, and how uncertain must have been the booking of maternity beds. As for the commoner infections—measles, scarlet fever, diphtheria, and whooping-cough—the mortalities were minimal, the highest in all the war years being for whooping-cough in 1944, when the deaths numbered 0.05 per 1,000 of population. In that same year there were only seven deaths from scarlet fever and seven from measles; this in a child population which even in the evacuation period must have numbered three-quarters of a million. A condition which leads to a disquieting number of infant deaths is diarrhoea and enteritis. There were 427 deaths from this cause in 1944 among children under 2 years of age. This rate has increased since 1939, and research is being undertaken into the reasons for its persistence.

The interim report for 1944 of the County Medical Officer of Health for London¹ reveals for the first time, for each of the metropolitan boroughs, the number of deaths due to enemy action during the entire war period. The total death roll in the air raids was 17,811—almost equal to the entire population of the borough of Holborn. The peak year was 1940, with 7,793 deaths, but 1944, with

its flying bombs and rockets, took a further toll of 4,567 lives. It was sometimes said, loosely, that the chance of being killed in a raid was not greater than the chance of being killed in a street accident, but in fact during the war years there were ten times as many fatal casualties in raids as there were due to vehicles on the roads.

The story of the hospitals in the raids is a proud one and deserves something better than ephemeral record. There were 660 county hospital "incidents" altogether, and hospital accommodation providing beds for 5,000 was totally destroyed. During the flying-bomb and rocket period alone hospitals were damaged on 138 occasions. The number of patients killed was 257, and of staff 62. "No matter what happened," says Sir Allen Daley in this report, "staff of all grades were undaunted and showed an example of unquenchable spirit, high morale, and devotion to their task of attending the sick and injured, the memory of which will never leave those who were responsible for ensuring that the service did not fail." The patients, too, showed a fortitude, even a defiance of the terror, which was remarkable. A special word of praise is due to the ambulance men, who carried on though several of their stations were destroyed and the lives of some of them were lost; and to the hundred or so domiciliary midwives employed by the L.C.C., about half of whom had their homes wrecked or damaged, yet no woman in childbirth went unattended. The school medical service carried out its normal functions, and in addition, in 1944, was responsible for the pre-evacuation inspection of 118,000 children. This later evacuation brought no complaints from the receiving centres.

On the preventive side the report gives particulars of the mass radiography service, carried out at six centres. As a result of 46,671 miniature films taken during the year, 1,795 persons were called for further investigation, and among them 355 showed apparently active tuberculous lesions. The diagnosis was confirmed by the tuberculosis officer in 298 cases; 28 were doubtful, and the remainder refused investigation or were awaiting further report. Attendance at the venereal diseases clinics for men has fallen consistently during the war years, and at those for women less consistently, but this, as is well known, does not denote a general fall in incidence. It is due mainly to the absence on war service of a large proportion of the population of the ages at which exposure to infection is most likely. During 1944 there was a large increase in the number of alleged contacts reported under Defence Regulation 33B, and in some cases contacts were traced and were persuaded to undergo examination. Only 14 contacts were prosecuted for failure to attend for examination or to submit to or continue treatment.

One further fact, characteristically British, may be noted. During all the upheaval of the flying bombs and evacuation a highly successful medical society was formed with 300 foundation members, all of them medical officers of the L.C.C. staff. The aim of the society is to encourage contact between medical staffs of county hospitals and of neighbouring municipal and voluntary hospitals and general practitioners, and to give opportunity for the discussion of clinical problems.

¹ London County Council. Interim Report of County Medical Officer of Health and School Medical Officer for the year 1944. (Price 1s. 6d.; post free, 1s. 8d.)

CONTRACEPTION AND INFERTILITY

The possibility that semen from the male may have effects, other than fertilization of the ovum, on the female organism has long interested members of the medical profession and others. It has many practical implications which from time to time have attracted questions from readers of the *Journal* and discussion in our correspondence columns. Kohlbrugge's theory that the products of degeneration of spermatozoa are absorbed by the uterine glands and exert an endocrine action in the female, possibly accounting, among other things, for the fact that a woman in the course of years becomes more and more like her husband, is now discredited. (Hartman¹). The old doctrine of telegony, which supposed that the offspring of a female animal might resemble not the father but an earlier mate whose semen had had a permanent effect on the mother, has been "relegated to the limbo of folk-lore" (Hartman¹), though at one time it was regarded as a possibility by biologists of eminence. Then came the demonstration of the production of spermatoxins consequent upon the parenteral administration of semen to the female, and it was postulated that in some circumstances these might develop as a result of the frequent deposition of semen in the vagina, and thus temporary sterility of the female might follow repeated coitus. Some have held this theory to account for the occurrence of pregnancy when the partners of a previously infertile marriage are reunited after a long period of separation. The results of animal experiments on the production of spermatoxins and consequent sterility, which are reviewed by Hoffman,² are generally regarded as inconclusive. The occasional occurrence of pregnancy in the circumstances stated above can be accounted for in other and more rational ways.

In more recent years it has been suggested that some of the chemical constituents of the seminal fluid, rather than the spermatozoa themselves, are absorbed by the vagina and are of value to the female organism. It is said that women experience a sensation of well-being as a result, and it is even alleged that sometimes the odour of semen can be detected in the breath of women after coitus (Van de Velde³). Such statements are largely unsubstantiated, but in 1943 Green-Armytage⁴ reported the results of a series of experiments in which immature rats and rabbits were injected with human semen. He found that the uteri of the animals responded by hypertrophy, and concluded that human semen contains some hormone (? testosterone) which, when absorbed by the vagina, is of importance in promoting full development of the female genitalia. From this it was argued that those methods of contraception which prevent the semen from coming in contact with the vagina (e.g., coitus interruptus, condom) are harmful in that they hinder full uterine development and may therefore result in sterility or lowered fertility. Although Green-Armytage's interpretation of his experimental results, and the clinical significance applied to them, have not been generally accepted, the matter has remained *sub judice*.

The position now appears clarified by the work of Bacsick, Sharman, and Wyburn,⁵ who have recently repeated Green-Armytage's animal experiments and have failed to confirm his original findings on which the argument was based. They injected human semen repeatedly over varying periods into immature female rats, rabbits, and guinea-pigs, and also adult spayed guinea-pigs, controlling their experiments by animals of similar state, some of which were untreated and some treated with testosterone. The vagina, uterus, and ovaries were in each case examined for responses, and it was found that the injection of semen into the immature rats and rabbits had no effect at all on the genitalia. In the immature and adult spayed guinea-pigs there was some increase in the size of the uterus, but the authors point out that this finding is open to several interpretations and is by no means proof of hormonal activity on the part of the semen. In no case was the effect comparable to that of testosterone, and the conclusion drawn from these experiments is that there is no evidence that human semen contains either androgenic, oestrogenic, or gonadotrophic hormones. Bacsick and his colleagues not only express the opinion that final development or maturation of the female uterus does not depend on semen absorption, but further point out that, even if testosterone is of importance in this process, then the female already has an adequate supply of her own, for androsterone is normally excreted from the female in amounts comparable to that found in the urine of the male.

If further work on these lines confirms the negative findings of Bacsick we are left without any conclusive evidence in favour of the not very likely supposition that semen deposited in the vagina has any endocrine function, or that it has any special effect, other than fertilization, on the female organism. This, however, does not exclude the possibility that contraception may affect female fertility adversely by some other mechanism. Some methods, such as intra-uterine appliances or powerful chemicals which involve a real risk of injury and infection, are clearly dangerous from this standpoint; but what of other methods? It is alleged that even chemical pessaries of repute may lower fertility by favouring the development of cervical lesions such as erosion. It is said that coitus interruptus may disturb ovarian function, while the mere deprivation of the uterus of the fulfilment of its function by any method may increase the likelihood of fibroids and pelvic endometriosis. Some gynaecologists of wide experience, and whose opinions cannot be lightly discounted, therefore take the view that the artificial deferment of pregnancy may, by one means or another, lead to relative infertility. There has been little attempt to substantiate these clinical impressions by controlled observation—indeed, it would be difficult to do so. Siegler,⁶ however, in his recent book reports that in a study of 1,262 cases of pregnancy he found an average of two months' infertility for every year of contraception practised beforehand. However, such findings are open to several interpretations, and Dickinson and Morris⁷ in a sixteen-year study of cases of infertile marriage could find no evidence of sterility's being induced by

¹ *Sex and Internal Secretions*, 1939, Chapter 9. Edited by E. Allen. The Williams and Wilkins Company, Baltimore.

² *Female Endocrinology*, 1944. W. B. Saunders Company, Philadelphia and London.

³ *Ideal Marriage*, 18th impression, 1944. Wm. Heinemann Medical Books Ltd., London.

⁴ *Proc. roy. Soc. Med.*, 1943, 36, 105.

⁵ *J. Obstet. Gynaec. Brit. Emp.*, 1945, 52, 334.

⁶ *Fertility in Women*, 1945. Wm. Heinemann Medical Books Ltd., London.

⁷ *Technique of Conception Control*, 1941. The Williams and Wilkins Company, Baltimore.

contraceptive methods other than those involving intra-uterine appliances. Hamblen⁸ probably states the general view when he says, "There is little likelihood that contraceptive measures of the kind generally employed at present have any tendency to impair the potential fertility of couples." At least there seems as yet no reliable evidence to the contrary.

WHAT IS GASTRIC FLU?

A diagnosis of gastric flu, or intestinal gripe as the Americans call it, is to-day made more often by the layman than by the medical practitioner. Medical men are far less prone to diagnose "gastric flu" now that they are increasingly aware of the part played by the Sonne dysentery bacillus, bacterial food-poisoning due to the *Salmonella* group of organisms, and the enterotoxigenic staphylococci in the causation of endemic or epidemic diarrhoea. Improvements in laboratory technique have enabled a bacteriological diagnosis to be made in a very high proportion of these bacterial infections even after the acute attack is over, since convalescent carriers are common after both dysentery and *Salmonella* food-poisoning. When, therefore, the bacteriologist fails to recover an identifiable pathogen from a patient with acute diarrhoea the clinician is puzzled and the diagnosis is in doubt.

There have been many instances of this kind in the past few years, and it is obvious that a non-bacterial contagious illness, characterized by profuse watery diarrhoea, sometimes associated with nausea and vomiting, or with these last two symptoms predominating, has become prevalent in certain areas in this country. Outbreaks of this non-bacterial diarrhoea, which in the individual is usually so short-lived as not to call for medical aid, are most likely to be detected in hospitals or residential institutions. Since 1936 several outbreaks of nausea and vomiting have been reported from boys' and girls' boarding schools. The characteristic features, as described by Bradley,⁹ were the sudden onset of projectile vomiting, sometimes in the middle of the night, sometimes at the dining-table, and sometimes preceded by nausea resembling seasickness. In these outbreaks diarrhoea was not a prominent feature; vertigo and headache might be present, but generalized aching was rare; chills were infrequent and low-grade pyrexia (around 100° F.) was the rule; lassitude and irritability suggestive of central nervous system involvement were not uncommon. Respiratory symptoms were not a frequent complaint, and when present were probably coincidental, but hyperaemia of the tongue papillae was a noteworthy feature in Bradley's cases, and injection of the fauces and pharynx was sometimes present. Abdominal discomfort and tenderness which may result in a diagnosis of acute appendicitis have been noted.

More recently, diarrhoea has been the prominent symptom in this syndrome, as typified by an outbreak in a maternity unit described in our columns last year by Brown, Crawford, and Stent.¹⁰ Both mothers and babies were affected, although in the babies the infection was much less severe than is the case with epidemic diarrhoea of the newborn. Diarrhoea characterized by profuse watery stools without blood or mucus was usually the first and most constant feature, although nausea and anorexia were present in most of the adult patients. The persistence of the infection in maternity units is probably related to the rapid turnover of patients. A very similar condition apparently common in America has been described by Reimann and

his colleagues.¹¹ According to them the disease attacks people at all ages, but is most common in school-children and young adults. It may occur at any season, but especially in the autumn, and it may affect 15 to 100% of the community. In its rapid and easy spread in families and in institutions it resembles the behaviour of the common cold or influenza, and Reimann¹² has been able to reproduce the infection among more than half of 53 student volunteers who inhaled atomized throat garglings or faecal filtrates from acute cases. Thus the experimental evidence supports epidemiological data suggesting that the infection may be air-borne, although obviously manual or other means of spread cannot be excluded. Control of the infection in hospitals or other institutions is not easy. Avoidance of overcrowding or temporary closure of maternity units is virtually impossible at the present time, when there is a spate of new babies and a shortage of hospital beds. But good ventilation and the strictest precautions against the risk of manual transference should be practised. Treatment is symptomatic: abdominal pain and discomfort can best be relieved by the local application of heat, together with rest and limitation of diet. Phenobarbitone or tinct. camph. co. may be prescribed for the intestinal upset.

Virus infections of the intestinal tract have in the past been regarded as rare or non-existent, but the demonstration of the aetiological agents of poliomyelitis and infective hepatitis in the stools of affected patients suggests that the intestine is no more immune than other tissues to attack by viruses. Whether this particular entity is primarily an infection of the intestine or, as has been suggested, of the central nervous system can be determined only by further experimental work.

CHORIONIC GONADOTROPHIN

The hormone present in pregnancy urine has been known for many years. Its biological actions have been interminably investigated, and it has been used extensively in clinical and veterinary treatment, yet no one has succeeded in explaining its function in human pregnancy. Hisaw¹³ has recently investigated this problem in macaque monkeys: their sex cycles are similar to those in women, and they excrete chorionic gonadotrophin. He first demonstrated a hitherto unnoticed action of the hormone. Taking monkeys in the luteal phase of their cycle, and making sure by laparotomy that an active corpus luteum was present, he then gave daily injections of chorionic gonadotrophin. The onset of menstruation was delayed in every case, the average length of the cycle being 42 days instead of the normal 27. When menstruation did occur it took place from a progestational endometrium, showing that corpus luteum function had been maintained. Corpora lutea produced by gonadotrophin injections were also kept in functional activity by chorionic gonadotrophin for as long as naturally occurring corpora lutea. Hisaw has thus demonstrated that chorionic gonadotrophin has a luteotrophic action, and this action is different from, or at all events more prolonged than, that produced by pituitary luteotrophin (prolactin). This last hormone given in high doses under similar conditions did not delay the onset of menstruation.

In the corpora lutea from the injected monkeys histological changes were similar to those described by Corner¹⁴ as occurring in early pregnancy. The walls of the endometrial blood vessels, too, were in some cases hypertrophied

⁸ *Endocrinology of Woman*. Charles C. Thomas, Springfield, Illinois.

⁹ *British Medical Journal*, 1943, 1, 309.

¹⁰ *Ibid.*, 1945, 2, 524.

¹¹ Reimann, H. A., Hodges, J. H., and Price, A. H., *J. Amer. med. Ass.*, 1945, 127, 1.

¹² *Proc. Soc. exp. Biol.*, N.Y., 1945, 59, 8.

¹³ *Yale J. Biol. Med.*, 1944, 17, 119.

¹⁴ *Amer. J. Anat.*, 1936, 59, 433.

(epithelioid cytomorphosis), as in the maternal vessels of the monkey's placenta. The condition of the sex skin and vagina during the injection period resembled that provoked by combined oestrogen and progesterone treatment in spayed monkeys.

On the basis of these experimental findings the author speculates on the normal role of chorionic gonadotrophin in the monkey. He suggests that the corpus luteum is maintained in a secreting condition until the time of normal menstruation by pituitary luteotrophin (prolactin). When fertilization and implantation occur the trophoblast is already developing by the time menstruation should ensue, but its onset is prevented by the secreted chorionic gonadotrophin, which maintains the functional corpus luteum for a further 10 to 15 days. When menstruation takes place during injections of chorionic gonadotrophin the corpus luteum is undergoing morphological changes which are similar to the characteristic changes seen in normal pregnant monkeys at the same time after ovulation.¹⁴ Hisaw therefore suggests that the bleeding in the injected animals is caused by progesterone withdrawal, and does not occur in normal pregnancy, because the placenta is then functional and takes over the ovarian function of secretion of progesterone.

Hartman^{15 16} has demonstrated that ovariectomy in monkeys will not interfere with pregnancy if carried out later than 25 days after ovulation. Oestrogen secretion by the monkey placenta has been reported,¹⁷ but progesterone secretion has still to be proved. Nevertheless the hypothesis is certainly consistent with most of the facts.

THE STARVED BUT NOT CORRUPT KIDNEY

Since the days of Clifford Allbutt benign hypertension has been recognized as a disease which ultimately kills by a vascular catastrophe in the heart or brain, without causing attrition of renal function of any clinical significance. In its benign evolution the disease is associated with a premature ageing and hardening of arteries and arterioles which differs structurally from the arteriosclerosis of non-hypertensives only in severity and distribution.¹⁸ In benign hypertension there is a more severe sclerosis of the renal arteries; but in spite of this greater impact of premature age on the kidneys the natural history of the disease tells us that they usually stay the course. There is abundant clinical and pathological justification for applying Allbutt's classical description of the senile arteriosclerotic kidney to the prematurely aged kidney of benign hypertension—"a starved but not a corrupt kidney sufficient for the smaller life of an elderly man." Yet renal function in benign hypertension might be adequate for normal needs but show some diminution when assessed by sufficiently delicate or selective tests. Murray McGeorge¹⁹ applied such a test, primarily in quest of prognostic data, and observed the capacity of the kidneys to concentrate simultaneously urea and chloride²⁰ in benign hypertension and in a suitable group of non-hypertensive controls. Although there was no evidence that the test was of prognostic value, McGeorge's observations of the effect of age on renal function are interesting and conform with the pathological concept of the disease. The test was sufficiently delicate

or selective to show a progressive impairment of renal function with increasing age—an impairment which was much greater in benign hypertension but perceptible even in the non-hypertensive controls. Young subjects, whether hypertensive or not, started without significant difference in renal function. When the pathological picture is considered, it seems probable that assessment of other bodily functions would show a similar steeper decline in benign hypertension if sufficiently delicate tests were available. Normal age has its gentler downward slope, but in benign hypertension "some are too early old, and before the date of years."²¹ In turning to the laboratory for renal function tests it is well to be reminded that the best test of renal function is that the kidneys continue to function.

CONVULSIONS FOR DEPRESSION

In the annual report of the Cassel Hospital,* Andratschke and Rogerson have described their findings with the electrical convulsive treatment of mild depressive psychoses. The report is interesting because of the comparison it provides between treated and untreated patients. The control group was taken from the years 1938-9, before this method of treatment was in use. The patients then had to be more strictly selected for a favourable prognosis, and with them the better results should have been obtained. Nevertheless results were substantially and significantly better in the group given convulsion therapy. The authors conclude that the position has now been reached when convulsion therapy is the treatment of choice, and definite contraindications must be present before its use is decided against. Complications are rare and not very serious; and the convulsion treatment of out-patients is justified if there are facilities for admission to hospital if required. The patients who did not respond to electro-convulsive therapy provide an interesting clinical study. In half of them treatment had to be abandoned prematurely or the patients passed out of observation before the final result could be observed. Of the remaining nine patients, three had serious psychopathic features such as alcoholism or homosexuality, three had schizoid traits and two actually became schizophrenic, and three were typical cases of recurrent manic-depression. Electro-convulsive therapy in the neuroses was not so satisfactory. Only patients with anxiety states did well; obsessional and hysterical cases did not respond. The authors believe, however, that electro-convulsive therapy can be useful in the treatment of anxiety neurosis, at least in selected patients.

The following members of the medical profession were recommended by the Council of the Royal Society for election to its Fellowship at the annual meeting on March 21: G. L. Brown, M.B., M.Sc., of the scientific staff of the Medical Research Council; G. R. Cameron, D.Sc., F.R.C.P., professor of morbid anatomy at University College Hospital Medical School; Brig. J. A. Sinton, V.C., M.B., consultant malariologist to the War Office; J. W. Trevan, M.B., F.R.C.P., director of the Wellcome Physiological Laboratories; and F. M. R. Walshe, M.D., F.R.C.P., physician to the National Hospital, Queen Square, and physician in charge of the neurological department, University College Hospital.

¹⁵ *Amer. J. Obstet. Gynec.*, 1939, 37, 287.

¹⁶ *Proc. Soc. exp. Biol.*, N.Y., 1941, 48, 221.

¹⁷ Dorfman, R. S., and Van Wagenen, G., *Surg. Gynec. Obstet.*, 1941, 73, 545.

¹⁸ Moritz, A. R., and Oldt, M. R., *Amer. J. Path.*, 1937, 13, 679.

¹⁹ McGeorge, M., *Quart. J. Med.*, 1945, 14, 171.

²⁰ Smirk, F. H., *Clin. Sci.*, 1933-4, 1, 131; *Proc. roy. Soc. Med.*, 1934, 27, 1485.

²¹ Browne, Sir Thomas, *Religio Medici*, V, London.

* Present address, Ash Hall, Bucknall, Stoke-on-Trent, from Swaylands, Penshurst, Kent.

FREE AMBULANCES TO LONDON VOLUNTARY HOSPITALS

The London Ambulance Service has hitherto provided on a pay basis for the removal of patients to voluntary hospitals. On and after April 1 next no charge will be made by the London County Council to either patient or hospital for patients removed from an address in the County of London to a voluntary hospital in the county, except for those admitted to pay wards in which cases the existing charges will continue. For the present the service will not be available without charge for (i) discharges in need of an ambulance on medical grounds, (ii) out patients receiving treatment (iii) removals to or from places outside the County of London. Applications for the use of a free ambulance will be accepted by the headquarters of the London Ambulance Service (Waterloo 3311) only from the voluntary hospitals in the County of London or the Emergency Bed Service. Medical practitioners should not make direct application to the London Ambulance Service but in order to be sure that a bed has been definitely obtained they should make arrangements for the patient's admission with either the voluntary hospital concerned or the Emergency Bed Service (Clerkenwell 6571, City 2162). An ambulance attendant will always accompany the driver when recumbent patients are to be removed, if a nurse is required to travel with the patient she will be provided by the hospital. With non recumbent patients the ambulance driver only will be sent, and in the case of a female patient arrangements should be made for a relative or friend to accompany her unless a nurse is required, in which case she will be provided by the hospital.

FILING AND INDEXING OF UNPUBLISHED MATERIAL

Research and information departments of scientific institutions in editorial offices in public health organizations and in medical libraries extremely important information is often contained in technical memoranda newspaper cuttings, catalogues, and correspondence. Not infrequently is it essential to find a document at a moment's notice and its contents must therefore be indexed in such a way that the information is immediately available.

A well attended and stimulating conference in London organized by ASLIB (Association of Special Libraries and Information Bureaux) on Feb 15 at Friends' House Euston Road under the chairmanship of Capt H Ward, MSc, secretary of the Industrial Management Research Association, was devoted to a discussion of problems of filing and indexing unpublished material. Miss M Shaw said that in the laboratories of J Lyons & Co, Ltd, the correspondence section was thought to be as much a part of the information service as the library and was under the supervision of the librarian. Dr J E Holmstrom (ICI Ltd Central Registry) defined filing as a branch of documentation more akin to librarianship than to other office work, though it differed from normal librarianship because a file was not, like a book, a completed unit of knowledge which already had a title and whose scope could be ascertained by inspection. The filing of current papers involved deciding where to fit them into place in a pattern which had not yet taken shape. The speaker suggested a special course in business filing as distinct from ordinary librarianship, expressing the hope that ASLIB might promote such a scheme.

The discussion would have been even more valuable for a quantitative interpretation of statement and suggestions. Every organization has its own peculiar problems and difficulties, numerical and geographical, and no one system will suit everybody. An elaborate system may be evolved which enables a given document (asked for, perhaps, once a month) to be found in three instead of thirty minutes, thirty minutes a day being spent by a highly skilled, well paid staff in putting the system into execution. It was generally agreed that filing and indexing was a skilled job, and yet the registry was the last department where any employee wanted to go. Filing clerks were difficult to obtain, being poorly paid. The question of nomenclature was all important, and it was a matter for regret

that there was no popular equivalent in the English language for the French *archiviste*. Index cards (authors and subjects), extracting the maximum information from documents in the files, were valuable for giving a story at a glance without having to go to the file for its reconstruction.

Other speakers in the discussion dealt with a variety of technical problems such as size and arrangement of files, tags storage, and headings for correspondence. It is understood that the papers and the discussion will be published by ASLIB and librarians, hospital administrators, information officers, and editors will no doubt look forward to this report with interest. It is particularly hoped that some of the ideas expressed at this conference will bear fruit in large medical libraries, which have a dynamic function to perform in bringing unpublished material to the attention of interested people.

EMPLOYMENT OF THE DEAF

The Disabled Persons (Employment) Act applies to the deaf as well as to other disabled persons, and vocational training adapted to the needs of the deaf is being extended. The National Institute for the Deaf (105 Gower Street W.C.1) in its last annual report, states that it has been informed that the option of registration rests entirely with the deaf person, but the deaf person, unless registered, cannot count towards the quota of his employer. In the case of school leavers the certificate of a special school is sufficient evidence of deafness, and in the case of adults a certificate from a recognized association for the deaf would in general be accepted. Cases of doubt as to whether the deafness constituted a handicap to employment would be referred to a district advisory committee, but the final decision would rest with the Minister. The Institute suggests that welfare workers for the deaf should advise all deaf persons to register as disabled persons at the first opportunity.

In a recent International Labour Office publication dealing, among other things, with services for the deaf in Great Britain it is stated that the principal obstacle to the employment of the deaf is social prejudice, but that on the whole, the public are becoming more open minded about the employment of deaf and hard-of-hearing persons and the success which most experiments have achieved and the knowledge acquired thereby will probably help to overcome remaining prejudices.

EDUCATION FOR FAMILY LIFE

There is widespread concern to-day about present population trends, the increase in marriage breakdown rate and juvenile delinquency. These problems are symptoms of something much deeper, and a merely negative attitude is unlikely to be effective in solving them. The family was under constant attack during the war and at least for a generation before. Not the least enemy of the family is ignorance. One of the most effective means of counter attack is education.

The British Social Hygiene Council, in collaboration with the Association for Education in Citizenship and the Marriage Guidance Council, is organizing a week-end school, the first of its kind to be held in the country, to take place in Morley College, 61, Westminster Bridge Road, London, S.E.1, from Saturday, April 27, to Tuesday, April 30. It is designed primarily to meet the needs of teachers and youth leaders, parents, social workers, and others interested will be welcome. The following will speak: Mr Cyril Bibby, Dr McAlister Brew, Mrs E Hubback, Dr Housden, Dr David Mace, Mrs Mace, Mr R Weatherall, Dr Taylor (Governor of Holloway Prison). The inclusive fee is 10s. Application for tickets should be made to the British Social Hygiene Council, Tavistock House North, Tavistock Square, London, W.C.1, whence further details can be obtained.

FUTURE OF NORTHERN IRELAND HOSPITALS

Northern Ireland had a visit recently from members of the Nuffield Provincial Hospitals Trust. They went on the invitation of the Northern Ireland Regional Hospitals Council on the occasion of a meeting of the Council at which the reports of a co-ordination committee and fourteen subcommittees on hospital planning for the region were presented.

The visitors were Sir Ernest Rock Carling, F.R.C.S., chairman of the Medical Advisory Committee of the Trust, Sir George Martin, chairman of the Yorkshire Regional Council, Mr L. Farrer Brown, secretary to the Trust, and Mr C. M. Abbott, assistant secretary.

On the afternoon of their arrival they paid a visit to the Royal Victoria Hospital, the premier voluntary hospital in the region. They were, perhaps, most interested in the extensive development plans which that hospital has well under way. The following morning a visit was paid to the Newtownards District Hospital, a converted Poor Law hospital, and the Bangor Hospital, a small but first-class country hospital, run, in the main, by the local general practitioners.

The meeting of the Council was held in the afternoon, but before that the visitors were the guests of the Northern Ireland Minister of Health to luncheon. In the evening a dinner was given by the Council, at which the principal guests, in addition to the representatives of the Trust, were the Prime Minister of Northern Ireland and the Minister of Health for Northern Ireland.

Dr. D. Lindsay Keir, Vice-Chancellor of Queen's University, Belfast, is chairman of the Northern Ireland Regional Hospitals Council, and the reports presented at the meeting of the Council make far-reaching proposals for the future of all hospitals in the region.

Reports of Societies

PENICILLIN IN OTITIC MENINGITIS

At a meeting of the Section of Otology of the Royal Society of Medicine on March 1, with Mr. A. J. M. WRIGHT in the chair, a discussion took place on "Penicillin in Otitic Meningitis."

Dr. HONOR SMITH presented a paper giving the experiences of the Oxford neurosurgical unit. It related to 37 cases; in 21 the source of infection was otitis, 9 followed a sinusitis, and 7 a fracture through a sinus. In 25 of the cases the organism was the pneumococcus, in 9 the streptococcus, and the others were influenza or mixed infections. Intrathecal penicillin was used (2,000 units per ml.) in doses of 8,000 to 16,000 units. This was supplemented by the oral administration of sulphadiazine. Systemic penicillin was also given. There was no evidence that systemic penicillin could cure the meningitis: its chief value lay in the control of the primary focus. Intrathecal administration was continued for at least five days from fear of relapse, and in fact 9 of the 37 cases had one or more relapses before final recovery, while yet another patient died in relapse. Penicillin being available, emergency mastoidectomy was no longer necessary for the treatment of otitic meningitis. Both the meningitis and the primary focus could be controlled by penicillin, and if operation was ultimately necessary it could be performed during convalescence. Nevertheless, in those cases in which relapse followed relapse, the idea of an active primary focus constantly re-infecting the meninges and available to surgery made surgery appear very desirable. In the 37 cases there had been 26 recoveries and 11 deaths. Of the otogenic cases 15 recovered and 1 died; of those secondary to sinusitis 6 recovered and 3 died; and of those following fracture 5 recovered and 2 died. She stressed the importance of the diagnosis of brain abscess associated with meningitis. The clinical picture might be dominated by the finding of meningitis and abscess might not be suspected. A complicating abscess was the cause of death in 6 of these cases.

Mr. J. ERIC PATERSON offered some observations based on 6 otological cases treated with penicillin at the Glasgow neurosurgical unit. Two patients died, both of them late cases; the four recoveries had been in early cases. In pre-penicillin days, as well as after penicillin became available, a course of sulphadiazine was given. Penicillin was administered intrathecally, in doses of not more than 40,000 units; sometimes it caused a mild rise of temperature. Intraventricular penicillin was given when there were signs of a block in the cerebrospinal circulation. Systemic penicillin was a most important part of the treatment. His difficulty was to know how long to continue it. He felt that any operation on the ear should not be carried out at the height of the meningitis, and undoubtedly in systemic penicillin they had a potent weapon for controlling further spread from the primary focus to the meninges.

Mr. R. G. MACBETH said that one thing which emerged from the experience of the Oxford workers was that the mastoid

operation need no longer be a matter of great urgency. It could safely be delayed until the meningitis was under control. In the acute cases an operation need not be done other than the simple one necessitated by drainage. Penicillin did not sterilize pus inside an abscess cavity, and it seemed that myringotomy provided the necessary drainage, except in the case of an extradural abscess.

Acute Inflammation and Chronic Disease

Mr. T. B. LAYTON said that no distinction had been made in the paper presented by Dr. Honor Smith between chronic ear disease and acute inflammations of the middle-ear cleft. In every paper dealing with an otological subject that distinction should be made. It was as wrong clinically, scientifically, and therapeutically not to make it as it would be to lump together tuberculous peritonitis and the peritonitis resulting from acute appendicitis. Dr. Honor Smith was quite wrong in saying that cerebral abscess was common in streptococcal disease of the ear. It might be common in the very limited type of case with which she and Prof. Cairns had been dealing. He disagreed also with Mr. Paterson when he said that it might become necessary to operate on the acute ear, but that operation had still to be done on the chronic ear. He had made the planned experiment of refraining from operating in meningitis due to an acute ear because he thought the condition of the heart forbade a general anaesthetic. The patient came out of the meningitis, but collapsed; they then operated, and the patient died. It was a grave responsibility to refrain from removing the factory of organisms threatening the dura mater, and that was the essential thing in acute mastoid operation. He said again that papers should not be brought before them as otologists unless a distinction was made between two diseases which were different clinically, bacteriologically, and therapeutically. One was a disease of bone, contiguous to the dura mater, so that the spread from the one to the other was easy and rapid; the other was an inflammation of a mucous membrane separated from the cranial cavity by two layers of periosteum and an intervening piece of bone, and all one could do was to drain that cavity.

Mr. E. MUSGRAVE WOODMAN said that they had all been told that the primary focus should be removed when consequential complications arose, and that had been their guiding point. But they had to remember that these people were very ill, the margin of safety was low. He was rather inclined to agree that in the best interests of the patient they should think again as otologists, and it might be that the question they should set themselves to consider was whether a simple drainage without eradication should be carried out.

General Discussion

Mr. C. P. WILSON said that the type of case attending neurosurgical unit was rather different from the type which, begin with, would come under the otologist. He had an analysis of 8 cases of otitic meningitis, not one of which had a cerebral abscess; probably cases which developed symptoms associated with cerebral abscess were more likely to go to a neurologist unit. In these 8 cases he had had only 1 death—a pneumococcal case; 3 cases had shown the haemolytic streptococcus and all had recovered. He had queried the amount of penicillin used intrathecally—as much as 50,000 units—in otitic and not otitic cases, because he had felt it was likely to produce a local reaction with fibrous exudate, but the pathologist's opinion was that these cases often had a fibrous exudate without penicillin and the patients lived. Only two complications arose in the series—one a paralysis of the bladder which recovered, and the other some symptoms of *petit mal*.

Mr. L. GRAHAM BROWN said that the otologist had a little difficulty in carrying out all the complicated tests and treatments which the neurosurgeon was now making his own. He asked whether Prof. Hugh Cairns would not agree that in the cases in which brain abscess or an intracranial complication was suspected the neurosurgeon should take charge. He asked whether there was any likelihood of systemic penicillin being made a substitute for intrathecal medication. These constant lumbar punctures were a source of trouble and possibly a danger.

Mr. F. W. WATKYN-THOMAS asked whether there was any evidence that penicillin, unless administered by the intraventricular route, could actually enter the brain substance. He added that he was not quite convinced by Dr. Honor Smith's paper, and he did not think he was going to abandon the removal of a focus when there was one. Mr. H. V. FOSTER mentioned cases of otogenic meningitis which had recovered after intrathecal and systemic penicillin. In the old days one did not expect meningitis following acute otitis media to recover. The PRESIDENT summed up the discussion by saying that evidently penicillin held out the hope of helping cases which were hopeless in the past. The need for co-operation between otologists and neurosurgical units had also been demonstrated, and they were all grateful to Oxford for setting such an outstanding example.

The Neurosurgeon and Otolaryngology

Prof. HUGH CAIRNS, who replied to the discussion, said that neurosurgeons had been drawn closer to the otologists over the use of penicillin than ever before. At the risk of being tiresome he wanted to say something about the dosage of intrathecal penicillin. In the neurosurgical unit they were very much against overdosage. They thought that the standard dose intrathecally should be about 10,000 units. This might be given twice a day in the very acute phase of meningitis, but for most of the time it was sufficient to give it once a day. Excessive doses would cause trouble, such as fits, retention of urine, and other signs of damage. Furthermore, all the evidence went to show that excessive dosage was unnecessary. With the dosage recommended a concentration of penicillin in the cerebrospinal fluid would be obtained which was more than ample to destroy any of the ordinary pathogenic bacteria. Intrathecal treatment must be systematic. It was no use saying, "We will give penicillin to-day, and if the patient is a little better to-morrow we will withhold it." The shortest time for intrathecal treatment in a proved case of pathogenic meningitis was five days, and often it was desirable to go on for rather longer.

What penicillin could do prophylactically, both for infection in the mastoid and in the brain, had yet to be proved. Nobody knew whether penicillin could diffuse into the brain from the capillaries, and it was an extremely difficult problem to work at experimentally. He did not think there was any likelihood, with the present compounds, that systemic treatment would replace intrathecal.

Mr. Layton had spoken impressively about the need for distinguishing between the acute and the chronic cases, but if he would read Dr. Honor Smith's paper he would find that a distinction had in fact been made. Prof. Cairns thought that a chronic focus, where there was a collection of pus, ought to be dealt with surgically, but he was not clear whether Mr. Layton would hold his hand in any case or would just go ahead and operate on all the cases as in the old days.

The theory of immunology so far as the cerebrospinal fluid was concerned did not seem to work. Patients who got an attack of pneumococcal meningitis did not become more immune, at any rate for a long time. They might have eight or nine further attacks, though if the clinician had patience and each attack of meningitis was treated as energetically as the first, the patient would probably in the end develop some degree of immunity. Prof. Cairns concluded by saying that there was a great field for the otologist in working out precisely the degree to which penicillin would help him in the prophylaxis and cure of mastoid infection.

GYNAECOLOGICAL CASES

At a meeting of the North of England Obstetrical and Gynaecological Society held at Liverpool on March 1, Mr. J. E. STACEY, of Sheffield, described prolapse of the urethral mucosa in two sisters, aged 75 and 73 respectively. The prolapse presented as a dark plum-coloured gangrenous mass about the size of a cherry, giving rise to dysuria in one of the patients and some bleeding in the other. The protrusions were removed by diathermy and each patient made an uneventful recovery. In another case a blue firm mass about the size of a cherry which presented through the urethral orifice after a bout of pain and vesical tenesmus was found at operation to be a con-

genital pouch of the bladder wall. The mass reduced itself spontaneously as soon as the bladder was distended with fluid, and was easily ligatured and removed through the dilated urethra. The fourth case was that of a woman aged 43 in whom a smooth purple piece of tissue about the size of a Victoria plum was found protruding through the urinary meatus. As she had had amenorrhoea for three months her doctor thought that this mass must be a portion of placenta following an incomplete abortion and attempted to pull it away digitally. He (Mr. Stacey), after dilating the urethra still more, found that the mass was attached to the right side of the bladder in the region of the right ureteric orifice. It was tied off and cut by the sense of touch, and on removal was found to be a papilloma of the bladder, which had undergone torsion at its base, and a portion of the right ureter. The patient made an uneventful recovery, and on cystoscopic examination a few days later both ureters were seen to be secreting well, though the right ureteric orifice was about 1 cm. in diameter.

Dr. DUDLEY RACKER, of Manchester described a case in a young girl serving in the A.T.S. of an obturator hernia containing a portion of the right Fallopian tube and the distal part of the appendix. It caused a great deal of pain in the right iliac fossa with nausea and pain down the leg. The case had been diagnosed and investigated as one of gonorrhoea with a possible spread of the infection into the Fallopian tubes. Dr. Racker said that vaginal examination revealed a mass in the region of the obturator foramen. At operation the ovary was found to be lying close to the opening of the hernial sac, and both the appendix and the right Fallopian tube were removed.

Prof. T. N. A. JEFFCOATE showed an unusual specimen of an extracervical squamous epithelioma, and Dr. HERD one of a placental chorio-angioma. Dr. R. NEWTON described a case of post-menopausal haemorrhage due to a minute granulosa-cell tumour in the ovary which had caused endometrial hyperplasia and a small endometrial polypus.

A meeting of the Chelsea Clinical Society was held at the South Kensington Hotel on Feb. 26 under the presidency of Dr. Desmond MacManus. After dinner Dr. F. Murgatroyd, F.R.C.P., delivered a lecture on "The War and Tropical Medicine" and gave a most interesting discourse upon the difficulties and the recent advances in methods of combating tropical diseases under wartime conditions, and explained how their occurrence might be likely to affect general medical practice in Great Britain.

HEALTH EDUCATION IN SCOTLAND

At the annual meeting of the Scottish Council for Health Education held in Edinburgh Mr. Andrew H. A. Murray was appointed chairman for the ensuing year, and in moving the adoption of the accounts for 1945 he, as treasurer, drew attention to the need, imperative and urgent, for an increase in funds. The retiring chairman, Bailie Violet Robertson, LL.D., who presided, said that in a very short period the council, with the whole-hearted co-operation of the local authorities, had made its name and aims known not only in the populous urban areas but in the small burghs and many of the remotest hamlets and villages of the Scottish coasts, the Highlands and Borders. She introduced the newly appointed part-time medical adviser, Dr. Alex. G. Mearns, senior lecturer and examiner in hygiene, Glasgow University.

Dr. Mearns said that one of the council's aims should be to encourage both the universities and the teachers' training colleges to take their full share in inculcating the principles of health education. The students thus taught would in due course become doctors, teachers, etc., and would be better equipped to face the difficult task of reversing the usual conception that "the customer is always right." In many health matters the "customers," he thought, were often wrong. The public must not, however, feel that they were being dictated to. Health propaganda must be persuasive, and, at the same time, it must be truthful and fearless if lasting good was to be achieved.

It was announced that three summer schools would be held this year, two at St. Andrews University (June 29 to July 12 and Aug. 3 to 17) and one in Edinburgh (July 13 to 27). Dr. W. G. Clark, M.O.H. for the City of Edinburgh, said that a health week would be held in Edinburgh and Leith during the period April 28 to May 5 under, it was expected, the joint auspices of the council and the corporation. It would be, he said, an intensive effort to reach every family in the city, and he hoped a pattern and standard would be established by the capital which would inspire the other large burghs to follow suit and "go one better if they can."

Correspondence

India and Birth Control

SIR,—With probably the most devastating famine in history overshadowing India, Sir John Megaw's lecture on the health of India which you printed on March 9 is naturally of considerable interest and importance. The lecturer has the advantage of ample experience, and no one here or in India will doubt his sincerity of purpose and his humanity. The fact emerges, however, that the only remedy proposed—limitation of births—appears at the present juncture to be such a counsel of despair that you will, I trust, allow me to make certain observations on other aspects of this problem—namely, that of population.

In general, none will dispute the existence of certain laws of the increase of population, or the occasional association of such increase with a lowering of the level of nutrition. In actual practice there are so many extraneous factors involved that the consequences of such laws do not work out in the simple manner indicated, and indeed cannot be considered universally valid. There was, for example, a phenomenal increase in the population of Britain in the latter half of the nineteenth century accompanied by a marked reduction in the area under agriculture, due to the diversion of population to industries. There was no food shortage, but rather an increase in the wealth of the country, as the surplus food needed was of course imported, in exchange for manufactured products—as it is to this day. And yet to-day's "austerity" is such, and the man-power problem is so acute, that many have grave doubts as to the wisdom of universal birth control, and inquiries are already afoot to modify this state of affairs. How much stronger in the world the position of this country would be if the population were larger by 10 millions.

The increase of population in any country cannot now be considered as an isolated, domestic phenomenon having no relation to the outside world. There is so much exchange of raw materials, of consumer goods, and even of food between different countries that the problem cannot possibly be reduced anywhere to the classic simplicity implied by the able lecturer. Let us remember that although the Indians live in the modern world their agriculture is at present entirely prehistoric and inadequate as to the methods. Further, by improved irrigation the area under cultivation could be very substantially increased. The "outlook on life" of which Sir John Megaw complains could be changed, for better or for worse, only by a rapid industrialization of agriculture (and everything else), and not by means of wireless talks on birth control to village folk. Indeed, I doubt if any Government in power in India would be prepared to risk its neck by broadcasting such topics; and, in fact, they are not broadcast in any European countries. No European countries have so far adopted birth control as State policy, but the reverse is true of many States where it is or has been officially discouraged—e.g., France, Germany, U.S.A., U.S.S.R. Indian trade with neighbouring countries is likely to increase, and there is no reason whatever to think that it will not be to the benefit of India in the matter of food.

Our life on earth is so arranged that malnutrition and famine are not the only dangers which populations have on occasion to face. If diseases and epidemics could be controlled (and some endemic infections do not spare the well-nourished) there would still be war, involving much loss of life among the younger age groups, and subsequent economic distress and famine, extending to all sections of populations over wide areas. The present food situation in Europe is there for all to see, but obviously cannot be explained by population theories. The atomic bomb promises to destroy large numbers in all age groups in the next war.

I fear that politics cannot be left out of population problems either. It is no secret that nations have built up their prosperity, not by reducing their numbers, but by providing for their increased needs by foreign trade and colonization. There is the "white Australia" policy, which condemns a continent two and a half times the size of India to be cultivated by a population no larger than that of London. There are similar considerations in East and South Africa, where nevertheless

Indians have helped substantially in the economic development of the country, have benefited thereby, and have as a consequence aroused jealousy. There are vast spaces waiting to be utilized, distances are becoming smaller, and the energy and resources available to science are already immense. One cannot do better than repeat the quotation used by Mr. Churchill in his famous recent speech in America: "There is enough for all. The earth is a generous mother. She will provide plentiful abundance food for all her children if they will but cultivate her soil in justice and in peace." Incidentally, Mr. Churchill, contrary to recent trends, envisaged an increase in Britain's population to 80 millions in half a century—"spread about the world." No one can tell how and where the extra food required will be produced.

The whole subject of human fertility is as yet not perfectly understood. Considerable and intensive research in this difficult field is required before we are in possession of those factors which will enable us to decide whether or not it is possible or practicable to modify them deliberately, in positive or negative sense. From a purely clinical point of view, I doubt whether there is a doctor with long experience or a gynaecologist, who will deny that there is at least as much domestic unhappiness, frustration, and (particularly among women) general ill-health and neurosis caused by the widespread use of contraceptives as the theoretical benefits they are supposed to confer on society. I have questioned women closely, and there is no doubt that the existing contraceptive alter the nature of the sexual act very considerably, and that this apparently economic necessity is tolerated even though it is felt by refined natures to be repugnant. No organized team of medical men has yet carried out any research, inquiry, or experiment in this particular field (of practical birth control) and it is strange how everyone has become reconciled to the conceptions and commercial products of non-medical amateurs.

Finally, "birth control" is by no means a simple remedy in the medical sense—that is, with a specific and limited action: for by altering the sexual habits of the people it is bound to have repercussions on the social structure of a society, and indeed, in the long run, on moral outlook and behaviour. I am for this reason that I consider it a "counsel of despair," and it cannot lightly be recommended to India, which has its own highly developed system of ethics, and a social structure which has stood the test of centuries. It remains to be seen whether it will stand the test of adaptation to modern industry.—I am etc.,

Dagenham, Essex.

RASHEED AHMAD.

The Health of India

SIR,—The views (March 9, p. 343) of an "elder statesman" of the Indian health services like Sir John Megaw must be treated with respect, but they induce in me—a mere wartime "hanger-on"—profound pessimism. Indeed, it seems necessary to consider whether preventive medicine in India is worth while pending the arrival of the "new outlook" among the Indian population.

The Famine Inquiry Commission (Final Report) says: "A rise in the standard of living is the primary means of checking the rate of population growth." Sir John says: "It would be the height of folly to rely on a comforting theory based on no reliable evidence and flatly contradicted by experience in India." Leaving aside the question of evidence (which has been dealt with in some detail by the Famine Inquiry Commission) it is clear that, whether or not the theory be wholly true, it has the great merit of providing hope where otherwise little exists and of suggesting a course of action which is sorely needed on other counts. It also justifies the Government of India in having obtained the advice of a series of expert Commission and committees on how to increase food production and raise the standard of living. If the theory be wrong, as Sir John believes, we may as well abandon all public health activities in India until the population is induced—possibly through a formula suggested by the new Commission which Sir John proposes—to control its own reproduction rate. One wonders what line such a Commission could take. Birth-control propaganda cannot be effective unless the cost of contraception can be borne and the desire to limit families is present. Even if the question of cost were overcome, surely the desire to limit

families is dependent both on the wish to attain a higher standard of living and on there being a real possibility of doing so by individual effort. I would therefore suggest that Sir John is putting the cart before the horse when he emphasizes the need for a new outlook on the part of the Indians and relegates the 'ambitious plans' for increasing food production in India to a short and generalized statement.

To-day in India most issues reduce themselves to political terms, at least in Indian eyes. For us in Britain it is important to realize that the cause of neither material improvement nor education can be effectively fostered by democratic means until political calm is restored and the Government receives a wide measure of popular support. How this essential state of affairs is to be brought about is up to the Indian leaders and the British Government and I cannot pretend to know the best answer.

Some of these ideas have been elaborated in a paper which I gave recently to the Nutrition Society, in the *Proceedings* of which it will appear in due course. I shall not burden your columns further except to emphasize that the only hopeful (and practical) way of dealing with the question of health in India is, first, to increase food production and raise the standard of living generally, secondly, to work for the earliest possible political settlement, and, thirdly, to inculcate in Indians the desire for a new way of life. The last problem may be approached through a suitable Commission, as Sir John suggests, but failure to find an early solution to the first two (now that the preliminary fact finding is virtually complete) will certainly frustrate any attempt to bring about the new outlook in which ultimate salvation lies—I am, etc.,

Rowett Research Institute, Aberdeen

ANGUS M. THOMSON

Dosage of Diphtheria Antitoxin

SIR,—Old residents at the Edinburgh City Hospital must have noted with some surprise the statement by Dr James Grant (March 2, p. 309) that "such an authority as Ker (Banks, 1934) held that the administration of antitoxin in excess of 6,000 units was wasted." The fact is that this view was not attributed to Ker by Banks who said in his presidential address to the Fever Group on Dec. 1, 1933, "In the early post war years, when 8,000 units was suggested by the Ministry of Health as the minimum dose to be given in any case of clinical diphtheria, the late C. B. Ker vigorously protested against the waste involved in ignoring the perfectly effective dosage, in experienced hands, of 2,000 to 6,000 units for mild cases." Nor is Dr Grant's statement of Ker's views in accord with the latter's practice, which is best summed up in the 1920 edition of his *Infectious Diseases* by the following quotation: "In severe nasopharyngeal and laryngeal cases it may be necessary to give in all 40,000 units or even more. My own largest dose has never exceeded 64,000 units." In such cases the total was reached by repeated injections of 8,000 to 10,000 units given at six- to eight hourly intervals, and this system of dosage was adhered to by Ker up till the time of his death—I am, etc.,

Edinburgh

ALEX JOE

Diphtheria Immunization

SIR,—In the abridged version of Dr James Grant's address on "The Problems of Diphtheria" (March 2, p. 309) there seems to me an important discrepancy. Speaking of antitoxic immunity he remarks that this "can be set up and stimulated by injections of toxoid, which is the rationale of the immunization process, of the success of which the usual criterion is the conversion of a Schick-positive reaction to a negative." Again, "If there is basic antitoxin—i.e., if an antitoxin producing mechanism already exists—the rate of production of antitoxin will be found accelerated, and this ability to mobilize antitoxin is the best defence against clinical sequelae to infection."

So far so good. What he does not emphasize is the importance of always doing a Schick test before proclaiming "immunity." In other words there is no justification for claiming immunity unless the verdict rests on at least one negative Schick test. In passing he said that a negative test does not necessarily preclude an attack of diphtheria. What is claimed—and Bousfield, among others, has already weighty

evidence on this point—is that once a Schick-negative child, if it ever does get diphtheria, will not die of it.

This lack of precision is manifest in the table, showing 965 cases (61 deaths) among the "non immunized" and 245 (1 death) among the "fully inoculated." But what does "fully inoculated" mean if not, by antithesis and implication, "immunized"? We are told that the "death" in this series received 0.1 and 0.5 ml of A.P.T., a dosage condemned as inadequate, i.e., this patient does not really belong in this column. Moreover, all who regard the Schick test as an essential part of the process of artificial immunization know full well that certain individuals do not become Schick negative after the ordinary course. Differences in constitution, condition, technique, and material all contribute to this phenomenon. The table as it stands testifies strongly for immunization, of which Dr. Grant is himself an able exponent. But without the confirmation supplied by the test these 245 "fully inoculated" cases tell us little save that the mortality among them is negligible. On the other hand the "anti-fanatics" will doubtless once again find in this table fresh ammunition for their campaign—I am, etc.,

Haywards Heath, Sussex

H. LYNDBURST DUKE

Diagnosis of Amoebiasis

SIR,—I read with great interest Surg. Lieut.-Cmdr. W. E. Kershaw's article on the diagnosis of amoebiasis (March 2, p. 305). He expresses his anxiety at the problem of amoebiasis in Europeans in the Far East with its ultimate effect on those at home. He calls it one of the major problems confronting the medical authorities in the Far East. In this connexion he does not mention one serious source of contamination likely to occur at home—ex P.O.W.s from the Far East. I most heartily welcome his remarks as giving voice to a situation that has been a constant worry to me for the last three and a half years, during which time I have been carrying on a most disheartening struggle against amoebiasis in P.O.W.s without the proper drugs or facilities. I estimate that at least 25% of all P.O.W.s who were released in August from Siam were at any rate cyst-carriers. The tests which it has been possible to carry out during repatriation, rehabilitation, and demobilization have not been, to my mind, conclusive. I found in Siam that at least nine stool examinations were required before you could be in any degree certain that the person was cyst negative, and that only if other suggestive symptoms were entirely absent. Oddly enough, in taking successive daily examinations the fifth and eighth days were most often the optimum.

Europeans from many countries at home and abroad were with me in Siam, and their views were widely different. While many agreed with me as to the danger of losing track of cyst-carriers, others were lukewarm and some went so far as to postulate that a high-percentage cyst-carrying community was not of necessity anything to worry about unduly in hygienic surroundings. In support of this they quoted figures of Manson-Bahr showing carrier rates in various communities and classes, pointing out that there are considerable numbers of cyst-carriers in the U.K. who have no symptoms and apparently never had the disease. The answer to this is that it has been neither proved nor disproved that different strains of *Entamoeba histolytica* may have different virulence. Some of the cases in Siam were of appalling severity and virulence barely hinted at in the average textbook, while others were of different grades of severity.

Introduction of numerous cyst-carriers into European communities at home especially, and also abroad, may well be fraught with eventual unfortunate results as outlined by Surg. Lieut.-Cmdr. Kershaw, and I welcome his article drawing attention to these dangers—I am, etc.,

Command Laboratory, York

L. R. S. MACFARLANE,
Lieut.-Col. P.A.M.C.

SIR,—One should not, perhaps, at such a distance, venture to criticize the findings of Surg. Lieut.-Cmdr. W. E. Kershaw, whose paper entitled "The Diagnosis of Amoebiasis" appears in the *Journal* of March 2 (p. 305) but in view of the number of cases of what appear to be bowel neurosis returning to this country from over-seas, with a history of having had amoebiasis, such criticism may not be entirely out of place.

It is true, of course, that cases of amoebiasis presenting atypically (for example, as a right-sided pleural effusion) are sometimes missed, occasionally with disastrous results, and that a sharp watch should be kept for such cases; but one of the most unsatisfactory aspects of amoebic liver infection is that there may be no history of any previous noteworthy bowel disturbance, or even any impairment of general health prior to the onset of symptoms originating from a liver abscess. Recorded amoebiasis has reached local epidemic proportions on several occasions. It occurred, I believe, in India both before and during the 1914-18 war, and occurred in Malta and in parts of the Middle East in this war. I had considerable personal experience of the occasion when, in Malta in 1942, an epidemic of amoebiasis had begun to reach alarming proportions only to die out as rapidly as it had begun, following the dissemination of some expert instruction in the art of differentiating the various protozoa which infect the human alimentary tract. It may be impertinent to suggest that the same thing has been occurring in Ceylon, but the following points might nevertheless be tentatively put forward.

1. The route and mode of infection in amoebic and bacillary (acute, subacute, and chronic) dysentery are the same, but the latter infections are very much more common, and when the incidence of amoebic dysentery exceeds 10% of the whole it is time to suspect diagnostic errors.

2. The diagnosis of amoebic dysentery is based on the finding in the stools of actively motile specimens of the *Entamoeba histolytica* containing ingested red cells. Many, some of them quite lyrical, accounts of the sigmoidoscopic appearances exist, but if ulcers are present the amoebae can be demonstrated in the stools following a saline aperient, and they can often be found when the ulceration is beyond the reach of even the most practised sigmoidoscopist. The diagnosis of caecal and of hepatic amoebiasis is made with much more difficulty on symptoms and on clinical and radiological signs, and cysts can usually be found to confirm the diagnosis. A valuable sign may be a marked increase in the number of cysts passed, following one or two doses of emetine.

3. The history of slight impairment of general health and occasional slight irregularity of bowel habit, obtained by direct questioning of people found to be passing cysts, the proportion of whom in any populace seems to vary widely with the skill and perseverance of the investigator, is not really valid evidence unless compared with the result of such questioning in those who are not passing cysts.

4. The differentiation of the vegetative and cystic forms of the various amoebae and of macrophage cells is a matter of some difficulty. Indeed, I know of no method of acquiring the ability to differentiate them with confidence except by fairly prolonged and personal "showing how" by an expert on the subject; and I recall that, whereas before receiving such instruction I thought myself fully capable of recognizing these animals, it took considerable time and much patience on the part of my instructor before I really began to know what I was doing at.—I am, etc.,

Wokingham

J. J. KEMPTON,
Late Medical Specialist, R.A.M.C.

Treatment of Amoebiasis

SIR,—Major C. F. J. Cropper (March 9, p. 366) expresses the hope that "more authoritative voices . . . will be raised in protest against the astonishingly ill-informed letter of Dr. E. Snell." I am reluctant to prolong an acrimonious correspondence, but I cannot refrain from expressing a protest that such an astonishingly discourteous letter should have appeared in your *Journal*. Apart from the fact that Dr. Snell stated that he had been a prisoner of war and, therefore, presumably not in a position to treat amoebiasis, or any other disease, by the most up-to-date methods, I am not ashamed to confess that his ill-informed views are shared by me, and, I imagine, by many other physicians experienced in tropical diseases.

It is to be hoped that the introduction of diodoquin and penicillin represents an advance in treatment, but to date experience is insufficient to justify the didactic opinions expressed by Major Cropper.—I am, etc.,

South Croydon.

T. W. PRESTON.

Ocular Signs in the Prisoner of War from the Far East

SIR,—Major G. C. Dansey-Browning's letter (Feb. 23, p. 288) brings up again the question of the aetiology of the optic atrophy that is found to be present in the ex-P.O.W.s from the Far East.

In May, 1945, I examined in a base hospital in India 33 B.O.R.s and one British officer ex-P.O.W.s who were complaining of loss of vision. These were from the first batch of 315 P.O.W.s who had been released under four weeks previously from Rangoon jail. I found loss of vision to be associated with optic atrophy in 12 of these. One case exhibited nystagmus. In none was there any ocular palsy. As these men were retained only a few days on their way to the U.K. visual field examination and scotometry were unsatisfactory. I am delighted that their subsequent examination was completed in detail in England.

In my report on these cases of that month to G.H.Q. I stated that I considered the optic atrophy to be secondary to retrobulbar neuritis caused by vitamin B₁ deficiency. But Lieut.-Col. Garland, who was my colleague, suggested, as Major Dansey-Browning has quoted, that it might be due to vitamin A deficiency. It was remarkable that, although there did not appear to be any vitamin A in these prisoners' diet, night blindness was not universal, and some of those showing well-marked atrophy had not suffered from it. The prognosis of these cases is not universally bad. I have known one civilian doctor who showed severe optic atrophy improve in vision from "barely able to read newspaper headings" to J.2 in under two months from date of release.

Although I saw no trachoma in Europeans, either in this first batch of ex-P.O.W.s or in the many that I subsequently examined, it was a serious complication in Indian troops. Many of these had attacks of active trachoma while P.O.W.s, and, in the total absence of treatment, were released with gross corneal scarring. In one, the vision was reduced to perception of light in each eye.—I am, etc.,

Palmerstown, Co. Dublin.

L. B. SOMERVILLE-LARGE.

The Cephalin Flocculation Test in Malaria

SIR,—When I published my experiences of the cephalin-cholesterol flocculation reaction as a test of hepatic function (Dick, 1945) I drew attention to the fact that this test was negative in healthy controls but positive in a small percentage (7.7) of those suffering from various disorders, not primarily hepatic, in which other liver efficiency tests revealed no disordered function. Two such patients suffered from malaria, and the reaction became negative subsequent to antimalarial therapy. I read with interest Dr. Makari's article of Feb. 23, and I should like to add that I have carried out this test in many patients suffering from malaria, and without exception it has been strongly positive in the presence of an active infection. The cephalin flocculation test is so easily carried out, but its value has not yet been generally recognized. I would agree with Dr. Makari that it is most useful as "an index of the activity of malaria parasites in the host." Care must, however, be taken in the interpretation of the test at the onset of recognizable symptoms which might be due either to malaria or to infective hepatitis in the pre-icteric stage, but the E.S.R. as shown by Wood (1945) proves helpful in such cases, as it is invariably raised in malaria but not in the early stages of infective hepatitis.

I would add that I have received from the Wilson Laboratories Ltd. in Chicago, U.S.A., a cephalin-cholesterol mixture which I have tried out and find entirely satisfactory.—I am etc.,

Inverness.

ARCHIBALD DICK.

REFERENCES

- Dick, A. (1945). *British Medical Journal*, 1, 182.
Wood, P. (1945). *Ibid.*, 1, 9.

The Incision for Appendicectomy

SIR,—The controversy McBurney's *versus* Battle's incision for appendicectomy is heavily weighted with experience and tradition on both sides. Certain schools exist which hold rigidly to one incision to the exclusion of the other, and indeed of all other incisions. Is it not possible to separate cases into groups for which each incision has particular advantages?

In the first place the interim appendix and the acutely inflamed appendix lying conveniently in the right iliac fossa can obviously be conveniently removed through either incision. Both are excellent. Most of the trouble from appendicectomy, however, in my opinion, follows the removal of the difficult, adherent, acutely inflamed, and perforated appendix. If such an appendix lies in the paracolic gutter the McBurney or a muscle-cutting incision has the advantage of being immediately over the appendix, of allowing its removal from the flank without interference with the central part of the peritoneal cavity, and of allowing the insertion of a drain which is in contact with no other viscus than the caecum. A drain like this is unlikely, therefore, to cause adhesions other than between the caecum and the abdominal wall. If such an appendix lies at the brim of the pelvis it can again be removed equally well through either of the two incisions. If its site has to be drained, however, a drain through a Battle's incision must necessarily lie in contact with coils of ileum. Through McBurney's incision a drain may be placed to lie between only the caecum and the abdominal wall. Dangerous adhesions round the ileum are therefore, less likely.

Finally, if an adherent, perforated appendix lies at the bottom of the pelvis we should be able to diagnose its site before operation and to act accordingly. The McBurney incision here has little in its favour, involving extension, retraction possible injury to nerves, and trauma. Similarly a Battle's incision requires downward and inward extension, and strong retraction with possible injury to nerves, which its designer so admirably avoided. In such cases an incision through the midline or through the inner border of the right lower rectus has surely much in its favour.

I venture to suggest that it is sound teaching to make every effort to diagnose the site of the acutely inflamed appendix before operation and to vary the type of incision accordingly.—I am, etc.,

Southend General Hospital

ANDREW MONRO

Physical Therapy in Mental Disorder

SIR,—Surely the real proof of the efficacy of physical treatment will be the percentage of recoveries on all admissions to mental institutions. It is not always easy to decide whether a discharged patient should be regarded as "recovered" or "relieved," or "unrelieved" or "not improved," and the personal equations may cause considerable differences in the returns from individual hospitals, but taken *en masse* in the Board of Control reports a high degree of accuracy must be assumed. In that for 1921 the recovery rate on total direct admissions was 32.52% (males 28.08, females 36.26). In county and borough mental hospitals it was 31.82%, in registered hospitals 44.89, in licensed houses 36.32. This rate was practically the same for the decade to 1920. In the report for 1939 the rate in county and borough mental hospitals was 33.7% (males 31.4, females 35.5). The increased male recovery rate must be due, I consider to a diminution of admissions of general paralytics, as in 1920 they constituted 16.9% of the male admissions (2.9% female). By 1939 carbazol and insulin treatment had been given in many institutions and can hardly be said to have influenced the recovery rate, as shown by the female percentage. Of recent years, owing to paper economy, the reports have not been distributed, but as many cases must have been treated, at first at all events, in Service hospitals, it may be a year or two before they can be accurately compared with the earlier returns.

In assessing recovery rates for different periods various factors have to be considered. A good many years ago many cases of recent alcoholic psychoses were admitted, and these tended to increase the number of recoveries just as the many paralytics tended to lower the number. Indeed the late Sir Thomas Clouston estimated alcohol to be a causative factor in 26% of his admissions to Morningside—probably four times as much as the present rate. Further, the death rate has steadily decreased.

As regards the efficacy of convulsive therapy, naturally the question of diagnosis is important. Do those who claim success in cases of schizophrenia regard this affection as identical with Kraepelin's conception of dementia praecox, or do they label any case which they consider of the schizoid type as schizophrenia? I am sceptical of the recovery of any real dementia

praecox case by convulsive or any other therapy. Is a reasonable time given for the chance of recovery in a case of recent onset by ordinary means? In a London Command hospital for psychotic officers, during and after the 1914-18 war, I saw quite a number of cases, sent in as dementia praecox, who recovered, and usually proved to be exhaustion psychoses. The empirical nature of convulsive therapy is of course unsatisfactory. In June, 1938, Drs Rees Thomas and I. Abel Wilson, Medical Commissioners of the Board of Control, published a report on the treatment of schizophrenia by carbazol and insulin. They gave no fewer than eleven theories as to the mechanism of improvement. I will quote only the eleventh—psychological stimulus or help. A number of years ago focal sepsis was considered an important cause of mental illness, and much work was done by Birmingham alienists in regard to sinusitis, and success claimed, but their results were not confirmed by later observers. I remember being present at a discussion on focal sepsis in the Mental Section of a B.M.A. Meeting in Edinburgh, when one speaker declared the recoveries by treatment of such were just the cases that would have recovered in any case, and his remarks were applauded.

Will the same one day be said of convulsive therapy? We certainly are as yet unable to give a verdict. The many experienced alienists who give this treatment would not persist with it if they were not convinced of its value. Some consider it more useful in involution cases and in the affective psychoses than in schizophrenia. I think that in the course of a year or two a careful evaluation of the Board of Control recovery rate statistics should settle the matter. Mere figures are not sufficient. It is likely that with increased longevity and a lower birth rate the proportion of senile cases will increase. Alcoholic cases should continue to diminish. General paralysis may do so for a time, but might rise later due to war incidence of syphilis.

Another unsatisfactory feature is the lack of knowledge of the pathology of early schizophrenia and of other states. Various changes have been described in the brain and in the sex and other glands, only to be refuted later, and perhaps put down to artefact, mode of death, and so on. I think more histopathological work should be done, as in the time of Bevan Lewis, Mott, and Shaw Bolton. The last-mentioned found micrometric deficiency in depth of the layer of small pyramids.

I believe schizophrenia, and probably most cases of insanity to be due to some original inborn weakness, and in fact to be deficiency diseases, and it is not surprising the recovery rate should be one-third of the admissions. It is satisfactory it is so high.—I am, etc.,

Hastings

HARVEY BAIRD

Leucotomy in Post-encephalitic Conduct Disorder

SIR,—I have read with interest Dr F. T. Thorpe's article on prefrontal leucotomy in treatment of post-encephalitic conduct disorder (March 2, p. 312), and, by adding to Dr Thorpe's two cases a very similar case from Shenley would like to draw further attention to this arresting account of how surgery may be instrumental in modifying psychotic behaviour.

A woman aged 35 was admitted to hospital in September, 1944, as a case of post-encephalitic Parkinsonism with mental disorder. The earlier history was inadequate because of unreliable and scanty data from the relatives, and there was no record of an attack of encephalitis lethargica. At the age of 17 she attempted suicide by cutting her throat. Soon after her marriage at the age of 23 her disposition became erratic and moody and she became abnormally acquisitive.

On admission the patient showed a mask-like face, a festinant gait, and paresis of the right arm and leg with spasticity and cog wheel rigidity. Salvation was excessive. Her general attitude was simple and childish, but there was evidence of a cunning, scheming tendency towards the nursing staff. About a month after admission she began to make impulsive dashes for the window and would succeed in her attempts to break through the glass almost every week. Frequently there were scalp wounds which needed suturing, but there was never any serious head injury. Nine months after admission the patient began to complain of hallucinations—"her husband's voice" would urge her to rush to the window, and she would often give the medical staff warning when these hallucinations were most persistent. She also became deluded that there was "some thing wrong with her bowels, being preoccupied with the idea that they were "stopped up."

Prefrontal leucotomy was performed by Mr. T. G. I. James in November, 1945. An incision was made on either side, 6 cm. above the zygoma and 3 cm. behind the orbital margin. The leucotomy needle passed just anterior to the anterior horn of the lateral ventricle and 1 cm. short of the medial aspect of either cerebral hemisphere. The operation was performed under cyclopropane anaesthesia. As soon as the patient regained consciousness a marked improvement was noted. She was calmly rational and, although "the voices" were still present, there was no longer any need to pay attention to them. There were slight headache and some vomiting for a day after the operation, also incontinence of urine. One week later there was continued improvement and the hallucinations had become insignificant; on the sixth post-operative day incontinence had ceased. The patient had become interested in reading. Two weeks after the operation she was able to go for short walks in the hospital grounds, and was showing co-operation and even initiative in assisting the nursing staff in the ward. She was discharged from hospital on Jan. 13, 1946, having made no impulsive attempt to break a window during the eight weeks following the operation.

During the past two months the initial improvement has been maintained. The patient is active and mentally alert, being well able to work at home and go shopping on her own. The physical signs of Parkinsonism are less pronounced than before the operation and there is a definite gain in weight. Unfortunately the onset of double incontinence since the patient's discharge from hospital raised a temporary barrier to useful employment outside the home, but it is hoped that there will be opportunity for rehabilitation towards a more independent way of life in the not too distant future.—I am, etc.,

Shenley Hospital.

E. S. LOWER.

Fractured Patella

SIR.—Concerning the case reports quoted by Mr. R. Brooke (Feb. 16, p. 231) on his end-results of the operation of removal of the patella, although I published in the *Journal* a small series of cases soon after Mr. Brooke's original work (1938, 1, 383) extolling the virtues of this operation, I am afraid that time has modified my early optimism. I now share the more conservative outlook put forward by Sir Max Page as to when the patella should be removed.

To secure perfect function of the knee-joint after this operation needs: (1) first-class surgical repair work; (2) prolonged after-care and enthusiasm; (3) a suitable patient. I only rarely secure all these three concepts, and, judging from the cases exhibited at medical meetings, other surgeons seem to find it likewise. Even at the last British Orthopaedic Association clinical show an A.T.S. girl was shown who had her patella removed by a first-class team of surgeons together with the help of a first-class rehabilitation centre; yet in this apparently ideal case the girl could not fully extend the knee, nor had she good power in getting up from a kneeling position.

To guard against this lack of full extension, I myself, after removing the patella, endeavour to take up all slack in the quadriceps mechanism by overlapping the aponeurosis, as in the Mayo umbilical hernia operation; keep on an Esmarch bandage for a couple of days to prevent bleeding of the torn quadriceps clotting and binding it down to the capsule and lining adhesions; and I get the patient weight-bearing after a few days, guarding my suturing by providing a back slab of plaster; thus early restoration of quadriceps tone is secured. In spite of all these measures my cases of removal of the patella rarely secure more than 80% full function or power in the knee. Mr. Brooke must have some magic secret to secure his perfect results.—I am, etc.,

London, W.1.

G. O. TIPPETT.

"Eumydrin" Treatment of Vomiting in Infants

SIR,—I am prompted to write on the subject of the "eumydrin" (methyl atropine nitrate) treatment of vomiting in the young infant. Within the last two years I have been meeting an increasing number of cases in which the early use of this drug has caused considerable difficulty in making a diagnosis and prescribing treatment.

Paediatric practice is somewhat divided on the question of operation as opposed to medical treatment in pyloric stenosis of infancy, and since the general practitioner may not see sufficient cases to be able to form his own opinion his position is a difficult one. In my view both methods have a definite

place, though I believe that surgery is advisable in severe cases and should be undertaken with the least possible delay after relief of dehydration. Operation should also be performed when there is not a really good response to the drug after two or three days' trial and immediately an infant shows signs of "hanging fire" during medical treatment, so that it is not allowed to deteriorate. Furthermore, as the chief danger to the baby after operation is the infection which it may acquire even in the best of institutions, I believe that the main value of "eumydrin" lies in the fact that some of these cases may be satisfactorily nursed in their own homes. Prolonged medical treatment of these delicate infants in an institution is surely wrong unless we have the ideal conditions for admission of mother and baby and for the mother herself to undertake the nursing under supervision.

My plea is for the diagnosis to be established beyond reasonable doubt before "eumydrin" is begun. I am now meeting cases which present a very difficult problem. Typically the story is this. An infant in the first month of life has begun to vomit and the vomiting is occasionally projectile. Visible peristalsis may or may not have been seen but no tumour has been palpated. "Eumydrin" treatment has been started, and for a week the vomiting has decreased and the infant has gained a little weight. There may then have been one to two weeks of little or no progress followed by a return of vomiting, though this is no longer projectile; there has been considerable deterioration in the infant's condition and the stools may be frequent and undigested. When asked to see the baby at this stage one may find parenteral infection or faulty feeding as a cause of the condition, but one may be quite unable to decide whether pyloric stenosis is, or even has been, present. No peristalsis is to be seen and no tumour palpated. One may stop the "eumydrin" for forty-eight hours in the hope of being able to establish the diagnosis, but the infant's condition deteriorates further. As one is still uncertain one is forced either to resort to the drug again and hope to keep the infant alive with parenteral fluid, etc., or to ask the surgeon to explore in the absence of a definite diagnosis and on a bad surgical risk.

Should the family doctor be certain of the diagnosis "eumydrin" may be started and, in some cases, the whole course of treatment may be carried out safely and satisfactorily in the baby's home. There must, however, be facilities available for the immediate transfer to a surgeon if progress is arrested even for a few days, and the practitioner must be acquainted with the fact that drug treatment needs to be continued long after the cessation of symptoms. If there is the slightest doubt as to the diagnosis then the surgeon or physician who would ultimately have the responsibility of the case should personally examine it before "eumydrin" is begun, and, where possible, this first examination should be made before admission to hospital.—I am, etc.,

Oxford.

VICTORIA SMALLPEICE.

Keratoconjunctivitis

SIR,—I have been much interested in the remarks of Drs. W. J. B. Riddell and I. C. Michaelson (Jan. 5, p. 28) in connexion with my article on keratoconjunctivitis. Virus keratoconjunctivitis is, of course, a different disease from the one described in my paper.

It seems that the nomenclature of keratoconjunctivitis could be improved. I do not know if a label has ever been given to the type of case that I described, but I suggest "marginal keratoconjunctivitis," as the lesions are always close to the limbus; "keratoconjunctivitis" without a qualifying adjective is not descriptive enough.—I am, etc.,

48 General Hospital, B.T.A.

R. J. BUXTON.

"Deck Ankles"

SIR,—I cannot agree with Dr. K. Zacopoulos's conclusions (March 2, p. 322) that traveller's oedema and "deck ankles" are the same. Reference to my investigations as reported in the *Journal of the R.A.M.C.* for December, 1942 (of which the *A.M.D. Bulletin*, No. 21, para. 150, is an extract), will show that the latter is accompanied by inflammatory changes, while the former is "without further signs of inflammation."

A form of oedema in travellers by sea caused by inactivity was described in the *British Medical Journal* in 1943 (June 5, p 708) by a ship surgeon, who concluded that it was caused by sitting for long periods in deck chairs. I have discussed the aetiology of "deck ankles" with several M.O.s who had cases on troopships, and they are all agreed on the traumatic factor in this condition—I am, etc.

Kiddemaster

W. F. L. FAVA

Local Cod-liver Oil for Colds

SIR.—In the *Journal* of Feb 15, 1941 (p 262), Dr. W. Pridham-Wippell wrote of his successful use of pure cod liver oil for relief of the common cold. When I got to hear of it I was surgeon with the North Atlantic convoys and adopted his method at once, and for the past five years in many parts of the world, at sea and on shore, have continued it almost to the exclusion of all other treatment. The results have been excellent. In approximately 300 consecutive cases of which close track could be kept 7 out of every 10 treated in the first two days of symptoms cleared up entirely within twenty-four hours. Colds neglected in the early stages took longer to respond.

The method used is to have the patient lying on a couch or on the ground, no pillow, or one just under the neck, and the head well back. An average of one to two teaspoonfuls of cod liver oil is injected down each nostril, using any convenient syringe of the glycerin type, or a 10-ml glass barrel and plunger of the Record pattern. Rubber bulbs are best avoided as the oil quickly destroys rubber. The oil, partly absorbed as it passes over the turbinates, runs back over the adenoid tissue to the back of the throat, where surplus not absorbed is just swallowed. Some people are nauseated by it, but soon get over their objection when they realize the amazing relief it brings. The Service personnel soon learned to come regularly at the first sign of a cold. One application was then usually enough, but in more advanced cases two or three days' treatment twice daily might be needed, while heavy, well-established colds did not readily respond, owing probably to mucous secretion preventing the oil coming in close contact with the membranes. Care should be taken that old rancid oil is not used, as the application is then painful to the delicate tissues. I had recently to condemn many gallons of hospital stock for this reason, and found a welfare clinic issuing equally bad oil to its babies.

The rationale of the treatment would appear to be that when the turbinate mucous membrane gets unusually dry and lacking in vitality, colds readily get a hold. Cod liver oil provides essential vitamins A and D, not to do any direct germ-killing but to nourish the membrane sufficiently to allow it to do its own killing. It is often found that with a very dry mucosa the first application to each nostril is absorbed completely, as though by blotting paper, before it can reach the back of the throat.

I have extended the cod-liver-oil method to cases of sinusitis on the basis of clearing up nasal foci of infection, and results have been good in many cases. The whole body benefits amazingly from the absorption of the oil, and to a much greater degree than with the usual oral administration, cases such as bronchitis responding directly. I have applied the above treatment to myself over the past five years and have been almost trouble-free where colds are concerned, previously it was a different story.

I am glad to have the chance of reporting my own experience of Dr. Pridham-Wippell's method, as I have not so far found any other doctor, either at home or over-seas, who has used it since it was first published. I never go anywhere in my travels now without cod liver oil in my kit—I am, etc.

Dundee

HARRY R. LILLIE.

Myringotomy and Paracentesis

SIR.—May I reply to my friend Dr. T. B. Jobson's letter (Feb 23). He reprimands me for referring to myringotomy as "cutting the drum." The drum, he says, is a cavity, the tympanum. The first "ear" book I opened after reading this happened to be the *Treatment of Chronic Deafness*, by Dr. Cathcart, consulting surgeon to the Throat Hospital, Golden Square, and late member of the Special Aural Board, Ministry of Pensions. On page 8 he speaks of "the external auditory meatus, which is closed at its inner end by the tympanic membrane or drum separating it from the tympanic cavity." A number of other otological writers use the word "drum" as

synonymous with the drum head and tympanic membrane. Some of them speak of incising the drum. I will not bother you with the references.

The *Oxford Dictionary* defines the drum as a cavity, and Haultubron's *Physiology* (1923) says on page 829, "The riddle ear, or tympanum or drum, is separated by the membrana tympani from the external auditory meatus. It is a cavity, etc." On the other hand Starling's *Physiology* (1926, p 481) states, "At the junction with the meatus is a special bony ring to which is attached a thin diaphragm, the membrana tympani (or drum), which completely closes the orifice." Perhaps the *Encyclopaedia Britannica* (1929) gives the fairest definition, which is "Drum the word is used of the tympanum or cylindrically shaped middle ear and specially of the membrane that closes the external auditory meatus."

But need my friend carp at a word? He says that he has "little Latin and less Greek." Some 300 years ago a poet laureate wrote, "Thou hadst small Latin and less Greek."—I am, etc.

Gundred

J. K. MILLIGAN.

Homosexuality

SIR.—The correspondence regarding homosexuality has been of great interest to me. I have been fortunate enough to see many hundreds of patients suffering from sexual abnormality, a large proportion of whom were homosexuals. I think that I can claim, therefore, to have had experience at least as wide as any in England. Perhaps you will permit me to add my comments on this matter.

First with regard to causation there is evidence that the endocrine element is important, though not a basic cause. For example, in adrenogenital virilism there may be a concomitant homosexuality which disappears after adrenalectomy (as was pointed out in Broster's *Adrenal Cortex and Intersexuality*, Chapman and Hall). Also some homosexuals, though only a few have glandular dystrophies—e.g., Oscar Wilde was excessively fat and from photographs appears eunuchoid. Again, Terman found that glandular development was delayed in intellectual boys and many homosexuals are of this type. From the psychological point of view the suggested causation of the parents wanting a girl and so educating the boy to be feminine in my experience never occurs. This is shown by the fact that Broster and I have had cases of pseudo hermaphroditism where children have been brought up entirely as girls (including the dress, etc.) but have presented a masculine psyche. Microscopy of the gonads after operation has shown that they were really males. The true factor, as your correspondent Dr. Gilsenan points out, is in the home circumstances. The parent of the same sex as the patient is antipathetic to him. This is my almost invariable finding. This leads to the patient failing to mould himself upon this parent, and instead he unconsciously moulds his mind on (in psychological terminology, "introjects" or "identifies" himself with) the parent of the opposite sex. This occurs from earliest childhood, and hence the idea of being "born homosexual" which many patients elaborate. The result is that the man acquires feminine traits and is capable of loving only those of the same sex. One can see this strongly in those educated in an entirely feminine environment, and perhaps the homosexuality of the East may be the result of educating the boys in the harem until puberty.

No doubt there are other factors, such as assaults at puberty and so on, which tilt the scale. With regard to those correspondents who find no traumatic results to this I think that probably their optimism is due to lack of experience. I have several times found assaults at puberty to be important in causation and in any case the victims often feel degraded, inferior, and unhappy for the rest of their lives. I heard only this week of a man who committed suicide after a life-long sense of degradation due to an assault by another man many years previously.

With regard to treatment I have found as your other correspondents, that psychotherapy is possible only when there is a strong desire to be cured. When this is present I have managed to cure some cases in a few months, but others take as long as two years' hard work, and a large number, of course, are incurable. The difficulty often is, as I pointed out in my monograph, that the patient builds a homosexual environment;

does a feminine type of work such as dress designing; has homosexual friends; even wears feminine underwear, and so on. One must reconstruct his whole life to cure him.

The effect of imprisonment on homosexuals is socially important. I have seen many patients who have been imprisoned but have never seen one who has had any form of psychotherapy by the prison doctor: perhaps those who have had it have been cured—but I wonder. In my own experience they have all been made worse by incarceration. This also is the finding of Fishman (*Sex in Prison*, National Library Press, U.S.A.), Healy, and others. The animal experiments of Jenkins (*Genetic Psychological Monographs*, 3, 457) suggest that imprisonment and seclusion from those of the opposite sex will invariably lead to increase of perversion, and so the final result of incarceration endangers and does not protect the public. Surely it is time that some form of psychosexual institute was founded in London so that this group of illnesses could be studied and treated. I am sure that most public-spirited psychiatrists would lend their help to its foundation and establishment.

In conclusion might one suggest to those who are so indignant that there are such things as perversions that no physician should find a disease "foul," "revolting," and so on, and obtain satisfaction in calling those who have it abusive names. Cholera, syphilis, and lupus are all horrible conditions, yet we try to show the sufferers some little humanity. When one sees a pervert should not one say, as Isaac Newton said of the reeling drunkard, "There but for the grace of God go I"?—I am, etc.,

London, W.1

CLIFFORD ALLEN.

SIR,—Dr. John J. Fitzpatrick (March 9, p. 368) and Dr. W. Lumley (p. 369) are surprised that the "victim" of the homosexual does not always suffer a psychological trauma. If they re-read my letter (Feb. 23, p. 289) they will note that I used the words: "To protect a youth from such an experience is very important; but the normal boy will not be blighted for life if he is unfortunate enough to have been on terms of sexual intimacy with a homosexual man." The significant word of course is "normal." The boy who is not normal and who has homosexual tendencies, psychoneurotic traits, or other disability will almost certainly be harmed by the experience. The normal boy, on the other hand, even though he acquiesced at the time and later regrets the experience, is in a different position; his memory of the affair remains at a conscious level, an adjustment has been made to it, and it has not led to pathological repression and mental conflict. Dr. Lumley presumably thinks that every person—boy, man, girl, or woman—who has indulged the sexual appetite in company with a homosexual suffers a grievous and lasting injury. My observations do not confirm this view. It would be interesting to know on what theoretical basis and clinical knowledge it rests.

Dr. Lumley infers, unjustifiably, that I regard the homosexual assault with complacency. For reasons which may be clear to me, if not to others, he considers it pertinent to ask if I have thought of my own. The answer is Yes. He is shocked by the fact that "there are other factors in such relationships; that sexual activity may play a minor part in a friendship which often has in it much of value." Homosexual activity, involving physical contact between a man and a boy, is always objectionable. "To protect a youth from such an experience is very important"—if I may quote my previous letter for the second time. But to conclude that every friendship between a homosexual man and a boy, even though it may have been soiled by a manifest sexual act, has in it nothing of value is to be misinformed of the facts. Many homosexual men have done magnificent public and private work for boys and have never indulged in any physical act of homosexuality. Other homosexuals have done equally good work, but it has been clouded by some lapse. Not every homosexual is the monster Dr. Lumley believes him to be. Dr. Lumley is comforted to know "that the boys of Edinburgh are safe for fourteen years." The sentence, in this case, was not for fourteen years, but for a much shorter period. From reading the medical and other evidence given at this trial it seems clear that the public work among boys of the (now) prisoner was valued over many years by responsible people. And the same is true of many (though certainly not of all) homosexuals.

A main issue in this correspondence is whether the homosexual should be treated as a criminal or in some other way. Clear thinking, free from emotional preoccupations and based on observation, is essential.—I am, etc.,

London, W.1.

E. A. BENNET.

SIR,—You are to be congratulated on opening the columns of the *Journal* to a discussion of homosexuality. It is a topic that badly needs ventilation—in common with a good many other sex problems. As the subject is one in which comprehensive statistical material is not easy to obtain, individual observations on any aspect are to be welcomed.

The views put forward by Dr. E. A. Bennet (Feb. 23) on the effect of homosexual seduction on young people are not held by him alone, and to describe them, as Dr. W. Lumley does (March 9), as "obscene balderdash" is not only offensive but out of place in a presumably scientific discussion and outmoded by 30 years or so. Instead of emotional thinking, if Dr. Lumley has any evidence to the contrary let him bring it forth.

Rosanoff, for example, writes: "As to other early conditionings, such as seduction by older boys or by homosexual men, the evidence of their effectiveness is more largely negative than positive. It seems as difficult to turn a heterosexual boy homosexual as to accomplish the opposite feat; although, of course, it is an easy enough matter to seduce a child sexually along almost any direction. Cases of seduction can be gathered literally by the thousand; but such evidence as is available would seem to indicate that such seduction can only be of lasting effect if its direction corresponds with the inherent sexual tendencies of the subject" (*Manual of Psychiatry*, 7th edition, 1938, p. 556). What I consider should be added is that the experience is liable to produce a conflict which contributes to the development of a neurosis in later life. The same writer further maintains: "A homosexual component constitutes an integral part of the sexual make-up of almost all, if not quite all, individuals—perhaps the total absence, or unusual lack, of a homosexual component is as abnormal and, in its special way, as handicapping as is an unusually large such component" (*ibid.*, p. 554). Obviously a statement likely to arouse a good deal of discussion, which should be very helpful if conducted on rational lines.—I am, etc.,

London, W.1.

FREDERICK DILLON.

SIR,—The attitude of your correspondents has been characterized by either aggressive denunciation of a harsh sentence and sentimental impotence in regard to the general problem of homosexuality, or a marked hostility towards an enemy of society without consideration for the medical aspects of the case.

The suggestion that many homosexuals can be treated successfully is highly optimistic. The constitutional homosexual is incurable, and therapy is a complete waste of time except in so far as it may remove or relieve concomitant neurotic features. In other words, treatment may convert an unhappy homosexual into a happy or less unhappy one, but will not affect the homosexual constitution of the patient. But, even if therapeutic optimism were justifiable, the legal aspects of homosexuality must still be considered. The law is concerned with antisocial acts and the protection of the public. Medicine is solely concerned with the treatment of the patient. The two aspects must not be confused. The obvious answer to the problem is segregation and treatment.

It is unfortunate that one medical man should regard homosexuality as an "ugly vice" and that another should advise "castration as a cure in the worst cases." The attitude of the former is unlikely to advance scientific progress or enable him to deal sympathetically with any of his patients who may happen to be victims of sexual inversion. "The admirable remedy of castration" is probably not disregarded "because medicine and law are ignorant," but for the reason that such treatment would be most likely to accentuate passive tendencies which are innate in most homosexuals. The persistent homosexual seducer of our youths must be segregated, permanently if necessary, but the first offender should be regarded as a psychiatric case and remanded for appropriate treatment.

Acrimonious diatribes and the expression of violent prejudices will neither stimulate our legislators into changing the

law, encourage the wretched homosexual to seek treatment, nor increase respect for the medical profession. Besides, some of your contributors should realize that their vitriolic rhetoric in the denunciation of homosexual practices represents a violent repudiation of their own repressed homosexual tendencies.—We are, etc.,

London, W.I.

ELLIS STUNGO.
EUSTACE CHESLER.

SIR,—As a senior student at a large teaching hospital I find that the attitude of my contemporaries towards homosexuality varies quite considerably. Some are naturally biased, while others regard it with an open mind; but all, I think, realize that a sympathetic understanding of the subject is of the utmost importance.

But is an entirely satisfactory solution to the problem to be found in a closer collaboration between the medical and legal professions, or in either profession individually? They deal primarily with what one might term the "mature" homosexual. There would appear to be opportunities for prevention, thus alleviating the necessity for cure. A substantial proportion of homosexuals owe their condition to a number of various influences during their schooldays. These influences are liable to be particularly strong at a boarding school. School teachers, therefore, especially those in charge of the welfare of boys and girls out of school hours, hold a position of great responsibility. Some of them can, and do, discharge their responsibility to good effect when necessary. But there are others who, although willing to play their part, are sadly lacking in a sound knowledge of sexual aberrations, or those to whom, on the other hand, anything in the nature of a homosexual practice is a heinous offence meriting immediate expulsion. And, further, there are a few—sometimes conscious of their peculiar condition—who choose teaching as a career because they have homosexual tendencies themselves; it is the maladjusted members of this group who are a potential source of danger. It does seem a mistake, as is the case in one school I know of, to allow only unmarried men to be housemasters.

In some schools the state of affairs is lamentable; there is often no one to whom a troubled boy or girl can turn for help or advice. I happened to be at a public school where the headmaster regarded the whole problem in a sane and balanced manner and at which the biology master gave excellent courses of lectures on sex to boys of all age groups. It is at school, where no sexual practice among boys or girls can really be dignified by the word homosexual, that an understanding attitude would be of inestimable value. The adolescent is far more amenable to advice than the adult is to treatment. Is it not the teaching profession, assisted by doctors, which can do the most good?—I am, etc.,

London.

RODNEY H. N. LONG.

Are the People More Healthy?

SIR,—The account and appreciation of the "Survey of Sickness" which you published in your leader on March 2 (p. 318) is welcomed by the staff of the Social Survey who are carrying on this work. I am sure it is equally welcome at the Ministry of Health, where the data collected by the Survey on the state of the nation's health are reviewed and published. Above all, it will be welcomed by our interviewers, to whom public recognition of the value of their work is a great encouragement. The samples of 2,000 to 2,500 people are admittedly small to furnish reliable statistics. Whether they are too small cannot be discussed without reference to particular problems for investigation—for instance, whether the incidence of any given illness is unexpectedly high at a particular time or in a particular section of the population is a problem which would need careful handling. It is true to say that the number of problems which could be effectively studied would be increased if the samples were enlarged. But the cost of interviewing is the chief item in the cost of the surveys, and decisions to enlarge the sample are dependent on financial considerations. The representativeness of the samples is ensured by selecting names by a standard drill from the cards held in local offices for national registration. Continuity in this basic method of sampling increases the reliability of statistics of periodic fluctuations. But all the information collected relates only to

the civilian population of England, Scotland, and Wales from 16 to 64 inclusive. Thus the population samples have been subject to gross changes during the period under observation.

Among our reasons for reposing confidence in the classifications of illness for the Survey are the three following. First, the interviewers record a description of every illness and particulars of its history in addition to the name assigned to it by the informant (which is often a repetition of the doctor's statement after examination). These records are passed to the Ministry of Health, where the recorded illnesses are classified according to the Medical Research Council code. This procedure preserves a high degree of consistency in the classifications. Secondly, the interest of the work attracts able people for appointment as interviewers, and they receive thorough training. The schedules they use and the instructions they follow have been rendered comprehensive and precise through cumulative experience. Their work is conscientious and always checked. Thirdly, evidence has established the reliability of information on health collected by survey methods. In an investigation made by the U.S. Public Health Service, 90% agreement was found between statements from the family and from the physician (Perrott, G. St. J., Tibbitts, C., and Britten, R. H., *U.S. Public Health Reports*, 1939, 54, 1663). The family statements used in that investigation were obtained under less favourable conditions than ours.

The information so far published has been extracted by officers of the Ministry of Health. It deals mainly with general rates of incidence of broad classes of illnesses. Articles by Dr. Percy Stocks in the *Monthly Bulletins* of the Ministry of Health are the main references. No information showing the associations between sociological data collected during the interview and data concerning the incidence of illnesses has yet been published, but the Social Survey is examining the available data of this kind and will publish a detailed report shortly.—I am, etc.,

The Social Survey, London, W.I.

PATRICK SLATER.
Senior Research Officer.

Fundamental Principles and Errors of the Medical Profession

SIR,—Impressed by the imposing list of bodies whose representatives compose the Negotiating Committee, I read the first page of the *Journal* of Dec. 15, 1945, with great expectations. I was correspondingly disappointed, therefore, to discover two fundamental errors in the preamble to the fundamental principles. The first is the use of the phrase "complete health service" where, I submit, "complete medical service" is what is meant. The second error occurs in the lamentable third paragraph, which omits education as the principal factor in the health of the community, and gives first place to "good housing," which is, after all, only one of the "environmental circumstances."

As a council member and office holder of the Victorian Branch of the B.M.A. I have been considerably involved in our local struggle against regimentation, and as lecturer in hygiene at the Melbourne University have given considerable thought to the vital distinction between "health services" and "medical services." It is, I suggest, obvious that all public services are health services in that they have no justification other than to further the well-being of the community. Medical services, including those of doctors in the public health services, make an important contribution to the health of the people, but this is determined mainly by education and by economic factors. Medical men as such obviously cannot remedy the causes of "deficiency disease" in general, still less the "psychological factors" which are so vast a cause of illness. The present tendency of politicians and agitators is to support the idea that what is mainly needed to remedy the ills and unhappiness of the people is more doctors, hospitals, and free medicine; but the profession must not be so foolish as to assume responsibility for the health of the people. Flattering though the idea may seem.

It should be unnecessary to argue in detail that education in its wide and proper sense is a primary essential for the well-being of a community. Granted that the physical requirements for growth and protection are available, which is a matter of economics and social organization, the primacy of education

surely cannot be disputed. It is only by educating—that is, by providing opportunities for the full psychosomatic development of each unique precious individual—that we can hope to achieve a community of positively healthy, self-respecting, intelligently co-operative citizens. Self-respect must be based on successful achievement, socially useful or creative in character. Schools must be such that every child can be good at school, and has to be dragged away from it. It is encouraging that Britain has apparently planned improvements in its educational provisions. It is surely the duty of the profession to foster and encourage those provisions, in the conviction that the teachers will make a greater contribution to the health of the community than can doctors as such.—I am, etc.,

Melbourne, Australia.

JOHN DALE,
Medical Officer of Health.

Lay versus Medical Administration

SIR,—Both Sir Frederick Menzies (Feb. 16, p. 251) and Dr. F. J. Bentley (March 2, p. 327) are looking at this matter from the point of view of the medical profession. Of course it is in the interests of doctors to have medical administration, which will always favour the medical man. From the wider point of view of the interests of the community there is not much doubt that lay administration is preferable for the following reasons:

(1) It is cheaper. (2) It is more likely to be efficient since the only consideration in choosing a lay administrator is his ability to administer, while in the case of doctors much more weight is apt to be attached to their professional qualifications than to their administrative ability. (3) Medical administration is so often, alas, the refuge of the incompetent who is neither a good doctor nor a good administrator. (4) Of the work at the central offices of a large National Health Service 99% will be clerical and executive. Medical work will be done in hospitals and clinics. It is a sheer waste for highly qualified medical men to spend their time and energies on clerical processes.

Sir Frederick Menzies is fundamentally wrong when he says that the problems to be dealt with in the new regional organizations are and will always be predominantly medical—they are not. The problems will be problems of administration, pure and simple, and will be precisely the same problems of administration as arise in any large organization. There will be ample scope for the doctor in the new National Health Service, first in his proper sphere—i.e., in the active practice of his profession of medicine—and secondly in an expert advisory capacity. But for Heaven's sake don't let him spill over into the sphere of clerical work and waste his special talents in a field where he is not at his best.—I am, etc.,

Epsom Downs.

C. E. NICOL.

Diuresis by Suggestion

SIR,—The doctrine of signatures has had many believers through the ages. In bygone days, or in other places, to eat the heart of a lion was to acquire the courage he was thought to possess; or, to jump to contemporary usages, I have sometimes thought that by the same token the viscid syrup of tolu commonly included in expectorant mixtures to "cut the phlegm" it resembles. But a more striking instance was recently recorded in your always interesting "Nova et Vetera," where the successful treatment of a case of dropsy by drinking water was described—the water cure. I suspect much was omitted, as is suggested by a case at present under my care. She is a lady of 85 who suddenly developed typical acute congestive heart failure with so much oedema of her legs and thighs that she could not move them. "Try to pass plenty of water," I said. "I can't," she replied. "But try," I urged; "I will help you with some medicine." I made up for her a weak aqueous solution of pot. brom. and pot. cit. which I did not flavour or colour. It must have tasted bad but it looked just like water. I relied on my supposed prescience as a registered medical practitioner. Anyhow it worked and a prodigious urination began. In a few days all the dropsy had gone and she could move her legs freely.

Some important details are omitted in the way the patient was handled, but I believe the happy re-establishment of her circulation was solely the result of suggestion—a strange process in which depends an immense amount of therapy, though often unconscious. How often does suggestion work? It seems to me that there can be only one way. The natural powers of

healing; the natural tendency to restoration after injury or impairment; the *vis medicatrix naturae*—somehow they are stimulated or even tricked into activity.—I am, etc.,

London, S.W.1.

E. GALLOP.

Motive in Medical Demobilization

SIR,—In his letter (March 9, p. 371) on "Motive in Medical Demobilization" Sir Ernest Graham-Little states that the Minister of Health will have "in the bag" some thousands of ex-Service doctors who have been subjected to continuous unilateral Socialist propaganda in which a State medical service has been a primary objective. As a doctor lately released from the Royal Naval Volunteer Reserve I have come in contact with many doctors in the Navy, and I have not met one who has been imbued with Socialist principles. I am happy to say that I neither saw nor heard of organized political propaganda within the Service. I am quite certain that the majority of demobilized doctors, who during their service have been drafted round the ends of the earth from pillar to post, are quite unfavourable to any form of State medical service as devised by the Socialist Party.—I am, etc.,

London, W.8.

W. D. G. TROUP.

Child Welfare in Singapore Internment Camp

SIR,—I read Miss Mary Thomas's letter (March 9, p. 371) with much interest, and thank her for her generous account of the work of the medical women in the Singapore internment camp. As she refers to a certain disagreement in the camp in which I took a large part, and as there is naturally no account of the case raised by my opponents, I ask you to allow me to state it.

The mothers of children interned in Changi Jail were in a peculiarly difficult position. An appallingly overcrowded jail is a bad home for a child, and the conduct of our children naturally deteriorated. The shortage of the necessities of life sometimes made their normal child-like activities disastrous. And there was added irritation in the fact that members of a family could not get out of sight and sound of each other. All the mothers were harassed, especially those with large families. The opposition to my proposal was that I was giving publicity to the failings of some sorely tried members of the camp.

May I add what I know Miss Thomas would endorse—that of the elect company of those whose conduct was an unflinching inspiration to the camp a goodly number were Eurasian women.—I am, etc.,

Whitney.

PATRICIA R. ELLIOTT.

Universities and Colleges

UNIVERSITY OF MANCHESTER

Dr. J. Crighton Bramwell, F.R.C.P., who will complete his period of appointment as professor of systematic medicine at the end of the present session, has accepted the invitation of Council of the University to become professor of cardiology from September next.

Dr. T. H. Oliver, F.R.C.P., whose period of appointment as professor of clinical medicine will be completed in September next, has accepted the Council's invitation to become professor of therapeutics from that date.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Dr. Maurice Campbell will deliver the Lumleian Lectures on Tuesday, April 16, and Thursday, April 18, at the College, Pall Mall East, S.W., at 5 p.m. Subject: "The Paroxysmal Tachycardias."

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

On March 14 the Right Hon. Thomas Johnston, lately Secretary of State for Scotland, and the Right Hon. Florence Horsbrugh, Parliamentary Secretary to the Ministry of Health 1939-45, received the Honorary Fellowship of the College. Diplomas of Honorary Fellowship were also conferred on Dr. Andrew Davidson, F.R.C.P.Ed., chief medical officer, Department of Health for Scotland; Mr. Eardley Holland, F.R.C.S., President of the Royal College of Obstetricians and Gynaecologists; Sir Edward Mellanby, M.D., F.R.S., secretary of the Medical Research Council; and Air Marshal Sir Harold Whittingham, Director-General, Medical Services, R.A.F. The President of the College, Mr. J. M. Graham, took the chair at the ceremony. Each of the recipients after being presented and given the diploma made a brief speech of thanks.

Obituary

ADOLF LORENZ, M.D

Prof G GREY TURNER writes

The death of Adolf Lorenz of Vienna at the age of 91 removes a great pioneer in orthopaedics and a colourful figure from the realms of surgery. At the time of my first visit to the Austrian capital in 1899 Lorenz already enjoyed a wide reputation, especially in connexion with congenital dislocation of the hip. He had consulting rooms in the same apartment house in which I lodged and there were always numbers of his patients hanging about, either waiting to see him or discussing among themselves the result of their consultation or treatment. Even at that time many of these people had come from distant parts and especially from America to be under his care. At the Allgemeine Krankenhaus not only was he in charge of wards and had an out-patient department but his visits were always eagerly expected and there were many visitors. No arrangements were made for the convenience of the students, who clustered round this tall outstanding man, distinguished by a long and voluminous beard. This crowding round the teacher was usual in Vienna, for I especially recall the cosmopolitan crowds round Politzer, of otological fame, and Chian, the laryngologist, at the Polyclinic.

Lorenz only stayed about a couple of hours, during which time he saw quite a lot of patients and carried out one or two of his bloodless operations. The gross manipulation in a case of wry neck has always remained in my recollection as a very crude business and not to be compared with the simple open operation. But his reputation as a pioneer in the management of congenital dislocation of the hip can never be assailed, and I am old enough to recall the parlous state of sufferers from that malady before Lorenz pointed the way to cure. In his clinic all was bustle and volubility while the chief demonstrated, but when he left relaxation was the order of the day. Thereafter we befuddled the innocent visitor who fell into the trap when asked if he would like a little practice in plaster work for the business of changing and renewing plasters went on for hours. He had been trained for a career as a general surgeon, but the story was then current that he was driven to develop bloodless surgery because his skin was so susceptible to antiseptics of all kinds. As a result he suffered from severe attacks of dermatitis after working in the operating theatre and found that he would have to adopt some other branch of professional activity. In later life he made rather a joke of his methods and twitted the surgeons who, he said, "loved streams of blood," while he boasted that he never wasted a drop.

His old friend Robert Jones was present when I next saw Lorenz at work, in 1912, and they had a rare time together. On that occasion Lorenz demonstrated a large number of cases showing the after results of manipulative treatment for congenital dislocation of the hip. He had these patients walk round and round a table and invited the visitors to identify the side which had been affected. One patient had come from America, and Lorenz was vastly amused when Robert Jones was puzzled in deciding which side had been treated. As the moments passed Lorenz got more and more excited, stroking his long beard the while. Finally he burst out laughing as he informed the company that it had been a bilateral case. Lorenz's reputation in the surgical world undoubtedly suffered after an early visit to America when he went over to treat the daughter of one of the great packing houses. I have heard a good deal about that visit, and always feel that he was unfairly treated by the newspaper men, who were really responsible for some of the rather crude and reprehensible things that were blamed on to poor Lorenz.

ROBERT KLÄBER, M.D, FRCP

Dr Robert Kläber, who died suddenly at his home in London on March 2 at the early age of 45, had already made his mark in dermatology. The son of Augustus Kläber he was born at South Norwood on Dec 24, 1900, and was educated at Tonbridge School and for two years edited the school magazine. He had a distinguished student career at St Bartholomew's Hospital, where he won the Burrows and Skynner prizes and was *proxime accessit* for the Brackenbury medical scholarship. He graduated M.B., B.S. in 1924, took the MRCP in 1927 and the MD a year later, and was elected FRCP in 1941. After qualifying he served as house-surgeon and house physician at the Radcliffe Infirmary, Oxford, and casualty officer at the Royal Northern Hospital, and took the DPH and the DTM&H. In 1929 he was appointed junior demonstrator in

pathology and clinical assistant in the skin department at Bury's and later chief assistant there, and was elected physician to the skin department of the Prince of Wales's General Hospital, Tottenham. He also lectured on dermatology at the associated North East London Postgraduate College.

When war broke out in 1939 Kläber took up duty as consulting dermatologist to Sector 2 of the Emergency Medical Service, and he organized a skin unit when the Havre de Grace Hospital at Bishops Cleeve was upgraded. He was an active member of the British Association of Dermatologists and Syphilology and had been secretary to the Section of Dermatology of the Royal Society of Medicine. He published a number of papers on skin diseases, including an account (written jointly) of the pathogenesis of rosacea. Apart from his main hospital appointments he had been consultant to the L.C.C., to the Harrow and Wealdstone Hospital and the Bishop's Cleeve General Hospital, and more recently to the Luton and Dunstable Hospital.

W F NEIL, M.B., F.R.C.S

Mr William Fulton Neil died at his home in Nottingham on Jan 21. He was born at Dunedin, New Zealand, in 1882, and after qualifying there came to England and obtained his F.R.C.S. in 1910, and then came to Nottingham as house-surgeon. After serving in the 1914-18 war and attaining the rank of major, he returned to Nottingham and was quickly promoted to the honorary staff of the General Hospital. At the time of his death he was chairman of the Medical Committee. A few years ago he was the president of the Nottingham Medico-Chirurgical Society and also president of the Surgical Union of Great Britain. He was consulting surgeon to the E.M.S.; consulting surgeon to the Ilkeston Hospital, the Heanor Hospital, and the Skegness Hospital. He was a Justice of the Peace, and a past chairman of the Nottingham Division of the B.M.A. Mr Neil was due to retire in March and was looking forward to paying a visit to his relatives in New Zealand. He had been in failing health for some months, but remained in active practice and continued to take unabated interest in hospital affairs until a few days before his death.

His death (writes a colleague) removes one of the best-known surgical specialists in the East Midlands, and a man of more than local fame. Having perhaps no hobbies, he devoted himself to two ends—the welfare of the Nottingham General Hospital and the welfare of his individual patients. He had that gift of obtaining a patient's absolute confidence. His interest was focused chiefly in gastric surgery, and he was one of the pioneers of this art and its modern developments in the Midlands. His practice was large, but his solicitude for the individual was never perfunctory, nor did his interest end when the patient left the theatre. He was prepared to operate at an early hour in the morning, to continue in the theatre throughout the day, and finish at a late hour at night, and only a man of his physique and capacity for work would have been able to carry on as long as he did. His singular devotion to duty undoubtedly accelerated his death.

His colleagues on the hospital staff and innumerable patients will have heard of his death with the deepest sense of loss, mourning not only a brilliant surgeon but the kindest and most generous of men. In 1915 he married Miss Eva Kerr-Smith, a sister at the hospital, and he is survived by his widow and three children, a son and a daughter being qualified and serving in the R.A.M.C.

WILLIAM MCKEE BONNAR who died on active service in India as the result of a flying accident, qualified with second-class honours at Queen's University, Belfast in 1939. After spending terms as house-surgeon and house-physician in the Royal Victoria Hospital, Belfast, he moved to the Department of Physiology, Queen's University, as demonstrator in physiology. While in this position he wrote a thesis which gained him his M.B. with gold medal. He joined the R.A.F. in 1942, and after some time in Great Britain was eventually sent to India. One of the most brilliant students of his year, he combined a high talent with great self-discipline in the use of it. He will be remembered by his friends, not only for his academic attainments, but for the quiet, unassuming depth of his character.

The following well-known medical men have died abroad. Dr JOSEPH MCFARLAND, emeritus professor of pathology at the University of Pennsylvania, aged 77; Dr ELLSWORTH ELIOT, jun., past-president of the American Surgical Association, aged 81; Dr S. N. TCHERNOZ, professor of biology at Zürich University; Dr SZILAS, a Budapest ophthalmologist, and Dr E. E. MARR, professor of the history of medicine at Copenhagen University, aged 68.

Medical Notes in Parliament

Smallpox Cases Aboard Ship

Mr. THOMAS BRADDOCK asked on March 7 whether the R.A.M.C. officer at Hampstead who "gave" his wife and daughter smallpox infection had been vaccinated, whether the R.A.M.C. sick-berth attendant who infected his nephew with smallpox at Grays had been vaccinated, and whether the three cases of infection which developed from these two members of the R.A.M.C. were in vaccinated persons. Mr. BEVAN replied that all the persons mentioned had been vaccinated at some time, though dates of last vaccination varied considerably, as did the severity of the attacks.

In a further question Mr. BRADDOCK asked how many cases of smallpox had been landed in the Mersey from a ship arriving from India, how many of the crew developed smallpox and were put ashore at Suez, and what was the vaccinal condition of the cases of smallpox that developed in this ship. Mr. BEVAN assumed that the ship referred to was the *Empress of Australia*. He learnt that one case of smallpox (a member of the crew) was landed at Liverpool on Feb. 18. No member of the crew developed smallpox and was put ashore at Suez, but two cases and one suspected case (not members of the crew) were landed there. He had no information as to the vaccinal condition of the patients landed at Suez, but was informed that the patient landed at Liverpool was vaccinated in infancy, and had been revaccinated several times during the war but without the vaccination taking.

Tropical Diseases: Temporary Hospital Premises

Presenting on March 11 a Supplementary Estimate for Colonial and Middle Eastern Services, Mr. CREECH JONES said one item in the Estimate was concerned with the Seamen's Hospital Society in London. It represented the balance of a loan to enable the Society to re-establish in London a hospital for tropical diseases. At present hardly any accommodation was available for patients suffering from these diseases. It was desirable that patients should be treated near the School of Hygiene and Tropical Medicine in Central London. The tropical diseases hospital in Endsleigh Gardens, which was requisitioned by the Ministry of Health in 1939, was now declared by the Ministry to be unsuitable for use as a hospital. It was proposed to go ahead with a new tropical diseases hospital, but it was only at the planning stage. As an interim measure the Seamen's Hospital Society had acquired 23, Devonshire Street, which had accommodation to provide a maximum of 40 beds. The Society had not the funds to meet this cost and the Treasury had agreed that a short loan of £60,000 should be made. The Government now asked that a second loan should be available. He hoped this would be repaid comparatively soon.

Dr. MORGAN said there were already four institutions in London dealing with tropical diseases—the Seamen's Hospital in Greenwich, the Postgraduate Medical School, the hospital which used to exist in Endsleigh Gardens, and the School of Hygiene and Tropical Medicine. This temporary grant was a waste of money. It would be better at present to use beds in ordinary hospitals instead of lending money to reconstruct an old house in Devonshire Street. Mr. OLIVER STANLEY was surprised that it was worth while to make this loan seeing that it had to be repaid at the end of the year. While he was at the Colonial Office a small committee considered a long-term project concerning tropical diseases. They were in search of sites, but there was no question of a reconditioned house. The aim was something much bigger and better.

Replying, Mr. CREECH JONES said a big tropical diseases hospital was being planned. In the interim it was proposed that 23, Devonshire Street should be acquired. That was a modern building and would give the Seamen's Hospital Society a nursing home which could be readily transformed into a hospital.

The House approved the Estimate.

Release of Doctors

Mr. TURTON inquired on March 13 how many R.A.F. medical officers were specialists and on that account "frozen" from the operation of the Class A release scheme. Mr. J. STRACHEY replied that there were 134 R.A.F. medical officers filling specialist posts. The Air Ministry had told those who would otherwise be due for release up to the end of May—74 in all—that they would have to keep them on under the "military necessity" clause. The Central Medical War Committee was calling up specialists, for a period of 18 months, who had not yet served in the Forces and were over 30 years of age. The Air Ministry rusted that it would receive a sufficient allocation of these new

entrants to enable it to release as many as possible of its own specialists. It was also accepting volunteers aged 40 and over for a similar period of service.

An assurance that the present quota of new recruits to the R.A.F. medical branch is adequate was requested on March 14 by Mr. ALLIGHAN. He further asked what were the quotas of new medical officers originally decided upon for each of the three Services for the first half of 1946, and what adjustment was to be made in view of the disparity in the release rates of general duty medical officers. Mr. BEVAN said that provisional quotas for the first half-year, 1946, were Navy 60, Army 280, R.A.F. 110. The question of adjusting the quotas, including particularly the adequacy of the intake to the R.A.F., was being considered by the Government. These quotas applied to young practitioners up to the age of 30. In addition the recruitment of specialists continued over the age of 30 to provide substitutes for specialists in the Forces who could not be released without replacement.

Mr. A. V. ALEXANDER furnished on March 11 a table of estimated monthly releases from the Royal Navy, which showed the latest dispersal dates for medical officers to be April 30 for Groups 48 and 49, May 31 for Groups 50-52, and June 30 for Groups 53-55.

Pleurisy and Erythema Nodosum: Notification

On March 14 Dr. BARNETT STROSS asked whether the Minister of Health would cause the conditions of pleurisy, phlyctenular conjunctivitis, and erythema nodosum to be made subject to provisional notification to assist in the prevention and treatment of tuberculosis. Mr. BEVAN replied that the desirability of bringing these conditions to the attention of the tuberculosis service was recognized, but this would not be achieved simply by instituting a procedure of notification. The important thing was that general practitioners should be fully aware of the significance of these conditions in relation to tuberculosis, and should encourage recourse to the specialist facilities of the tuberculosis service whenever they were encountered. He was considering what he could do to help in this.

Silicosis with Tuberculosis

In an answer on March 14 to Dr. STROSS, Mr. JAMES GRIFFITHS reported that in the twelve years 1933 to 1944, 19% of the workers in the pottery industry who were certified by the Silicosis Medical Board were found to be suffering from silicosis accompanied by tuberculosis. In cases of silicosis, tuberculosis could become manifest after certification. The experience of the Medical Board in North Staffordshire was that the average period between certification and death, in which death was found to have been caused by silicosis accompanied by tuberculosis, was just over two years. In cases of silicosis alone it was five to seven years. In the individual case the period depended largely on the workman's age and the degree of his disablement at the time of certification.

Tuberculosis in the Navy

The following table gives the totals of officers and men who were invalided out of the Navy with tuberculosis in the years 1939 to 1945.

Year	Officers	Ratings	Total
1939	11	213	224
1940	30	441	471
1941	33	811	844
1942	67	1,364	1,431
1943	87	1,553	1,642
1944	142	1,843	1,985
1945	101	1,565	1,666
Total ..	471	7,792	8,263

The figures include Royal Marines. Separate figures for warrant officers are not readily available, and they have, therefore, been included with the officers.

Medical Students under Government Training Scheme.—Applications received up to March 5 under the Government Further Education and Training Scheme included 904 with medicine as the professional career in view. Of these applicants 185 received awards. For dentistry, applications were 209 and awards 53; for pharmacy, applications 181 and awards 34; for training as radiographer, applications 66 and awards 19; for occupational therapy, applications 202 and awards 56.

Specialists in West African Command.—Sir ERNEST GRAHAM LITTLE on March 7 asked the Secretary for War to inquire into the position of specialist medical officers in West Africa at present employed on general duties, largely administrative. Mr. LAWSON replied that because of the scattered nature of the West African Command it was impossible to secure concentration of specialist facilities. It

was necessary to maintain an adequate specialist establishment at a number of centres. This meant that some specialists would not always be employed full time on specialist duties. In such cases a specialist was required to undertake a share of general medical duty. Mr Lawson added that he would ensure that any specialist who was being employed whole time on general duties was either repatriated to the United Kingdom for release or transferred to another command where he could be employed in his specialty.

Punishment of Borstal Boy by Restricted Diet—Mr G LANG on March 12 raised the circumstances of the death last November of a Borstal boy of 19. He said the boy had been severely punished and later was transferred to another institution where he died despite careful and complete medical attention. This boy had been put for 30 days on restricted diet, and the medical evidence later used the word anaemia. Mr CHUTER EDE said the inquiry into this case had been conducted by Judge Eastham, a lawyer who held medical degrees. Mr Ede confessed that he was concerned at the infliction of severe dietary punishment on growing boys and girls and intended to have a careful investigation into it, although there must be effective means of maintaining discipline.

Medical News

If the Government's Bill for a National Health Service has been published by Friday, March 22, a meeting of practitioners resident in Wandsworth, Kingston, Richmond, Croydon, Reigate, and Guildford Divisions will be held in Wimbledon Town Hall at 2.30 p.m. on Sunday, March 24. This meeting, which will be open to members and non-members of the Association, will be addressed by Dr Charles Hill, the Secretary of the Association. The subject will be 'The Profession and the Bill'. Dr Hill will also speak at professional meetings in Bristol on March 27, in Lambeth Town Hall on March 28, at Stoke-on-Trent on March 29, Manchester on March 30, Liverpool on March 31, St Albans on April 2, B.M.A. House, London, on April 4, in Edinburgh on April 6, in Glasgow on April 7. He will address public meetings in Bristol on March 27, in Stoke-on-Trent on March 29, in Bournemouth on April 10, in London on April 11, in Tunbridge Wells on April 16, in Norwich on April 17. These meetings will be the subject of local announcements giving fuller details.

A meeting of the Scottish Group of the Association of Industrial Medical Officers will be held in the Institute of Hygiene, University of Glasgow, on Wednesday, March 27, at 3 p.m. when Dr Myles of I.C.I. will read a paper on "Dust Counting". Medical practitioners and all others interested are invited to attend.

Sir Jack Drummond, Scientific Adviser to the Ministry of Food, will read a paper on famine conditions and malnutrition in Europe at the Royal Society of Arts, John Adam Street, Adelphi, London, W.C.2, on Wednesday, March 27, at 5.30 p.m. Sir Ben Smith, the Minister of Food, will preside.

The 66th annual meeting of the Mental After Care Association will be held in the rooms of the Royal Society at Burlington House, Piccadilly, W., on Wednesday, March 27, at 2.45 p.m., under the presidency of H.R.H. Princess Arthur of Connaught. The speakers include Dr J. Bram, of the Polish Medical Services; Dr Duncan Whitaker, and Dr Henry Yellowlees, chairman of the association. All interested are invited to attend.

A sessional meeting of the Royal Sanitary Institute will be held at Bedford Town Hall on Thursday, March 28, at 10.30 a.m., when a paper on "Epidemic Disease: Past, Present, and Future" will be read by Dr G. K. Bowles.

A meeting of the Clinical Society of the Royal Eye Hospital will be held at the hospital (St George's Circus, Southwark, S.E.) on Thursday, March 28, at 5.30 p.m., when a talk will be given by Dr W. W. Mushin on "Anaesthesia for Ophthalmic Operations". Cases and tea at 5 p.m.

A meeting of the Medical Legal Society will be held at 26, Portland Place, W., on Thursday, March 28, at 8.15 p.m., when a paper will be read by Dr A. Lisle-Punch on "Tuberculosis and the Law".

An appeal will be broadcast in the Week's Good Cause, 8.25 to 8.30 p.m. on March 31 by Mr Basil Henriques, on behalf of St Mary's, Birchington, the Home of Recovery for Diabetics. Contributions should be addressed to Mr Henriques, the Diabetic Association, 9, Manchester Square, W.1.

Prof. Noah Morris, M.D., F.R.S., of the chair of materia medica and therapeutics in the University of Glasgow, has been appointed a member of the Inter-University Council for Higher Education in the Colonies.

Sir Edward Mellanby, M.D., F.R.S., secretary of the Medical Research Council, will give an address on "Medical Research in War and Peace" before the Royal Institution, 21, Albemarle Street, W., on Friday, April 5, at 5 p.m.

Dr C. H. Rogerson, for the past nine years medical superintendent of the Cassel Hospital, has accepted an invitation to go to Baltimore to become clinical director of the new Seton Psychiatric Institute. This is to be run somewhat on the lines of a general hospital with a visiting staff of psychiatric consultants and is also to be a post-graduate training school.

The British Association of Physical Medicine has now been admitted to the Joint Secretariat for Specialist Associations, established by the Royal College of Surgeons, and all correspondence should be addressed to 45, Lincoln's Inn Fields, London, W.C.2. (Telephone: Chancery 6965.)

The Emergency Public Health Laboratory in Oxford has moved to a new building in the grounds of the Radcliffe Infirmary. Communications should be addressed to the Director (Dr R. Knox), Public Health Laboratory, Walton Street, Oxford. Telephone numbers remain as before—Oxford 47884/5.

The Minister of Health states that he is informed by the Ministry of Food that there is no longer any need to restrict supplies of ascorbic acid to hospitals. Circular 73/44 of June 28, 1944, is therefore withdrawn.

An Order (S.R. & O. 1946, No. 250, H.M. Stationery Office, 2d) issued by the Ministry of Education repeals the Mental Deficiency (Notification of Children) Regulations, 1928(c), and prescribes the records and information which should accompany every report made by a local education authority concerning a child examined for disability of mind. The first schedule to the Order contains the form of report required from the medical officer.

A large number of medical officers have reappeared in Belfast Medical School on demobilization. The Dean of the Medical Faculty of the University is chairman of a committee which is endeavouring to deal with the many requests for resident and post-graduate appointments. The opportunity of giving postgraduate instruction has not been neglected, and an intensive course is in operation at the teaching hospitals and the Institute of Pathology. Clinical demonstrations and special lectures appear in the programme for each day of the week.

Papers on the planning and equipment of special libraries given at the 1945 conference of the Association of Special Libraries and Information Bureaux roused so much interest that Aslib has been asked to give a further opportunity for the discussion of these problems. By consent of the Royal Institute of British Architects a one-day conference will be held at 66, Portland Place, London, W., on Saturday, April 6. The planning and equipment of university and college libraries will form the main subject of the morning session; the afternoon will be devoted to similar problems with special reference to research organizations and industrial concerns. An inclusive fee covering both sessions of the conference, mimeographed copies of the papers to be presented (which will be circulated before the meeting), and a buffet lunch and tea at the R.I.B.A. will be 10s. to members of Aslib and of the R.I.B.A. and £1 to non-members. Applications should be sent to the general secretary, Aslib, 52, Bloomsbury Street, W.C.1, as soon as possible.

Prof. G. H. Monrad Krohn, Norway's foremost neurologist, is leader of the Norwegian medical and scientific delegation which has come to England (at the invitation of the British Council) to study advances in medicine and allied sciences made during the years of German occupation of their country. Thirty-three years ago Prof. Monrad Krohn was resident medical officer at the Maida Vale Hospital for Nervous Diseases, and on March 12 he was the guest of honour at a reunion luncheon given by Viscount Davidson, now president of the hospital. He spoke affectionately of his old association with the Maida Vale Hospital, and said that one of his most abiding recollections was that, always the home of research, the hospital made a point of a prompt application of results of research to treatment. Among members of the staff sharing the reunion were Dr Wilfred Harris, Dr Anthony Feilding, Dr W. Russell Brain, Mr Dickson Wright, Mr Wylie McKissock, Dr James Bull, Dr E. A. Blake Pritchard, Dr Redvers Ironside, and Dr S. P. Meadows.

Dr John Orr, who, when he retired twelve months ago, had been Dean of the School of Medicine of the Edinburgh Royal Colleges for 21 years, has lately received gifts from students and lecturers of the school in recognition of his deanship. The presentation was made in the Hall of the Royal College of Surgeons in the presence of a large gathering. Mr W. J. Stuart, chairman of the Governing Board, speaking on behalf of the older members of the medical school, said that Dr Orr began to teach there in 1913 and became dean in 1924, an almost whole-time job and one without any financial inducement. He managed the school with the most conspicuous success and had been a guide, guardian, servant, and benefactor. Mr D. S. Griffith, president of the Students' Representative Council, spoke on behalf of the students. Dr Orr, in his speech of thanks, said he wished the balance of the amount collected to be devoted to an annual prize for the students, and Sir John Fraser, Principal of the University, in accepting custody of the money for the Orr Prize, described Dr John Orr as one to whom the Medical School of Edinburgh owed a very great debt.

No. 9

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 2.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included) (b) London (administrative county) (c) Scotland. (d) Eire (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland

* A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	70	12	28	1	3	77	5	33	8	1
Deaths ..		2	1				2			
Diphtheria ..	501	34	116	71	11	470	21	141	112	7
Deaths ..	9	—	—	1	—	10	1	1	4	—
Dysentery ..	323	24	75	6	—	399	69	165	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Enteritis, febrile, acute ..	3	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Erysipelas ..	—	—	44	13	3	—	—	51	10	3
Deaths ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years ..	57	10	10	8	4	58	10	13	16	4
Deaths ..	—	—	—	—	—	—	—	—	—	—
Measles* ..	1,583	372	292	60	1	22,480	986	433	25	87
Deaths ..	2	1	4	2	—	18	—	1	—	—
Ophthalmia neonatorum ..	59	1	17	—	—	67	5	19	1	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever ..	23	—	1(B)	—	1(B)	3	—	2(B)	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal ..	860	59	31	37	3	905	48	15	14	3
Deaths (from influenza)†	123	14	12	3	1	39	6	4	—	1
Pneumonia, primary ..	—	—	307	39	—	—	—	254	21	—
Deaths ..	—	46	16	15	—	—	48	—	6	10
Polio-encephalitis, acute ..	1	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Polio-myelitis, acute ..	7	—	1	1	—	4	—	—	—	1
Deaths ..	—	—	—	—	—	—	—	—	—	—
Puerperal fever ..	—	—	10	—	—	—	—	16	—	1
Deaths ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡	126	4	12	3	—	124	10	13	1	2
Deaths ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever ..	1,232	86	176	22	29	1,461	53	199	23	35
Deaths ..	2	—	—	—	—	2	—	—	—	—
Whooping-cough ..	85	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough ..	8	—	2	8	—	13	1	1	16	1
Deaths ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* ..	1,605	142	69	38	11	1,462	66	163	79	6
Deaths (0-1 year)	13	—	—	2	1	10	—	1	2	—
Infant mortality rate (per 1,000 live births)	398	45	73	42	29	413	49	64	33	26
Deaths (excluding stillbirths)	5,556	886	685	247	157	4,959	701	611	230	156
Annual death rate (per 1,000 persons living)	—	—	15	15	8	—	—	13	14	8
Live births ..	7,487	1,032	945	396	273	7,008	765	820	332	267
Annual rate per 1,000 persons living	—	—	19	25	4	—	—	16	21	4
Stillbirths ..	216	32	30	—	—	213	28	33	—	—
Rate per 1,000 total births (including stillborn) ..	—	—	31	—	—	—	—	39	—	—

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ 5 imported cases.

EPIDEMIOLOGICAL NOTES

Maternal Mortality

Recent returns have shown that maternal mortality, for the country generally, has reached the lowest level yet recorded. The national standard of nutrition has been cited as the principal reason for this fall. In view of the publicity this death rate has received, an examination of the individual causes of death under this heading may be helpful in attempting to establish the reason for the decrease. The death rates per 1,000 total births (live and stillbirths) during the past ten years are tabulated below:

Cause of Death Ascribed to Pregnancy and Childbearing (Excluding Abortion): 1940 Classification

International List No	Cause of Death	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
142	Ectopic gestation	0.13	0.11	0.12	0.12	0.10	0.12	0.10	0.12	0.08	0.06
143	Haemorrhage of pregnancy	0.09	0.08	0.07	0.07	0.05	0.05	0.06	0.03	0.03	0.02
144	Toxaemia of pregnancy	0.20	0.23	0.24	0.21	0.27	0.21	0.22	0.17	0.14	0.10
145	Other accidents and diseases of pregnancy	0.05	0.06	0.06	0.05	0.04	0.02	0.03	0.02	0.04	0.04
146	Haemorrhage of childbirth, etc.	0.38	0.40	0.41	0.42	0.41	0.32	0.38	0.31	0.27	0.27
147	Infection during childbirth and the puerperium	1.34	1.18	0.79	0.70	0.62	0.54	0.47	0.42	0.39	0.28
148	Puerperal toxæmia	0.58	0.58	0.57	0.52	0.47	0.42	0.41	0.43	0.39	0.33
149	Other accidents of childbirth	0.55	0.46	0.46	0.56	0.54	0.46	0.50	0.47	0.48	0.40
150	Other conditions of childbirth	0.09	0.09	0.08	0.06	0.05	0.03	0.04	0.03	0.03	0.03
142-150	Maternal causes	3.41	3.19	2.79	2.70	2.55	2.18	2.22	2.01	1.84	1.53

With the exception of 1941 the death rate has declined steadily during the past ten years. The most notable feature of the table is the large reduction in mortality from sepsis; this rate fell by 1.06 per 1,000 during the ten years and contributed 56% of the total decrease of 1.88. The only cause of death for which the improvement has appeared in the last few years is toxæmia of pregnancy, which has declined from 0.22 in 1941 to 0.10 in 1944. A factor that may affect any comparison of recent years with the pre-war years is the difference in average age at confinement. Data are not yet available on this point, but the marriage boom during the war resulted in a lower average age at marriage and possibly a lower age at first confinement.

Discussion of Table

The decreased incidence of pneumonia was general throughout the country, the largest fall being Durham 42. The decline in scarlet fever was mainly confined to Lancashire 40 and London 30. The local trend of the largest falls were Lancashire 73, and Yorkshire West Riding 43, and the greatest increase was Essex 42. The largest variations in the returns of diphtheria were decreases in Lancashire 14, and Monmouthshire 10. A fall in the notifications of measles was recorded in Lancashire 64, and in Norfolk 52, and an increase in Durham 48.

All the 23 cases of paratyphoid fever occurred in the village of Wootton, Newport M.B., Isle of Wight. The outbreak has been traced to infected milk, and the majority of the cases were among children. Dysentery continues to be widespread, and the principal returns were Lancashire 38, Leicestershire 32, Northumberland 27, Worcestershire 26, Warwickshire 25, London 24, Staffordshire 18, Gloucestershire 17, Surrey 14, Glamorganshire 13, Northamptonshire 12, Yorkshire West Riding 11, Cambridgeshire 10. No further case of dysentery has been reported from the outbreak in Hertfordshire, Bushey U.D., where 74 cases were recorded last week.

In Scotland infectious diseases were less prevalent. The only rises were scarlet fever 14, and dysentery 13. A diminished incidence was recorded for measles 101, whooping-cough 29, acute primary pneumonia 26, and diphtheria 20.

In Eire the notifications of diphtheria increased by 20, and of diarrhoea and enteritis by 11. In Dublin C.B., where the notifications have steadily increased during the past two weeks, 42 cases of diarrhoea and enteritis were recorded.

Week Ending March 9

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,137, whooping-cough 1,843, diphtheria 477, measles 1,672, acute pneumonia 849, cerebrospinal fever 45, dysentery 295, paratyphoid 16, typhoid 5. There were 112 deaths from influenza in the large towns.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Atiology* Western, London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Premature Ejaculation

Q.—I have heard of "local electrical treatment" for premature ejaculation. Can you give details of this or any other treatment?

A.—Premature ejaculation is often considered to show an excessive "keenness" on the part of the man. This is not the case. Premature ejaculation is due not so much to an excess of sexuality as to an inhibition against it. It is of the same nature as impotence—a means of avoiding intercourse. This may be due to some present-day cause, such as fear of getting a baby, but most commonly it arises from more deep-seated conditions—an unconscious fear of sex (though not a conscious one); a sense of guilt about sex which will not permit complete intercourse; an unconscious resentment against the female; or a narcissism, which seeks the pleasure without sharing it. The proper treatment is to discover and eradicate the cause, which can usually be done by an expert medical psychologist. In young married people the condition usually rights itself as confidence is gained. It is therefore important that the partners should try not to worry about it.

I have no experience of electrical treatment, but would suspect that, if it is successful, it is so on account of its suggestive effect. In fact this condition used often to be cured by suggestion treatment, which, though now little practised, may be permanent in its effects, in that, once a satisfactory result has taken place, everything goes well thereafter.

Thrombophlebitis Migrans

Q.—A male aged 40 has been having pain in his calf for four months. Two months ago he had severe pleuritic pain with slight haemoptysis. One month ago he had a thrombosis of the right femoral vein with oedema of the leg. During attacks his temperature is 100° F.; E.S.R. 20 mm. (Westergren). Sputum, x-ray, blood examination, W.R., etc., negative. Is the diagnosis thrombophlebitis migrans? What are the prognosis and the treatment?

A.—The sequence of events in this case is diagnostic of thrombophlebitis migrans. Even if the pulmonary episode is regarded as an embolic consequence of an earlier thrombophlebitis of the leg, there is still the ensuing right femoral thrombophlebitis to be taken into account. Fever and leucocytosis with increased E.S.R. are characteristic of this disease, and the negative results of the investigations mentioned are consistent with the diagnosis.

In general there is no obvious infective cause, but in some cases there are found foci of sepsis from which bacteraemia could arise. Blood cultures are negative. The ultimate prognosis is good, although occasionally venous thrombosis in the vessels of the brain, heart, or abdomen causes serious and sometimes problematic illnesses. The successive thromboses occur at intervals over a period ranging from two or three months to four or five years. At any time the illness may come to an end, no further phlebitis developing.

In the first place treatment is directed to the removal of any obvious cause such as dental sepsis. Symptomatic measures have to be adopted during the "thrombotic episodes." An augmented fluid intake and the administration of citrates should help to prevent further thromboses. The anticoagulant "dicoumarol" has

been used in the treatment of thrombophlebitis; in doses of 100 mg. thrice daily by mouth it is claimed to reduce the pain and oedema of the affected part. This drug is still under trial, and its use must be controlled by daily estimations of plasma prothrombin.

Incidence of Anaemia

Q.—Anaemia is now prevalent in this and other countries. When I was a student, at the beginning of the century, students' blood taken and examined for instructional purposes in the physiological laboratory never, for practical purposes, revealed anaemia. Would you agree that there was no generalized tendency to anaemia during the first half-dozen years of this century, but that from then on there was?

A.—There is no evidence that anaemia is more common in students to-day than formerly. The figures given for male students in the M.R.C. Special Report No. 252 on haemoglobin levels in 1943 are eminently satisfactory, as are those for women students in the Provinces (Higgins *et al.*, *Brit. J. Industr. Med.*, 1945, 2, 74). Figures for women students in the London area are less satisfactory, and there may have been some deterioration in them as a result of the dislocation of war and inadequate taking up of rations. For the population of the country as a whole there are few past figures to compare with modern surveys, but such as are available indicate that anaemia is actually less prevalent than it was. Perhaps the most convincing evidence of this is the decline in chlorosis. As shown by J. M. H. Campbell (*Gay's Hosp. Rep.*, 1923, 73, 247), there was a steady decline in the number of cases of chlorosis from 1903 to 1918. Campbell attributed this to improved conditions of factory life and domestic service, and there is no doubt that by and large this improvement has continued and, indeed, has been accelerated by the second great war.

Rh Factor and Mongolism

Q.—A young officer recently consulted me because his wife had given birth to a mongolian idiot, which had died after five days. They have one normal child aged 3. A doctor said that the child had died "because of the Rh factor." What is the Rh factor, expressed in words a layman would understand, and is there any connexion between this factor and mongolian idiocy?

A.—There is no connexion between the Rh factor and mongolism; the appearance of erythroblastosis in a mongol baby would be fortuitous. It seems strange, however, that a diagnosis of mongolism could have been made as early as the fifth day of life. Might not the condition have been kernicterus, discussed in a leading article in this *Journal* (Aug. 11, 1945, p. 188), in which the brain is damaged by the jaundice?

The "Rh factor" is now known to depend upon a complex of antigens borne in the red cells. Antibodies capable of agglutinating red cells carrying the corresponding antigens do not occur naturally; but they may develop in one of two ways in the serum of individuals not carrying those particular antigens: (1) by the transfusion of red cells containing an antigen into the circulation of a person lacking it; or (2) the antigen from a foetus may pass into the mother's circulation, and if she lacks it she may develop the corresponding antibody. This in turn passes back and agglutinates the foetal cells, so giving rise to erythroblastosis foetalis.

It has been found that one particular antigen belonging to the Rh complex, called "D" in the newest and simplest terminology, is much more important from the practical point of view than the rest. The great majority of cases of erythroblastosis arise in infants who possess D, having inherited it from their fathers, but whose mothers lack it. Anti-D develops in the mother's serum and agglutinates the infant's red cells. For practical purposes the presence or absence of D can be equated to the Rh-positive and Rh-negative categories of the original Rh story. In 10% of all pregnancies there is the combination of an Rh-negative mother and an Rh-positive child—i.e., the former lacks and the latter has the antigen D. In perhaps 5% of such instances anti-D develops in the mother's serum, giving rise to erythroblastosis foetalis. This will rarely, if ever, happen with a first child, unless the mother has previously been sensitized by blood transfusion. Apart from transfusion, the danger arises with the second or a subsequent child. Once the mother has been sensitized the risk in subsequent pregnancies is very great.

It must be noted, however, that an Rh-positive husband may carry the gene producing D upon both chromosomes of the pair concerned or upon one only. If upon both all children will carry D; if upon only one chromosome half his children will carry it. A child who does not carry D cannot, of course, have its cells agglutinated, even if the mother has developed anti-D, and so will escape.

If the death in the family mentioned in the question was due to erythroblastosis foetalis, it will be found that the mother lacks D, while the father and the first child possess it. The mother was, of course, sensitized during the first pregnancy, and anti-D may be demonstrable in her serum.

It is possible to distinguish (with little exception) whether the father carries the double or the single dose of D. If the double dose, the risks attaching to another pregnancy are great, and preparation should be made for transfusion with Rh-negative blood immediately after birth. If the father possesses the single dose of D only, the next child has a 50% chance of escaping altogether; and it may prove possible to determine which gene the child has inherited by checking the anti-D titre of the mother's blood at intervals during the pregnancy.

As the couple are young and may well wish to have more children, it would be a good plan to carry out the investigations mentioned, together with any others necessary should the story prove more complicated than is usual.

Pseudo-hypertrophic Muscular Dystrophy

Q.—Is there any cure or beneficial treatment for pseudo-hypertrophic muscular atrophy?

A.—The only substance known to influence pseudo-hypertrophic muscular dystrophy is glycine, which needs to be given in doses of 25 to 30 g. a day for an adult. But in some cases the discontinuance of glycine results in rapid deterioration. C. N. Armstrong (*Newcastle med. J.*, 1938, 18, 143) advises that glycine should be given only to females, and then only when the disease is rapidly progressive and the continuance of the treatment can be assured. Vitamin E, which has also been recommended, appears to be of no value.

Virilism and Schizophrenia

Q.—A woman of 29 with schizophrenia has marked virilism. Is insulin treatment of the schizophrenia contraindicated by the adrenal condition?

A.—No. Some degree of virilism in the female schizophrenic patient—e.g., increased hairiness—is normal to the psychosis. There is no satisfactory evidence that attempts at influencing adrenal output have any beneficial effect. The condition does not diminish the safety of insulin coma, or contraindicate its use.

Sunflower Seeds

Q.—Where I practise there is a widespread belief that sunflower seeds have a powerful therapeutic effect. The husk is removed, and fifty or sixty seeds make an effective dose. Lassitude is banished and a feeling of well-being follows. I have myself experienced the sensation after taking the seeds. They are also given to children to abort colds, and are said to be effective in three or four hours. Has *Helianthus* any place at all in the botanical pharmacopoeia?

A.—Sunflower seeds are certainly edible, and resemble the hazel-nut in taste. In Hungary, where the flowers are grown extensively to mark boundaries between gardens and fields, the seeds are used for feeding pigs and chickens. It is also considered a wholesome practice for children to pick and eat the seeds. Undoubtedly, if the seeds were larger and the husks could be more easily removed they would come into more general favour for human consumption. We have, however, been unable to trace any previous record indicating that the sunflower possesses special therapeutic properties. The prescribed dose of 60 seeds, moreover, failed in our experience to elicit any noticeable response, good or bad, in a single male adult volunteer of 10 st. (63.5 kg.) body weight. It must not be forgotten that characteristic physiological and psychological effects may be produced by the use of other common seeds, notably those of the poppy and hemp. There is nothing inherently improbable, therefore, in the claim that the ingestion of sunflower seeds should lead to a feeling of well-being and

to increased resistance to infection, although it would be surprising if any important therapeutic action should have escaped detection and general recognition for so long. The possibility that the seeds may have a beneficial action through the presence of some vitamin or other trace nutrient must be borne in mind, but this seems rather improbable in view of the very small dose of seeds which is prescribed, and the promptness of the alleged response.

Penicillin in Beeswax and Peanut Oil

Q.—Twice recently in "Any Questions?" I have seen references to penicillin in beeswax and peanut oil. What are the formula, mode of sterilization, and dosage?

A.—This method of administering penicillin, originally devised by Romansky and Rittman (for whose latest publication on the subject see *New Engl. J. Med.*, 1945, 233, 577), has undergone various improvements. The preparation now in vogue in the U.S.A. consists of peanut oil containing 4.8% beeswax, in which calcium penicillin is suspended to give a concentration of 300,000 units per ml. To achieve this concentration and the better results which it is said to give, penicillin of a high degree of purity is required (about 1,000 units per mg.). The purity and the anhydrous quality of the peanut oil are also important, and mechanical means are now employed for suspending the penicillin in it. This is therefore not a material the preparation of which can be lightly undertaken; it is a job for the factory rather than the pharmacist.

The only advantage of this method of administration is that fewer injections are required—in the treatment of gonorrhoea only one. On the other hand it is wasteful, the dose given being considerably larger than that required to secure the same effect by a series of injections of an ordinary solution. It is doubtful whether the penicillin supply position in this country justifies its extended use for the mere sake of convenience in treating ambulatory patients; but its employment in order to give severely ill patients an uninterrupted night's sleep is another matter.

Interstitial Mastitis

Q.—A single woman aged 46 had a subtotal hysterectomy two years ago. For two months she has complained of aching in the left breast; there is an area of typical interstitial mastitis involving the upper outer quadrant. What is the treatment?

A.—It is probable that the best "treatment" in this case would be masterly inactivity. At the age of 46 the patient is menopausal, although this is obscured by the previous hysterectomy. After the menopause such a condition is likely to be less troublesome so far as pain goes, though the physical change in the breast remains unaltered. In the writer's experience the pain is not severe in itself, but the psychological state of the patient, who is inclined to worry unduly about the condition and may even have a cancerphobia, exaggerates the intensity of the symptoms. Reassurance is an important part of the treatment, but if the pain is sufficiently severe to warrant treatment, then a mild irradiation with x rays or with low-intensity gamma rays from radium or mesothorium pads is usually successful. Synthetic oestrogens are sometimes used nowadays, but irradiation is probably more certain. Needless to say, such a case will be kept under periodic observation in view of the possibility of malignant change.

Pleural Effusion and Artificial Pneumothorax

Q.—Why do cases of pulmonary tuberculosis with an A.P. develop pleural effusions? Why is the effusion which accompanies an A.P. so persistent, while the effusion in a tuberculous patient who does not have an A.P. clears in two or three months?

A.—Pleural effusion developing in a tuberculous patient is due to an allergic reaction of the pleura to tubercle bacilli discharged into it from a subpleural focus. The severity of the pleural reaction depends upon the degree of hypersensitivity of the patient and the size of the infecting dose. Effusions are more common in tuberculous patients with a pneumothorax, presumably because in such a case the subpleural focus can rupture into a free pleural space, whereas if the pleural layers are in contact surface inflammation may cause the focus to become adherent before it reaches the stage of rupture. An

effusion in a pneumothorax does not, as a rule, take longer to resolve than an effusion in a comparable patient without a pneumothorax

Phenol in Oil

Q.—Almond oil the usual excipient for 5% phenol when used for injecting piles is in short supply. Can one substitute (a) oil of crocus or (b) liquid paraffin?

A.—Liquid paraffin is unsuitable, as mineral oils are sometimes not absorbed by the leucocytes and a granulomatous paraffinoma tumour may form. Oleum arachidis is used, but sometimes it produces systemic upsets—giddiness, pyrexia, etc. It will quickly be displaced by almond oil when this becomes available again.

Treatment of Malarial Recurrences

Q.—What is the best method of treating recurrences of (a) M.T. and (b) B.T. malaria?

A.—Clinical manifestations of malaria can be controlled within a few days by either quinine or mepacrine. Relapses of benign tertian malaria may occur after either drug, but mepacrine will, if continued for two to three weeks after the acute attack has been suppressed, completely eradicate malignant tertian infection. Relapses of benign tertian malaria may be prevented by paludrine, but the drug is not ordinarily available. Pamaquin, although not influencing the relapse rate of malignant tertian infection, appears to reduce that of benign tertian malaria. As the blood level of mepacrine is built up but slowly it is advisable with this drug to use initial "loading" doses. With these facts in mind the following practical scheme may be laid down:

Malignant Tertian Malaria.—Mepacrine 0.3 g. after food thrice on the first day, 0.2 g. after food thrice on the second day and 0.1 g. after food thrice daily for a further five days, this course should suppress the acute attack. To eradicate the infection the drug should be continued without interruption for a further three weeks in a daily dose of 0.1 g.

Benign Tertian Malaria.—Mepacrine for one week, in the dosage indicated above for the first week's treatment of malignant tertian infections—or quinine gr 10 (0.65 g.) thrice daily for a week—with, in addition, pamaquin 0.01 g. thrice daily after food. Some prefer to give the pamaquin after the course of mepacrine is finished, lest these two drugs together prove too toxic, but they can usually be given simultaneously. There seems little to be gained by prolonged treatment of benign tertian infections, and reliance must be placed on treating each relapse as it appears. Any concomitant disease or infection should be dealt with, and the patient's general health and nutrition should be maintained at the highest level.

If, particularly in malignant tertian infections, there is any fear that the patient may not be absorbing the drugs given by mouth—if he is gravely ill, has persistent vomiting, severe headache, delirium, or any sign suggesting cerebral involvement—it is essential that the infection be controlled with the utmost rapidity. In such cases treatment should be initiated by parenteral administration of quinine dihydrochloride 5 to 10 gr (0.32 to 0.65 g.) or mepacrine methanesulphonate 0.3 g. Usually one or two injections suffice to control the condition that made parenteral therapy necessary, after which the treatment may be continued by mouth, as already indicated.

INCOME TAX

Local Medical Society

"LAMBDA" explains that a considerable sum of money has been left to a local medical society, and asks whether, having regard to the objects of the society as set out in its printed rules and to the fact that "any surplus income" is given to medical charities, the income which the society will derive from the bequest will be liable to income tax.

* In order to claim exemption it must be shown that the interest forms part of the income of "a body of persons or trust established for charitable purposes only" and that the income has been so applied (Income Tax Act, 1918, Sec. 37). A perusal of the society's rules suggests that the main purpose of the society is the promotion of the interests of a group of individuals rather than the advancement of those public interests which might bring the purposes within the definition of a "charity." This is, however, a subject on which it is dangerous to be dogmatic, and "Lambda"

may be well advised to put his case to the Chief Inspector of Taxes, Marine Hotel, Llandudno. (Presumably a specific "trust" has been created by the deceased's will, the point in doubt being whether the purposes of that trust are "charitable.")

Liability after Demobilization

J P has been demobilized and will receive Army pay to April 24. He proposes to enter a partnership after a preliminary assistantship of three months. How will his liability to tax be dealt with?

* During his assistantship J P will come under the "pay as you earn" system and tax will be deductible from the payments due from his employers. For the period during which he is a partner the liability will fall under Schedule D—i.e., he will be liable to account to the other partners for his share of the tax payable by the firm in January and July, 1947. If, as is assumed to be the case, a car is necessary for the performance of his duties as an assistant and is being purchased before April 5, 1946, J P can claim to deduct from his civil earnings in 1945-6 20% of the cost as an "initial allowance" in addition to the percentage allowance for wear and tear for the period from the date of purchase to April 5, 1946. A visit to the office of the local inspector of taxes seems advisable in the somewhat complicated circumstances.

Employment after Demobilization

J B is a salaried assistant and inquires how the authorities arrive at the figures on which he is being taxed.

* The amount of tax payable is determined by two factors: (a) what allowances and reliefs the taxpayer is entitled to claim, and (b) the amount of the income. As regards the former no doubt J B has made the necessary claims while in the Army, and the local taxing authorities may have been informed of any allowances due from civil earnings, as regards (b) tax is deductible from the earnings of employment by the employer, who, of course, knows the amount payable. After the end of the financial year the employer sends to the tax office particulars of the pay and tax deducted, and that office can then make an assessment for the past year. The address of the tax office can be ascertained from the employer, and, as J B suggests a discussion with the income tax employer's officer there will no doubt be helpful.

Cost of Further Medical Studies

T W has recently been released from the Forces and is engaged on revision and extension of his medical studies with a view to "getting a higher degree and to earning more money." Are the expenses so incurred, including travelling to and from his residence, allowable?

* It is not clear what are the taxable earnings from which T W seeks to deduct these expenses, but in so far as they are incurred to improve his professional knowledge and skill the expenses represent an outlay of capital and cannot be allowed for income tax purposes. Normal current subscriptions would be allowable if set against general earnings assessable under Schedule D, if, however, T W's earnings arise from a definite employment and are therefore assessable under Schedule E they would be allowable only if the employer requires him to be a member of the society or association in question.

Residence in Hospital

W P is medical superintendent of a hospital. His quarters are rent free. The net rental value is assessed at £30 and W P is charged tax thereon. Is this correct?

* We presume that the net rental value is at least £30. The legal position is that the Schedule A assessment on the hospital is exempted from tax, but subject to the retention as liable to tax of the value of any residential portion of the premises occupied by an individual having a total income of £160 or more. The tax on W P's quarters is therefore properly due—whether it should be borne by W P or the hospital authority is a matter to be settled by themselves.

Pensioner Living Abroad

"INNOMINATE" will shortly be in receipt of a pension, and intends then to live abroad. Will that affect the allowances he can claim, and will income arising abroad be liable to United Kingdom income tax?

* If he definitely ceases to be a British resident "Innominate," as a British subject residing abroad (whether within or outside the Empire), will be entitled to a proportion of the allowances in the ratio of his British (liable) income to his total income (liable and not liable). If, for instance, he begins to draw his pension as from, say, Oct. 1, 1946, and ceases to be a British resident before April 6, 1947, then for 1946-7 he will be liable on all his income and entitled to the full allowances, but for 1947-8 he will not be liable on income arising abroad but will be entitled to only a proportion of the allowances.

LETTERS, NOTES, ETC.

Treating Minors for V.D.

Dr. AIDAN REDMOND (London, S.W.10) writes: As a regular reader of "Any Questions?" I cannot allow to go unchallenged the heresy propounded in the answer to "Treating Minors for V.D." (Feb. 9, p. 226), that "defaulting nowadays is of less importance from the public health point of view than formerly, since even one injection of penicillin usually rapidly renders the patient non-contagious." This dogma of abortive cure leading to non-infectiousness by a single injection of penicillin reveals a tragic ignorance of the management of venereal diseases by modern or any methods, and such speculation savours more of wishful thinking than of any knowledge of the known and unknown factors of penicillin therapy in V.D. If venereal disease is treated on your assumption, in all probability we shall soon—if adequate treatment and follow-up are not demanded by the public health authorities—have a situation as uncontrolled as in the sulphonamide era. In any case the mere abolishing of infectiousness is a long way from solving the whole problem of venereal disease transmission, and the "persuasion and tact" you also suggest are as proven failures as the wartime outbursts of educational fervour by the Ministry of Health and Regulation 33B. Venereal disease is a disease of youth, so there will always be defaulters until a uniform policy—including compulsion, quarantine, and notification—for all cases is adopted and penicillin given in adequate therapeutic doses for the most controllable and treatable of all the infectious diseases.

Nicotinic Acid in Coronary Disease

Dr. A. HENRY GREGSON (Stamford) writes: With regard to the "contradictory reports" on nicotinic acid in coronary diseases (Feb. 9, p. 226) 300 mg. per diem orally with pot. iod. 10 gr. (0.65 g.) per diem and deep slow breathing using the accessory muscles of respiration will give a high proportion of relief, and even cure, of symptoms (I have seen 2-year "cures"—a lot for one practice). But once glycerin trinitrate has been used, one must increase the B₃ and reduce one's hopes in proportion to the length of time comfort has come before cure.

Home Remedies

Dr. DENIS F. MCCARTHY, medical officer of health, County Mayo, writes from Castlebar: It is with interest that I read of the various treatments given in "The Poor Man's Physician" in the *Journal* of Jan. 26 (p. 142). I was particularly interested in the "pap of the halse." About four years ago I had a married female patient who had extensive bilateral pulmonary tuberculosis with involvement of the larynx, with consequent hoarseness almost extending to aphonia (she had refused sanatorium treatment). One dispensary day her father attended and said that she was "not so well," and I said that I would visit her. To get to the house, which was in a very remote part of the county, one has to cross the sea-shore at low tide to reach a by-road, finally leaving this to drive for about a mile over a boulder-strewn beach. The woman was up and had her head swathed in cloths. Her mother informed me that because of her hoarseness they had called in Mr. — "the wise man." He had informed them that "the tit of her throat" had fallen down but that he would lift it, and that then she would be all right. An egg was boiled for ten minutes and was then bound on to the crown of her head, where it was to remain for ten days. If this had happened four days previously. On investigation I found the egg *in situ* on her head. They were all pathetically convinced that this treatment would be rapidly efficacious—a confidence which was not borne out by the event, as she died not long after. I have heard of and encountered several most peculiar home remedies—one especially being dangerous—but I had never previously met this particular one. Could it, I wonder, be suggested that this treatment throws an interesting sidelight on racial characteristics, the "canny Scot" using half an egg, and the less thrifty Irishman using a whole one?

Exercises to Prevent Chilblains

Dr. R. KENNETH McALL writes from Edinburgh: During 3½ years' internment in China I tried out on patients with chilblains of the fingers exercises I had learnt from Chinese artists, which they use to keep their fingers subtle. In camp not only did more than 100 find it preventive, but others who came with advanced swollen, cracked fingers found it curative. One extreme example was a man whose fingers were extremely swollen and whose wedding-ring was deeply embedded. I sent him off to get a file from the P.W.D., at the same time blaming him for not following the exercises that I had advertised on the public health notice board. Thirty-six hours later he returned with no chilblains; he had cured himself with intensive exercise. It is just this. Take two small round objects, or, more simply, two walnuts and play with them in one hand, working out such games as never letting them bump, or working them around each finger in turn without the assistance of the other hand. Whenever we were walking we played with them in the pocket, or at any idle moment or if writing played with them in

the left hand. It was a common sound to hear the rattle of these nuts in the camp. Our rooms were sometimes below freezing; there was no heating, food was very low, and clothing a difficulty.

Coccygodynia or Proctalgia?

Dr. S. LEWIN (Birmingham) writes: Twelve years ago a male patient, 38 years old, was seen by me with symptoms identical with those described by Dr. T. Astley Cooper (Feb. 2, p. 192). Rectal examination showed piles of the first degree. The symptoms persisted and could be relieved only by 1/8 gr. (8 mg.) morphine suppository on retiring. Ten months later a small anal fissure was found on the posterior margin. On surgical treatment for this condition the symptoms completely disappeared, and so far there has been no recurrence.

Suturing the Abdominal Wall

"G.P." writes: After performing a number of surgical and gynaecological operations for twenty-five years, and coming across only one instance of a ruptured wound (in a case of ruptured duodenal ulcer in which all sutures were removed by mistake after nine days!), I think that one of your recent correspondents (Jan. 12, p. 66) has been singularly unfortunate. I admire his frankness in admitting that in six months two hysterectomies, a perforation, a hemicolectomy, a choledochotomy, and a rectal prolapse all went wrong so far as the suturing of the abdominal wall was concerned. But does it not appear more likely that undue haste, if not a fault in the very simple technique of stitching, has something to do with it? The surgeon with a list of eight or ten operations, and an eye on the clock, acts not like an expert paperhanger but a billposter. Most surgeons in my experience are careful so far as they are operating on the viscera, but when it comes to stitching up the abdominal wall they either leave it to inexperienced assistants or do it themselves so hurriedly that when the time for removing sutures comes the tragic results are laid bare for all to see, and the cough and the anaesthetic get the blame.

Applying for a Hospital Post

Mr. W. R. WELPLY, F.R.C.S. (Southport), writes: I heartily endorse the remarks made by Mr. A. Wallis Kendall (Jan. 26, p. 154) about the numbers of copies of applications required by certain hospitals from candidates for the various posts advertised in your and other journals. I wish to stress that, at the present time, so many senior as well as junior hospital staff appointments are vacant that a very high percentage of those medical and surgical members of the profession who are working, or wish to work, in hospitals are now applying for the advertised vacancies. One cannot, therefore, chance applying for one or two posts only, but has perforce to apply for ten, twenty, or maybe thirty, as the selections for these vacancies are almost all being made in April, May, or June. If one relied on one or two separate applications only and failed to be selected one would have lost the opportunity of applying for all those others being appointed the same month. As so many require multiple copies of applications and also of testimonials, it becomes well-nigh impossible to submit typewritten applications, and the whole thing has to be printed. Printing takes time, and it becomes necessary to order enough copies in advance to cover all the posts for which one intends to apply for the next six months at least. Consequently anything from 250 to 500 copies of application and testimonials must be purchased, and as the more "elegant the production," as Mr. Wallis Kendall points out, is generally considered to favour a candidate, it becomes necessary to demand the highest class of paper and workmanship from the printer. Few can achieve this at less than £15 15s., which is equivalent to a whole month's salary (considering income tax) for many of those applying. Many a young man cannot afford this and his chances are jeopardized. Certain teaching schools, such as Liverpool, require one copy of application only; why, then, must some of the London teaching hospitals demand sixty? Probably merely because it has always been done before: but times have changed. The B.M.A. stepped in and advised hospitals to wait four months from the date of advertising to the date upon which applications closed, and partly through this the present position has arisen whereby a large number of posts have all been advertised together. Surely the B.M.A. should now step in once more to ease the burden of the younger "specialists" as well as easing the position due to the paper shortage by advising hospitals to ask for a reasonable number of copies of applications and testimonials—say, six rather than sixty. It is not yet too late to make this move.

University Election

Prof. H. E. ROAF (Liverpool) writes: Some time ago I promised to support the candidature of Mrs. Stocks for the Parliamentary vacancy caused by the death of Miss Eleanor Rathbone. When I received Mrs. Stocks's election address I was appalled to see her views on the proposed health service. I have written to Mrs. Stocks withdrawing my support, and I want to state publicly that I can no longer support her candidature because of her attitude to an unknown proposal.

BRITISH MEDICAL JOURNAL

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BRITISH MEDICAL ASSOCIATION AND THE NATIONAL HEALTH SERVICE BILL

We print below a copy of the Government White Paper, in which are described the provisions of the National Health Service Bill.

The White Paper is followed by a report submitted for the information of the profession by the Council of the British Medical Association.

This falls into two parts: A, a statement of the principles adopted by the Negotiating Committee with explanatory paragraphs; B, a report of the Council of the British Medical Association on the Bill to be submitted to a Special Representative Meeting to be held on May 1 and 2, 1946. All members of the profession, members and non-members of the Association alike, are urged to give this document the most careful study and to attend the meetings of the profession to be called in every area in the next few weeks.

NATIONAL HEALTH SERVICE BILL

SUMMARY OF THE PROPOSED NEW SERVICE*

[This White Paper contains a general description of the proposed health service. It is intended only as a factual summary, and, being only a general summary, cannot always be in precise terms.]

INTRODUCTORY

1. The Bill provides for the establishment of a comprehensive health service in England and Wales. A further Bill to provide for Scotland will be introduced later.

2. The Bill does not deal in detail with everything involved in the service. It deals with the main structure. Within that structure, further provision will be made by statutory regulations—on lines which the Bill lays down and subject always to the control of Parliament.

Scope of the Service

3. The Bill provides for the following kinds of health services:

(i) Hospital and specialist services—i.e., all forms of general and special hospital provision, including mental hospitals, together with sanatoria, maternity accommodation, treatment during convalescence, medical rehabilitation and other institutional treatment. These cover in-patient and out-patient services, the latter including clinics and dispensaries operated as part of any specialist service. The advice and services of specialists of all kinds are also to be made available, where necessary, at Health Centres and in the patient's home.

(ii) Health Centres and general practitioner services—i.e., general personal health care by doctors and dentists whom the patient chooses. These personal practitioner

services are to be available both from new publicly equipped Health Centres and also from the practitioners' own surgeries.

(iii) Various supplementary services—including midwifery, maternity and child welfare, health visiting, home nursing, a priority dental service for children and expectant and nursing mothers, domestic help where needed on health grounds, vaccination and immunization against infectious diseases, additional special care and after-care in cases of illness, ambulance services, blood transfusion and laboratory services. (Special school health services are already provided for in the Education Act of 1944.)

(iv) The provision of spectacles, dentures, and other appliances, together with drugs and medicines—at hospitals, Health Centres, clinics, pharmacists' shops, and elsewhere, as may be appropriate.

Availability of the Service

4. All the service, or any part of it, is to be available to everyone in England and Wales. The Bill imposes no limitations on availability—e.g., limitations based on financial means, age, sex, employment or vocation, area of residence, or insurance qualification.

5. The last is important. If the National Insurance Bill now before Parliament is passed into law, almost everyone will become compulsorily insurable, and after payment of the appropriate contributions will become entitled to the various cash benefits—including sickness and maternity benefits—for which that Bill provides. A proportion of their contributions will be used to help to finance the health services under the present Bill, but the various health service benefits under the present Bill are not made conditional

* London, H.M. Stationery Office, Cmd. 6761, 3d. net.

upon any insurance qualification or the proof of having paid contributions. There are no waiting or qualifying periods.

6. The service is to be available from a date to be declared by Order in Council under the Bill, and it is hoped that this will be at the beginning of the year 1948.

The Service to be Free of Fees or Charges

7. The health service is to be financed partly from the Exchequer, partly from local rates, partly from the help (mentioned above) which part of the National Insurance contributions will give. There are to be no fees or charges to the patient, with the following exceptions:

(i) There will be some charges (to be prescribed later by regulations) for the renewal or repair of spectacles, dentures, and other appliances, where this is made necessary through negligence in the care of the articles provided.

(ii) There will be charges (taking into account ability to pay) for the provision of domestic help under the Bill and for certain goods or articles (e.g., supplementary foods, blankets, etc.) which may be provided in connexion with maternity and child welfare or the special care or after-care of the sick.

(iii) It will be open to people if they wish, in certain cases, to pay for additional amenities within the arrangements of the service—e.g., to pay extra for articles or appliances of higher cost than those normally made available, or to pay charges for private rooms in hospitals (which they will nevertheless be able to obtain free where privacy is medically necessary).

General Organization of the Service

8. The Bill places a general duty upon the Minister of Health to promote a comprehensive health service for the improvement of the physical and mental health of the people of England and Wales, and for the prevention, diagnosis, and treatment of illness. To bring physical and mental health closer together in a single service, it transfers to the Minister the present administrative functions of the Board of Control in regard to mental health (the Board retaining only its quasi-judicial functions connected with the liberty of the subject).

9. The Bill proposes that the Minister shall discharge his general responsibility through three main channels:

(a) For parts of the service to be organized on a new national or regional basis—i.e., hospital and specialist services, blood transfusion, and bacteriological laboratories for the control of epidemics—the Minister is to assume direct responsibility; but he is to entrust the actual administration of the hospital and specialist services to new regional and local bodies established under the Bill. These bodies are to act on his behalf in suitable areas to be prescribed by him, and they are to include people of practical experience and local knowledge and some with professional qualifications. Special provision is made for hospitals which are the centres of medical and dental teaching.

(b) For parts of the service to be organized as a function of local government—i.e., the provision of new Health Centre premises and a variety of local domiciliary and clinic services—direct responsibility is put upon the major local authorities, the county and county borough councils. They will stand in their ordinary constitutional relationship with the central Ministry, but their general arrangements for these local services are made subject to the Minister's approval.

(c) For the personal practitioner services both in the Health Centres and outside—i.e., the family doctor and dentist and the pharmacist—new local executive machinery is created, in the form of local Executive Councils. One half of the members of each of these Councils will consist of people nominated by the major local authorities and by the Minister, and the other half of people nominated by the local professional practitioners concerned. There will normally be an Executive Council for each of the major local authorities' areas, and they will work within national regulations made by the Minister.

10. By the Minister's side, to provide him with professional and technical guidance, there is to be set up a Central Health Services Council. This will include people chosen from all the main fields of experience within the service—with various standing committees of experts on particular subjects, medical, dental, nursing, and others.

11. Each of these branches of the new organization is described in more detail in the rest of this paper.

HOSPITAL AND SPECIALIST SERVICE

12. This part of the service covers hospital and consultant services of all kinds, including general and special hospitals, maternity accommodation, tuberculosis sanatoria, infectious diseases units, provision for the chronic sick, mental hospitals and mental deficiency institutions, accommodation for convalescent treatment and medical rehabilitation, and all forms of specialized treatment—e.g., orthopaedics, cancer, neurosurgery, plastic surgery, paediatrics, gynaecology, ophthalmic services, ear-nose-and-throat treatment, and others.

13. It is made the Minister's general duty to provide these physical and mental hospital services, but he is to entrust their administration to Regional Hospital Boards, together with separate Boards of Governors for the teaching hospitals, in manner to be described later.

14. The existing premises and equipment of voluntary and public hospitals are transferred to the Minister under the Bill, and he is empowered also to acquire by purchase—if necessary—other hospitals and their equipment which may be required for the purposes of the new service. If in any particular case he is satisfied that the transfer of a hospital is not in fact necessary for the new service he can—with that institution's concurrence—except it from transfer. The general transfer of hospitals includes the present mental hospitals and mental deficiency institutions.

15. The endowments of voluntary teaching hospitals—defined in the Bill to mean, broadly, all their property other than buildings and their contents—will pass, not to the Minister, but directly to the new Boards of Governors, who are to be free to use them as they think best, but are required, so far as practicable, to see that the purposes for which they were previously usable are still observed.

16. The endowments of other voluntary hospitals are to pass to a new Hospital Endowment Fund which the Minister is to set up and administer in the following way. He is first to meet from the Fund, to such extent as may be settled by subsequent regulations, existing debts and liabilities attaching to the voluntary hospitals concerned. He is then to apportion the capital value of the Fund among the several Regional Hospital Boards and, as it were, to earmark to each a portion. The income of each portion will then pass automatically to each Board, and it will be free to use it as it wishes, within such general conditions as may be prescribed. Any Board will be able also at any time to draw on its portion of the capital for any purpose which the Minister approves.

17. The Boards—and the Boards of Governors of teaching hospitals—are fully able under the Bill to receive gifts or legacies, and to hold any property on trust, for any purposes connected with the hospital or health services.

18 The detailed arrangements affecting the new Hospital Endowment Fund, its apportionment and administration, are left to be settled by later statutory regulations

Hospital Administration

19 The Minister is to entrust the future administration of all the hospitals (other than teaching hospitals) to Regional Hospital Boards to be set up under the Bill for such hospital service regions of the country as he will prescribe—each region being such that its services can conveniently be associated with a university medical school. There will probably be between sixteen and twenty of these regions

20 Each Board will be composed of people chosen and appointed by the Minister for their individual suitability for the task, but before making the appointments the Minister is to consult any university with a medical school in the region, bodies representative of the medical profession, the local health authorities of the area, and others concerned, including initially, those with experience of the voluntary hospital system. The Boards are to include some members with experience of the mental health services

21 Each Board is required by the Bill to appoint, in accordance with a scheme approved by the Minister, local Hospital Management Committees, one for each large hospital or related group of hospitals forming a reasonably self-contained hospital service unit. Each of these Management Committees will contain members appointed after consulting the major local authorities in its area, the Executive Councils for the general practitioner services in its area, the senior medical and dental staff of the hospitals concerned, and others, including those with experience in voluntary hospitals

22 It is to be the duty of the Regional Boards within the scope of general regulations and such particular directions as the Minister may give, to undertake on his behalf the general administration of the hospital and specialist services in their regions. With the Minister, and in collaboration with the teaching hospitals, each Board will plan, and execute the plan for, a co-ordinated hospital and specialist service for its region

23 It is to be the duty of the Management Committees to carry out day-to-day management of the particular hospitals under their control—within such limits as are to be prescribed by the Minister. They are to be the local managing bodies on the spot, and they will, for example, appoint nursing and other general staff (appointing them as employees of the Regional Boards). They will be able, as required, to set up small house-committees for any individual hospitals within their care

24 It is the object that the Regional Boards, with their local Management Committees, shall enjoy a high degree of independence and autonomy within their own fields. Their use of existing voluntary hospital endowments has already been described. For the general financing of their hospital services, however, they will look to the Exchequer, and they will be given as much financial freedom—by a system of block annual budgets or otherwise—for local initiative and variety of enterprise as general principles of Exchequer responsibility make possible

Teaching Hospitals

25 Special arrangements are provided for teaching hospitals—that is, hospitals or groups of related hospitals which are designated by the Minister as providing the facilities for undergraduate or postgraduate clinical teaching. These will enable any hospital or group of hospitals to attain "teaching" status whether it is already a teaching hospital at the outset of the scheme or not

26 The general system of Regional Boards and Management Committees will not cover the teaching hospitals. The Minister is to constitute for each such hospital or group of hospitals its own separate Board of Governors, including members nominated by the university, the Regional Board for the area, and the senior staff of the hospital itself, and members appointed after consultation with the major local authorities and other organizations concerned including the previous governing bodies. The Board of Governors of a teaching hospital will be responsible generally for administering their hospital on the Minister's behalf

27. The financial arrangements in regard to exchequer their joint endowments of the teaching hospitals have been divided, described. For the general financing of their service, look to the Exchequer, and again the general object is to assure them all the financial freedom and autonomy of a unit which the general conception of a nationally reorganized and nationally financed service makes possible. In this case in addition it is intended to keep in the forefront of any arrangements the special position of these hospitals as the centres of clinical teaching and technical experiment and innovation

28 The fact that special administrative and financial arrangements may be made for teaching hospitals does not mean, however, that these hospitals are not to form an integral part of the hospital service as a whole. They will be joined with the Minister and the Regional Boards in the general planning and arrangement of the hospital services of each region, and the Regional Boards will be represented on their Boards of Governors

Medical and Dental Schools

29. Medical and dental schools are not to be transferred to the Minister or to the Board of Governors of the teaching hospital with which they are associated. No property which is held for the purposes of these schools is to be transferred. The schools will continue to be owned and administered, in London, by their own governing bodies and elsewhere by the governing bodies of the universities of which they form part, and the Bill provides for the transfer of any existing hospital property held for school purposes to these governing bodies

30 The Bill contains also a special provision relating to medical and dental schools, based on recommendations of the Interdepartmental Committee on Medical Schools (the Good enough Committee). Any medical or dental school of London University which is not yet a body corporate is required to take steps within six months of the passing of the Bill to become incorporated

Hospital Staffs

31 The staff of all hospitals in the service will be in the employment of the Regional Boards or Boards of Governors of teaching hospitals as the case may be. Specialists taking part in the service, whole-time or part-time, will be attached to the staff of hospitals. Part-time participation in the service will not debar the specialists from also continuing any private practice outside the service which individual patients may wish them to undertake

32 Special provision is to be made by regulations affecting the appointment of senior medical and dental staff employed on the staff of hospitals. In these cases the Regional Board or the Board of Governors, as the case may be, is to be required to advertise vacancies and to constitute an expert advisory appointments committee. The committee will draw up a list, from among the applicants, of those suitable by qualification and experience for the vacancy, and the person to be appointed will then be selected from that list by the Board

33 The Boards will determine the terms of engagement of any staff employed in the hospital service. The Minister, however, is empowered to make regulations governing the qualifications, conditions of service, and remuneration of any or all classes of hospital staff—as of the staff engaged in any other part of the health service. Before making regulations he will consult any appropriate organizations representing the staffs concerned, and it will be his intention—wherever appropriate—to use existing, or set up new, negotiating machinery to facilitate those consultations. Existing hospital officers employed on a paid whole-time basis are to be protected, either by being transferred to the new bodies or by compensation if they are not transferred or are re-employed on less favourable terms than before

"Pay-bed" Accommodation

34 Where there are single bedrooms or small wards in hospitals the Minister is empowered to make them available to patients who wish to buy greater privacy by paying the extra

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always to the requirements of
accommodation on medical grounds,
without payment.

is empowered to provide separate
which people can pay the whole
part-time specialists within the
6. This power is subject to the
hospital, whether it is reasonable
accommodation having regard to the
and it is also subject to the over-
be admitted to it, without pay-
urgently require it. Private

patients using the accommodation will pay their own specialists' fees, but the Bill enables the Minister to prescribe maximum fees which specialists may charge in these circumstances.

Other Centralized Services

36. The Minister is made directly responsible for the provision of two other services, both of them developed from services which have grown up during the war.

37. The first is a bacteriological service for the control of the spread of infectious diseases, including, in particular, the provision of laboratories. These will be operated—at least in the first instance—by the Medical Research Council on the Minister's behalf and their services can be made available to medical men and others who wish to make use of them.

38. The second is a blood transfusion service—for the collection of blood from volunteer donors, the provision of "blood banks" and blood products at hospitals, and of mobile transfusion teams which will be on call for hospitals not possessing facilities of their own and for specialists and general practitioners.

39. The Minister is also expressly empowered by the Bill to conduct research, and to give financial help to voluntary agencies conducting research, into any question relating to the prevention, diagnosis, or treatment of illness or mental defectiveness. Boards of Governors of teaching hospitals and Regional Boards are also empowered to conduct research.

GENERAL PRACTITIONER SERVICES

40. This part of the service covers the personal health services provided by general medical practitioners and dentists and the supply of drugs, medicines and appliances.

41. To arrange these services locally new bodies—to be called Executive Councils—are to be established in the area of each county and county borough. As already explained, each Council is to be so composed that one half of its members are professional—appointed by the local doctors, dentists, and chemists through their own representative committees in the area—while the other half of the members are to be appointed partly by the local county or county borough council (one-third of the Executive Council) and partly by the Minister (one-sixth). The Chairman will be appointed by the Minister. Single Executive Councils may sometimes be established for the areas of two or more local authorities.

Health Centres

42. A main feature of the personal practitioner services is to be the development of Health Centres. The object is that the Health Centre system, based on premises technically equipped and staffed at public cost, shall afford facilities both for the general medical and dental services (described immediately below) and also for many of the special clinic services of the local health authorities (described later), and sometimes also for outpost clinics of the hospital and specialist services (already described). Beside forming a base for these services—e.g., providing doctors with equipped and staffed consulting rooms in which to see their patients—the Centres will also be able to serve as bases for various activities in health education.

43. The Bill makes it the duty of the county and county borough councils to provide, equip, staff, and maintain the new Health Centres to the satisfaction of the Minister. The local authorities will directly administer such of their own local

clinic facilities as they may provide in the Centres. Doctors and dentists, however, who use the new Centres while participating in the general personal practitioner service will be in contract only with the new Executive Councils, and it will be for those Councils to arrange with the local authorities for the use of the Centres' facilities by those doctors and dentists. In the case, for instance, of doctors in the general practitioner service the Centres will, in effect, stand in place of the doctors' own surgeries, and the doctors' responsibilities to their patients on their personal lists—e.g., in visiting their patients' homes—and in general responsibility for their patients at all times—are not affected by whether a doctor practises from a Health Centre or not.

Family Doctor Service

44. All doctors are to be entitled to take part in the new arrangements in the areas where they are already practising when the scheme begins. Taking part will not debar them from also continuing to make private arrangements for treating such people as still wish to be treated outside the service instead of taking advantage of the new arrangements, provided that such persons are not on their lists as public patients or on the lists of their partners in a Health Centre. People will be free to choose their own doctor (including their present doctor) subject to the doctor's consenting and being in a position to undertake their care.

45. All doctors taking part in this part of the new service will be in contract with the Executive Council for the area in which they practise. The Executive Council will be required to draw up and publish lists of all general practitioners who wish to participate. People will then choose their doctor and each doctor will have his own list of the people whom he has agreed to attend. There will be machinery for allocating among the doctors concerned such people as wish to take advantage of the service but have not chosen a doctor for themselves or have been refused by the doctor chosen by them. The relationship of the doctor with any person on his list—i.e., his function under this part of the service—will then be similar to the ordinary relationship of doctor to patient as it is now known except that the doctor's remuneration will come from public funds and not directly from the patient.

46. The Bill itself does not determine the detailed terms and conditions for doctors joining in the service or the doctors' remuneration. These are left to be settled by regulations, and the necessary regulations will be made in consultation with the doctors' professional representatives. It is, however, the intention that remuneration should take the form of a combination of fixed part-salary and of capitation fees, the latter varying with the number of persons whose care is undertaken by each doctor and being so graduated as to diminish in scale as the total number of patients rises. Variations of the fixed part-salary will be possible so as to take account of different circumstance and experience and the differing conditions of practice in particular areas. It is intended also to institute, under power contained in the Bill, a contributory superannuation scheme for doctors taking part in the new arrangements.

47. Actual rates of remuneration for doctors can be determined, in consultation with the profession, only after the report has been received of the Spens Committee—a special committee set up, by agreement with the profession's representative and under the chairmanship of Sir Will Spens, with a membership half medical and half non-medical, to make an independent report on the appropriate range of remuneration for doctor taking part in a publicly organized service of this kind.

48. When the necessary regulations affecting terms of service and remuneration have been settled it will be for the Executive Councils to contract with the doctors on the lines thus prescribed.

Distribution of Medical Practices

49. To help in dealing with the needs of under-doctored areas it is intended, as already indicated, to adjust the scales of remuneration of doctors so as to provide additional inducement to practise in less attractive areas. In addition, a new body to be called the Medical Practices Committee, mainly professional in composition, is to be appointed under the Bill to regulate it

future the succession to old, or the opening of new, practices within the service.

50. To begin with, an appointed day will be fixed and all doctors then in practice will have the right to have their names included on the lists drawn up by the Executive Councils for the areas in which their existing practices are. After the appointed day any doctor who wishes either to join the public service for the first time or, if he is already in it, to go and practise in a new area will need to obtain the consent of the Medical Practices Committee. He will normally ask to have his name included in the list of the Executive Council for the area of his choice, and that Council will inform the Committee. The Committee may give consent either unconditionally or subject to a condition as to the general part of an Executive Council's area in which he practises. They will not be able to withhold consent on any ground except that there are already enough doctors practising in the public service in the area in question. If, when a practice becomes vacant in a particular area, there is more than one applicant for taking it over, the Committee will decide to which doctor the necessary consent is to be given. A doctor whose application to practise in a particular area is refused, or granted only subject to conditions, is given the right to appeal to the Minister.

51. Regulations governing all these arrangements will, among other things, require Executive Councils to report from time to time to the Medical Practices Committee on the number of doctors required to meet the needs of their areas and on the existence of vacant practices on their lists.

Sale and Purchase of Practices and Compensation

52. The above control of succession to, or opening of, practices will apply to all practices which are wholly or partly within the service. It will, therefore, make the sale of the goodwill of such practices inappropriate, and the Bill provides for the prohibition of the sale of such practices in future and for compensation to existing practitioners in respect of the consequent loss of selling values.

53. Doctors who join in the public service at the outset will be entitled to compensation in respect of loss incurred through being unable thereafter to sell their practices. In addition, any doctor who dies or retires from practice between the passing of the Act and the appointed day, and whose practice has not been sold in the meantime, will qualify for compensation. If he is compensated, his practice will be regarded as having come within the service at the appointed day.

54. The total amount of compensation to be made available to the profession under the Bill is a sum of £66 million for England and Wales and Scotland, and the appropriate proportion of this is authorized to be paid in England and Wales under the present Bill. Provision is made for the total sum to be reduced if the number of practitioners taking part in the service falls substantially short of the expected total.

55. Regulations will govern the detailed method of apportioning the global sum among the doctors entitled to compensation and the manner and times at which it is to be paid. It is intended that the settling of the apportionment of compensation among the individual doctors shall be left in the main to the profession itself, and the Minister will accept any reasonable proposals within the total sum. Normally compensation is to be payable on the retirement or death of a doctor, though payment at an earlier date will be arranged where hardship (e.g., through outstanding debts) would otherwise arise. In the meantime interest on the compensation due is to be paid each year to the doctor at the rate of 2½% per annum.

Doctors and the Health Centres

56. As and where the new Health Centres are developed existing doctors in the area will be able, if they wish, to use the consulting rooms and other facilities so provided in place of their present surgeries, so far as they are participating in the new service. Their doing so will not affect the general arrangements already described.

57. Any group of doctors joining in practice from a Health Centre, however, will be encouraged—wherever possible—to

enter into a partnership arrangement whereby their joint remuneration within the service is pooled and then divided among them on some agreed basis of apportionment.

Supply of Drugs, Medicines, and Appliances

58. Those who use the general practitioner service will be entitled to the supply, free of charge, of necessary drugs, medicines, and appliances. A charge will be made if appliances have to be prematurely repaired or replaced as a result of carelessness, and if the patient chooses to be supplied with more expensive appliances than those normally supplied he will be expected to meet the additional cost involved.

59. Every properly qualified pharmacist who wishes to join in the new service will have the right to do so. The Executive Council in each area is to draw up and publish a list of pharmacists who join in the service, and patients will be able to obtain their supplies on the prescription of their doctor either from the shops or other premises of a pharmacist or from any Health Centre where dispensing services are provided, as the patient chooses. Drugs, medicines, and appliances required for hospital purposes will be supplied as part of the hospital service.

60. Regulations, made in consultation with the professional organizations concerned, will govern the detailed terms and conditions, and rates of remuneration, on which pharmacists participate in the new arrangements.

Dental Service

61. The arrangements for dental services will be on rather a different basis from the family doctor service. Priority will be given to expectant mothers and young people. This is to be done through the local health authority's maternity and child welfare service (which the Bill expressly provides is to include dental care) and through the school health services under the Education Act, 1944. Outside the priority arrangements there will be a general dental service made available, but there will not at first be any guarantee that all people will be able to obtain full dental care without waiting. Any dentist who wishes to participate in the general dental service will have the right to do so, and the Executive Council in each area will draw up and publish a list of those who undertake to participate in the service.

62. The object will be to develop general dental services in the Health Centres, or corresponding Dental Centres, as much and as quickly as possible. In the Centres it is intended that dentists shall be able to participate either whole-time or part-time and shall be remunerated by appropriate salaries for the amount of time which they give to the new service. Outside the Centres it will be open to anyone to arrange with any dentist in his own surgery who agrees to undertake his or her dental care. The dentist will normally be able to start treatment without further reference, and subsequently to submit a claim for payment from public funds. For certain forms of treatment, however, the dentist will submit an estimate of what is required to a new professional body established by the Bill—the Dental Estimates Board. The Board will have branch offices in different parts of the country whose function it will be to approve dentists' estimates for treatment to be given or appliances to be supplied. Payment will be made to the dentist by the Executive Council in accordance with a prescribed scale of fees or, in some cases, on special estimates determined by the Dental Estimates Board.

63. The detailed terms and conditions, and rates of remuneration, on which dentists will participate in the service are not settled in the Bill itself, but—as with the doctors—are to be the subject of subsequent regulations made in consultation with the profession's representatives. The general range of remuneration is to be settled in the light of the findings of a committee established (by agreement with the profession) on lines similar to the Spens Committee on Doctors' Remuneration. Dentists taking part in the general dental service will not be debarred from treating under private arrangements anyone who does not wish to take advantage of the service.

64. When the appropriate regulations affecting remuneration and general conditions of participation in the service have been

settled, it will be for the Executive Council to contract with the dentists on the lines so prescribed.

Eye Services

65. The object is to secure that the care of the eyes, with sight-testing and the supply of spectacles, is carried out—as rapidly as resources allow—in special ophthalmic departments and clinics forming part of the hospital and specialist service. These clinics will be in the charge of specialist medical ophthalmologists, and in them the qualified sight-testing opticians will also play their proper professional part. Spectacles will be obtainable either at the clinics themselves or at the premises of dispensing opticians taking part in the service.

66. While this full eye clinic system is developing, however, a supplementary eye service is to be arranged by the Executive Councils in each area. Their arrangements are to be made with suitably qualified general medical practitioners, sight-testing opticians, and dispensing opticians who undertake the supply of spectacles. The whole of the arrangements are to be entrusted by each Executive Council to a special committee—an Ophthalmic Services Committee—which will draw up and publish lists of the medical practitioners and opticians who have the necessary qualifications and who wish to participate in the service, on the same lines as the lists of doctors and dentists. The patient will then have freedom of choice among the doctors and opticians on the lists.

67. As in the rest of the general practitioner services, the terms and conditions and rates of remuneration of those participating in the supplementary eye service, arranged by the special Committee of the Executive Council above, will be the subject of later regulations.

68. People will be entitled both to sight-testing and to the supply of spectacles, free of charge, either at the specialist ophthalmic clinics or through the supplementary scheme just described. The Bill provides, however, that as soon as the Minister is satisfied that adequate ophthalmic services are being provided in any area through the specialist clinic services he may wind up the supplementary service in that area.

Miscellaneous

69. A special Tribunal is to be set up to investigate cases where it is claimed—either by the Executive Councils or otherwise—that the continued inclusion of any doctor, chemist, dentist, or optician in the lists drawn up by the Executive Councils would be prejudicial to the efficiency of the service. The Tribunal will have a legal chairman appointed by the Lord Chancellor and will in each case include a member of the same profession as the person whose case is being investigated and one other—the latter two being appointed by the Minister. Where it is satisfied that the representations are justified, the Executive Council will be directed to remove from the list the name of the doctor, dentist, chemist, or optician, who is given the right to appeal to the Minister. Where the Tribunal so decides a similar direction can be applied to all lists in all areas, with the same right of appeal.

70. Provision is also made that where any doctor, dentist, chemist, or optician has already been disqualified from participation in the present National Health Insurance service, and the disqualification has not been removed, he shall not have the right to participate in the new service.

71. Where the Minister is satisfied, after inquiry, that the services provided by doctors, dentists, or chemists in any particular area are not adequate he is empowered to take such steps as he considers necessary to secure an adequate service.

72. The Minister is empowered to arrange with universities and medical and dental schools for the provision of "refresher" courses for doctors and dentists in the service, to contribute towards the cost of these courses and to pay the expenses of doctors and dentists attending them.

LOCAL GOVERNMENT SERVICES

73. This part of the health service comprises the local and domiciliary services which are appropriate to local government, rather than to central government or to any specially devised

machinery. The Bill unifies these services in the existing major local authorities—the county and county borough councils—and provides for the formation of joint boards wherever, exceptionally, this may be found desirable.

74. For most of these services, the Bill requires the local health authorities (as they are to be called) to indicate to the Minister the way in which they intend to carry out their responsibilities and it requires the Minister's general approval. Their proposals so indicated, are to be made known also to the Regional Board and Boards of Governors for the hospital service, to the Executive Councils for the general practitioner services, and to an voluntary organization which to the local authority's knowledge is working in the same field in their area.

75. The purpose of this last requirement is to ensure that the local arrangements are fitted appropriately to the hospital and specialist services for which the Minister is more directly responsible and to the general practitioner services which will be operated within his general regulations and control. The interrelation between the different arms of the health service is reinforced by the provision (already mentioned) for the local health authorities to nominate one-third of the members of the Executive Councils for the general practitioner services and to be consulted by the Minister in the appointment of Regional Boards, Management Committees, and Boards of Governors for the hospital and specialist services.

76. It will also be reinforced in the ordinary process of administration by the personal contacts of the local Medical Officers of Health and the principal medical and other officers of the other bodies, and by various practical devices such as the establishment of local co-ordinating committees of medical and other officers and by the use, wherever feasible, of common employment by different bodies of the same part-time medical or other staff.

77. The various functions comprised in the local government part of the health service are summarized below.

Maternity and Child Welfare and Midwifery

78. The Bill makes it the duty of every local health authority to make arrangements for the care of expectant and nursing mothers and of children under 5 years of age who are attending school and who are therefore not covered by the school health service. Their arrangements will include antenatal clinics for the care of expectant mothers, post-natal and child clinics, the provision of such things as cod-liver oil, fruit juices, and other dietary supplements, and, in particular, priority dental service for expectant and nursing mothers and young children.

79. The Bill transfers these functions from such of the present "minor" authorities—the non-county boroughs and the district councils—as are at present exercising them. But, for co-ordination with the school health services, provision is made for delegating child welfare to "district executives" in the same way—and with the same rights for the minor authorities—as done for the school health service under the Education Act 1944.

80. The same authorities—county and county borough councils—are also made the supervising authorities for the purpose of the existing Midwives Acts; that is to say, they are made responsible for a complete midwifery service for mothers who are confined at home. The midwives are to be employed either by the local health authority itself or by voluntary organizations with whom the authority comes to an appropriate arrangement. Attendance at the confinement is not to be made the general duty of the doctor within the general medical practitioner service, but the midwife will have the usual right—and duty—to call in a suitably qualified doctor in case of need. The general practitioner's services will nevertheless be available to the ordinary extent of general advice and health care to a woman before and after confinement as at any other time.

81. Mothers who for any reason have their confinements in hospital or maternity home will be in the care of the hospital and specialist service. It will also be the object of that service to provide locally for all specialist obstetric or gynaecological care which may be needed in relation to the ordinary domiciliary

service of the local authority. The requirement of Ministerial approval to the local authority's arrangements will link together the two aspects of the maternity service—domiliary and institutional.

Health Visiting and Home Nursing

82. It is made the duty of the local health authority to provide for a full health visitor service for all in their area who are sick, or expectant mothers, or those with the care of young children. This widens the present conception of health visiting (as concerned with mothers and children) into a more general service of advice to households where there is sickness or where help of a preventive character may be needed.

83. It is also made the duty of the local health authority to provide a home nursing service for those who—for good reason—need nursing in their own homes.

84. In both of these activities the local authority can, if it likes and if the Minister approves, make all or part of its provision by arrangement with voluntary organizations to act on its behalf.

Local Mental Health Services

85. The main mental treatment and mental deficiency services are to be part of the new hospital and specialist arrangements under the Bill. Local health authorities, however, are given responsibility for all the ordinary local community care in the mental health service—that is to say, the ascertainment of mental defectives and their supervision when they are living in the community. This part of the service covers also the initial proceedings for placing under care those who require treatment under the Lunacy and Mental Treatment Acts.

Vaccination and Immunization

86. Compulsory vaccination is to be abolished by the Bill, but it is to be the duty of the local health authority to provide free vaccination and diphtheria immunization for anyone who desires them. This service the authority will provide by making arrangements with doctors who are taking part in the general practitioner service—paying appropriate fees to those who undertake it. The vaccines, sera, or other preparations required may be supplied without charge by the Minister to local health authorities and doctors, and the service may, if circumstances demand, be extended to cover vaccination and immunization against other diseases beside smallpox and diphtheria.

Ambulance Service

87. Apart from vehicles which may need to be provided as part of the hospital service, the provision of the main ambulances and hospital transport required for the health service becomes the duty of the local health authorities, either directly or by arrangement with voluntary organizations. In future the local health authority's ambulances may—and must, if necessary—operate outside their own area.

Care and After-care of the Sick

88. Local health authorities are given a new power, and duty where the Minister so requires, to make approved arrangements for the purpose of the prevention of illness and the care and after-care of the sick. This can include such things as the provision of special foods, blankets, extra comforts, and special accommodation for invalids and convalescents and the making of grants to voluntary organizations doing work of this kind (but it expressly does not include cash allowances to individuals or families, which is the function of National Insurance). A charge may be made in appropriate cases.

Domestic Help

89. Under the existing law local authorities are empowered to provide home helps as part of their maternity and child welfare functions, and, during the war, this power has been extended by temporary enactments to enable them to provide domestic help in a wider range of circumstances. The Bill makes this power permanent and extends it to cover the provision of domestic help, subject to the Minister's approval, to any household in which it is needed on grounds of ill-health, maternity,

age, or the welfare of children. The local health authority will be allowed to make appropriate charge for this service.

Health Centres

90. The duty of the local health authorities to provide and maintain general Health Centres, both for their own activities and for the general practitioner services, has already been described.

Health Committees

91. Local health authorities will, in the future, be required to appoint statutory health committees (comparable in many ways to their statutory Education Committees) and to refer to them all matters relating to the discharge of their functions under the Bill. The health committees may be authorized to exercise functions on behalf of their parent authorities, and there is discretion to appoint by co-option expert members who are not members of the authority itself.

GENERAL ADMINISTRATIVE AND FINANCIAL PROVISIONS

Central Health Services Council

92. In paragraph 10 the setting up of new technical advisory machinery by the Minister's side has been mentioned. In more detail, the arrangements are these. To advise him generally on the administration of the health service the Minister is to have beside him a Central Health Services Council. The members are to be doctors, dentists, nurses, and other professional people concerned with different parts of the service, together with people having experience of hospital management, of local government, and of mental health services—all of them appointed by the Minister in their individual capacities, but after consultation with the appropriate representative organizations. The Presidents or Chairmen of six of the principal medical bodies in the country are also to serve on the Council, *ex officio*.

93. The new Central Council will be free to advise the Minister of its own initiative on any expert aspect of the services, as well as on matters expressly referred to it by him. It will report annually to the Minister, who will lay the report before Parliament—with his own comments, if he wishes—unless he is satisfied that it would be contrary to the public interest to publish the report or any part of it.

94. The Minister is empowered also to constitute various Standing Advisory Committees on different technical aspects of the new service. These Committees are not specified in the Bill. They will in fact deal with medical aspects of the service, mental health, dentistry, nursing, pharmacy, and any other matters justifying special advisory machinery. They will deal with questions referred to them either by the Minister or by the Central Council and will have direct access to the Minister as well as to the Council.

Default Powers of Minister

95. The Minister is given default powers against local health authorities and any of the bodies constituted by the Bill—the various hospital bodies, Executive Councils, and others—if they are not carrying out their functions satisfactorily. He can make an order directing them to do whatever may be necessary, and then, if still not satisfied, he may take over their functions, permanently or temporarily, himself.

Position of Officers

96. Regulations made by the Minister may lay down the qualifications and conditions of service of any or all of the officers and employees of all bodies (including voluntary organizations) concerned with providing services under the Bill. In regulating conditions of service or remuneration, it will be his object—as already stated—to use appropriate machinery of discussion and negotiation with representatives of those affected.

97. The Minister is empowered to establish contributory superannuation arrangements for the staffs of hospitals (including the specialist services). Executive Councils, the bacterio-

logical and blood transfusion services, and doctors and dentists in the general practitioner services. The employees of local health authorities will be entitled to the benefits of the existing local government superannuation scheme, which can be modified by regulations under the Bill for staff in the health services in order to secure the maximum of interchangeability with other parts of the general service. The employees of local voluntary organizations can be brought within local superannuation schemes. The general object will be to make arrangements such as will secure freedom of movement between the central and local services, and within these services, and also between services provided under the Bill and other health services.

98. Protection is given to existing officers of voluntary hospitals, Insurance Committees, and local authorities whose functions are transferred or extinguished by the Bill, by providing for their transfer and re-employment by the appropriate authority under the new service or for their compensation if they were previously employed whole-time and suffer loss as a result of the change-over.

Miscellaneous

99. The Bill contains also a number of miscellaneous provisions relating to such matters as the transfer of the property of local authorities and Insurance Committees, the holding of inquiries, the procedure for making regulations and orders, and the repeal or adaptation of the existing law to fit the new conditions.

FINANCE

100. The new service is to be financed mainly from the Exchequer, assisted by a payment of some £32 million transferred from the National Insurance Fund, and partly from local rates with the help of Exchequer grant.

101. The Exchequer will bear the cost of the hospital, specialist, and other centrally organized services, the cost of the family practitioner services, half the cost of the local health authority services, together with the cost of central administration. The rates will bear half of the cost of the local health authority services previously described.

102. The expenditure of local health authorities on their services—including any payments which they make to voluntary organizations for services on their behalf—is to rank for Exchequer grant, calculated in accordance with regulations to be made under the Bill. The grant is to be on a "weighted" 50% basis, with no local health authority receiving more than three-quarters or less than three-eighths of their expenditure.

103. The transfer of the cost of the local authority hospital services from the ratepayers to the taxpayers (together with other changes which are in contemplation outside the scope of this Bill) must profoundly affect the present financial relations between the Exchequer and local authorities. The primary financial effect of the transfer of hospital services from local authorities will be to benefit the richer areas appreciably more generally speaking, than the poorer areas. Radical change will be necessary in the general scheme of Exchequer grants in aid of local authorities, therefore, to secure that over-all the policy of the Government of concentrating those grants so far as possible where the need is greatest is further developed. The whole of this question is at present under consideration by the Government with a view to the introduction of a reformed scheme by the time the new health service comes into actual operation.

104. The financial memorandum attached to the Bill also gives details of the general financial background of the new proposals.

A. THE PRINCIPLES OF THE PROFESSION

The Negotiating Committee, representative of the British Medical Association, the Royal Colleges, the Royal Scottish Medical Corporations, the Society of Medical Officers of Health, the Medical Women's Federation, and the Society of Apothecaries, crystallized the views of the medical profession as a whole on the subject of a National Health Service in the following statement:

"For a quarter of a century the medical profession has stressed the need for a complete health service.

The profession is willing and anxious to co-operate with the Government in evolving this service, for it believes that the knowledge and experience of the profession are indispensable contributions to its success.

It re-emphasizes that good housing, social, economic, and environmental circumstances are the principal factors in the maintenance of health and the prevention of disease. It urges the expansion of medical research.

In the interests both of the public and of medicine, the profession regards the acceptance of the following principles as essential:

I. The medical profession is, in the public interest, opposed to any form of service which leads directly or indirectly to the profession as a whole becoming full-time salaried servants of the State or local authorities.

II. The medical profession should remain free to exercise the art and science of medicine according to its traditions, standards, and knowledge, the individual doctor retaining full responsibility for the care of the patient, freedom of judgment, action, speech, and publication, without interference in his professional work.

III. The citizen should be free to choose or change his or her family doctor, to choose, in consultation with his

family doctor, the hospital at which he should be treated and free to decide whether he avails himself of the public service or obtains independently the medical service needed.

IV. Doctors should, like other workers, be free to choose the form, place, and type of work they prefer without governmental or other direction.

V. Every registered medical practitioner should be entitled as a right to participate in the public service.

VI. The hospital service should be planned over national hospital areas centred on universities in order that the centres of education and research may influence the whole service.

VII. There should be adequate representation of the medical profession on all administrative bodies associated with the new service in order that doctors may make their contribution to the efficiency of the service."

Behind these principles are considerations of profound importance to the public and to medicine.

For the medical profession to be converted into a technical branch of central or local government would be disastrous both to medicine and to the public it serves. The doctor's primary loyalty and responsibility should be to the patient.

The interest of the public demands that he should be free—as civil servants and local government officers can be—to act, to speak, and to write on professional matters according to the dictates of his conscience, unhampered by interference from above. He should never be required to be in a position to be required, to modify his standard medical certification at the behest of the State, however concerned the State may be with the solvency of a Social Security Fund.

This independence of professional judgment and responsibility of action, evolved over the centuries, is inconsistent with the conception of the doctor as a civil servant or local government officer, whose first loyalty would be to his employing body. Valuable though these forms of organization and control are in many fields of human activity, they would be fatal to the personal doctor-patient relationship which lies at the heart of good medicine.

The doctor should be the patient's doctor and not the Government's doctor. *The doctor's freedom is the public's freedom.*

A whole-time salaried medical service is inconsistent with free choice of doctor. It would mean the equal distribution of work between equally paid doctors regardless of the wishes and preferences of the public. It would tend to impose a uniformity in a form of work in which initiative and originality are essential. It would tend to bureaucratize what should be a human service.

It would destroy what is a proper incentive with most kinds of people in most kinds of work—the relationship between remuneration and the amount and value of work done or responsibility accepted. It might tend to replace competition for patients by competition to avoid them.

The proposals of the Government must be examined to see whether they lead "directly or indirectly to the profession as a whole becoming full-time salaried servants of the State or local authorities." It is not enough to postpone the danger. The public should satisfy itself that the proposals will not tend, sooner or later, to this form of service.

Medicine is an art as well as a science. The family doctor is faced with human problems which for their solution demand not merely science but in addition wisdom, kindness, and knowledge of human nature. He is friend as well as adviser. He can give of his best only where complete confidence exists between patient and doctor. This confidence can exist only under conditions which

leave the patient entirely free to choose or reject a particular doctor. Further, the patient in consultation with his family doctor should be free to choose the hospital, clinic, or other institution at which he should obtain his medical care. He should not be required to choose a particular doctor or to attend a particular institution. There will be those in all sections of the community who will prefer to arrange their medical care for themselves outside the public service. The freedom of the citizen requires not only that he shall be free to obtain his medical care privately but that the arrangement should not be such as to penalize him or his doctor if he does. In practice this means that the citizen should be free to obtain private medical care from general practitioner, consultant, or specialist, that practitioners in the public service shall not be precluded from providing it, and that adequate facilities should be available in hospital for them to do so.

Now that the war is over no compulsion, direct or indirect, should be brought to bear upon any citizen to work in any particular area. This principle should apply to doctors as to others. It would be inconsistent with this principle for doctors to be required by law to obtain permission from a governmental body before practising in any area, whether in the public service or privately, or both. The fact that the Government has decided to collect money from the public for medical services and to enter into arrangements on the public's behalf with doctors to provide them does not entitle a Government to apply direction to doctors merely because they desire to enter into contract with the Government to accept liability to treat the beneficiaries under the Social Security Scheme, in effect the whole population. A satisfactory medical service will be achieved only if it is staffed by doctors satisfied with their terms and conditions of service. A doctor under duress is no more likely to achieve this satisfaction than is any other worker in similar circumstances.

B. THE B.M.A. COUNCIL'S REPORT*

The State recognizes and registers a medical practitioner only when it is satisfied that by education, training, and experience the practitioner is fully qualified to offer his services to the public. Other governmental agencies, central or local, should not apply an additional test. No doctor should be in the position, having passed through the medical curriculum, satisfied the stringent requirements of the General Medical Council—the body established by statute for this purpose—of finding that he is not acceptable to this or that central or local body and so find himself unable to practise his profession, with his prolonged and expensive training and experience wasted. The General Medical Council amply protects the public without the imposition of other statutory conditions by other tribunals.

Doctors have an important contribution to make in the planning, organization, management, and development of health services. Indeed without it a service satisfactory to the public is impossible. They do not seek to control such services, but the public interest demands that at every level of administration there should be adequate representation of the medical profession. Their advice should be

presented by them to administrative bodies by medical members of such bodies speaking with the authority which derives from such membership. This principle applies to central and local bodies alike, including regional bodies and the public health committees of local authorities. This is a matter of public and not only professional interest.

STATEMENT ON THE NATIONAL HEALTH SERVICE BILL

The Council, having considered the Government's proposals, recommends to the Representative Body:

That the following statement of policy on the Government's Bill for a National Health Service be approved:

1. The profession, while anxious and willing to co-operate with the Government in evolving a complete health service, is opposed, on grounds of public interest, to certain important features of the Government's proposals.

ORGANIZATION

2. In the Bill it is proposed that the Minister should assume general responsibility for the service and discharge this responsibility through three main channels. In the case of hospital and specialist services he will delegate the bulk of the administration to new regional and local bodies. He will place the responsibility for domiciliary, clinic, and

* The general principles of this report apply to Scotland as well as to England and Wales with the Secretary of State taking the place of the Minister, large burgh councils taking the place of county borough councils, subject to the modifications which the Bill contains on such points as the provision of health centres by the central instead of the local authority.

health centre services directly on local health authorities (county and county borough councils). He will place the responsibility for general practitioner services on specially appointed local bodies acting within national regulations made by himself.

3. Will this proposed structure secure what the profession has long been seeking—the proper co-ordination and correlation of the country's medical services? Will the individual citizen be well served by the proposed administration? When he seeks attention from his family doctor he will be availing himself of a service administered by the local executive council. If that service is rendered in a health centre he will receive it in premises owned by another local body, the local health authority. If his doctor recommends him for hospital treatment he will pass to yet another administration, that of the regional body.

4. In the case of an expectant mother she may receive her medical care from her family doctor at home or in the consulting room, although the proposals on this point are not clear. She may attend an ante-natal clinic, part of the local health authority's service, receiving it there from a whole-time local authority medical officer. But if she proposes to be confined in hospital she may receive her ante-natal care at a parallel set of ante-natal clinics, this time administered by the regional body and staffed by hospital medical officers. If her confinement takes place at home she may be attended by a midwife appointed by the local authority, a doctor in the family doctor service, and, if specialist help is sought, by a specialist in contract with the regional body.

5. In the case of infectious disease the responsibility for preventing its spread will be that of a local authority, probably a lesser local authority. If a case of infectious disease needing hospital treatment occurs the patient will be conveyed to another service administered at the regional level.

6. There appears to be little immediate prospect of bringing to the general practitioner forms of work which should, in the interests of the patient, be undertaken by him. While the *ultimate* object may be to make unnecessary the provision of medical treatment by the school medical service, what is proposed at the outset and for an indefinite period is that such services shall be separately provided and organized by local education authorities, supervised by the Ministry of Education. No attempt is made to bring together the general practitioner service now rendered to mothers and children in clinics and the main general practitioner service, other than the suggestion that immunization, together with vaccination, should be carried out by general practitioners. To employ general practitioners in clinics is not enough. Much of the work now done in clinics should be undertaken by general practitioners as part of their normal work for those under their care. Child welfare responsibility is to follow educational responsibility, which in many cases will mean that a further authority is involved in health administration, a local authority which is not a county or county borough council.

7. The Association criticizes the proposed administrative arrangements as likely to divide the service into at least three compartments, to perpetuate or create barriers between general practitioner and hospital, between hospital and health centre, between the family doctor service and the local authority clinic services, between local authority medical officers and hospital staffs and general practitioners, as well as between the bodies employing them.

8. The Minister will provide and manage a public health pathological laboratory service for the control of infectious diseases, but local authorities are still to be free to provide

their own laboratory services. No mention is made of the clinical pathological services unless these are to be regarded as part of the specialist service coming under regional administration.

9. At what level can co-ordination best be secured? It is not enough to state, as the Minister stated in reply to questions from the Negotiating Committee, that co-ordination between general practitioner and hospital services can be secured by the policy of administration of the Minister, by the work of the Minister's officers, by the presence of some general practitioner members on regional boards and local management committees; that general practitioners will be responsible for the care of their own patients in general practitioner hospitals, which do not yet exist; that the general practitioner will consult freely with the specialist at the hospital, or work as a clinical assistant, or join his local medical society. There will be only such co-ordination as the administration makes possible.

10. In the Association's considered view, co-ordination should take place at the regional level. Regional boards should assume responsibility for the planning and administration of hospital and non-hospital medical services alike, for the building, ownership, and administration of such health centres as may be developed, for the clinic and other treatment services of local authorities; in short, for all treatment as distinct from environmental services. Responsibility for a completely co-ordinated maternity service, including domiciliary midwifery, for health visiting and home nursing services should rest with the regional body. It is recognized that effective local administration may require that regional boards delegate some of their responsibility to appropriately constituted local or area bodies responsible to them, just as it is proposed to delegate responsibility for individual hospitals to local hospital management committees. The statutory responsibility for the provision of these services should be placed not upon local health authorities but on regional bodies.

11. This proposal raises two problems. There would continue to be a divorce between environmental and treatment services. While this would be disadvantageous, it would be a great improvement on the Minister's present proposals. If the regional principle be accepted there arises the question of what would happen to the local executive council. The Association approves the functions and composition of the local executive council, but to secure co-ordinated administration is of the opinion that it should operate on a regional basis.

12. The Association's view on this part of the Bill may be summarized by stating that effective functional integration can be secured only by concentrating local responsibility, administrative, financial, and other, at one level, and in the Association's view the appropriate level is the one selected for hospital services—the regional level. This regional integration is essential not only to efficient administration but in the interests of the public.

CENTRAL ADVISORY MACHINERY

13. While the establishment of a Central Health Services Council drawing members from all the main health professions with a majority of medical members meets the profession's views, the Association urges the Minister to make certain changes. It wishes particularly to stress the following points:

(a) The Council will give the fullest satisfaction only if its medical members are regarded as fully representative of the medical profession. It is desirable in the public interest to make impossible the appointment of medical

members who are unacceptable to the Minister or to the medical profession. For this reason the Association urges that the medical members should be appointed by the Minister in agreement with the medical profession, a nominee unacceptable to the Minister or the profession being rejected. In addition, there should be a small number of ex-officio members—e.g., the Presidents of the Royal Colleges and the Chairman of Council of the British Medical Association.

(b) The standing advisory committees of the Central Health Services Council, like the standing committees of other bodies, should report through the parent body, reporting to the Minister direct only in circumstances approved by that body, or in an emergency by its Chairman. The Central Health Services Council should itself appoint its committees, standing and other, and determine their terms of reference. Only in this way will the Central Health Services Council become a really effective body.

HOSPITAL AND SPECIALIST SERVICES

14. The Association joins with the Government in desiring a co-ordinated hospital service regionally administered over natural hospital areas, a policy which it has consistently urged in all previous discussions. It is impossible to judge the merits of the proposed hospital administration in the absence of detailed information on the composition of regional hospital boards and local hospital management committees. If such bodies are appropriately constituted, with adequate representation of the medical profession, of experts in the voluntary hospital field and, in the case of the regional boards, of the universities, the proposals may, from the administrative point of view, conform to the profession's repeatedly expressed desires. If, on the other hand, the representatives of local health authorities are to be placed in a majority on regional hospital boards or local hospital management committees, the proposals will be in direct conflict with the views of the profession. The Government is urged to embody proposals for the composition of these bodies, and of the boards of governors of teaching hospitals, in the Bill, and not to leave them to be dealt with subsequently by regulation.

15. The method of the group management committee, common in local authority organization, does not do away with the need for an individual committee of management. Accordingly, the Association urges the establishment for each hospital of a committee of management, to be responsible for its day-to-day administration in conformity with the plan of the regional hospital board, and a medical staff committee in close relation to, and represented upon, the committee of management.

16. On the subject of ownership, the Association recognizes that the Government's proposals raise serious issues which will be the concern of the public as a whole. The adoption of these proposals as they stand will inevitably involve a loss of local personal interest, and the discouragement of local support, whether in the form of contributions or of service. At present the local hospital, whether voluntary or council, commands a great deal of local pride, resource, and initiative, amounting sometimes to individual sacrifice for the community's good. Somehow or other these things must be preserved. These arguments for the preservation of the individual character and the local relationships of hospitals are not mere sentimentality. They bear closely, for example, on the hospital's capacity for innovation and experiment, its power to attract nursing and other staff and the confidence of the local people in their local hospital.

The Association has consistently pressed for an effective and appropriately constituted regional body with sufficient powers, financial and other, to secure the planned development of hospital services. In the Association's view the Minister should accept responsibility for all hospital provision and maintenance, voluntary and council, being advised on the allocation of the necessary centrally provided moneys by regional bodies. Such an arrangement would secure to the Minister and to the regional body all necessary power in the organization and development of the hospital service of its area, and it is unnecessary and undesirable for the Minister to proceed to assume actual ownership of hospitals, council or voluntary.

17. The Government's proposals might threaten private consulting practice despite the fact that the proposal of part-time service for some consultants is based on the assumption that private practice will be facilitated. The State, as owner of the hospitals, will control the private or semi-private accommodation and so will be free to convert private accommodation to semi-private accommodation and either to public accommodation when it so desires. In this way, and by its control of fees charged in private accommodation, it will control private consulting practice in so far as it is conducted in hospital premises. There will be scope for people to obtain additional amenities—e.g., private rooms where these are not medically necessary—by payment of the extra cost involved. But it appears that private accommodation will be restricted to particular hospitals where provision can be made "in separate parts of the hospital," and that the facilities will be limited to specialists taking part in the new service. This provision should not exclude the recognition of rooms and beds in the main hospital buildings as private accommodation. The Association is opposed to a restriction of the use of private accommodation of a particular hospital to specialists taking part in the new service.

In the public interest the conditions imposed should not be such as would lead or compel consultants or their patients to use nursing home or similar accommodation dissociated from the hospitals for private consultation and treatment.

Teaching Hospitals

18. The proposals for the administration of teaching hospitals can be judged only when fuller information as to the composition of the proposed boards of governors is known. It is not clear to what extent hospitals affording postgraduate clinical teaching and research will be regarded as teaching hospitals for the purpose of these arrangements. It is not clear what part the University Grants Committee will play in financing teaching hospitals. Only when fuller information is available can the proposals in relation to teaching hospitals be judged.

LOCAL CLINIC, DOMICILIARY, AND WELFARE SERVICES

19. The proposals under this heading have been the subject of comment in earlier paragraphs. The Association dislikes the proposals to place a statutory duty on local health authorities in respect of school medical and maternity and child welfare services, domiciliary midwifery, health visiting and home nursing services, vaccination and immunization, and a general ambulance service. Similarly, the Association is opposed to the proposal to place the responsibility for the provision and maintenance of health centres, dental centres, and similar premises upon the local health authority. The health centre no less than

the hospital should be the responsibility of the regional board. In the case of the ambulance service the case for regional organization is no less strong, for this, the committee believes, is the only way of bringing to an end the irritating limitations imposed by local authorities on the use of their ambulances outside their areas. These services should, in the Association's view, be administered, together with the hospital service, at the regional level.

FAMILY PRACTITIONER SERVICES

20. An objective from the outset will be the development of the health centre system. The profession is deeply interested in health centres—indeed, the general idea was first put forward by the profession itself. But it would be contrary to the public interest to proceed to a rigid health centre policy without widespread experiment into the merits and demerits of different types of health centre in different types of area. The Association suggests an immediate experimental investigation, under medical guidance, of health centres of varied types and functions. Some advantages, such as the organization of nursing and clerical facilities, the provision of premises specially built for the purpose, are obvious. Some disadvantages, particularly from the point of view of the public, are no less obvious. For example, patients will travel greater distances, they will suffer some loss of privacy, there may well be a loss of the personal touch. No details are given of the kind of health centre it is proposed to develop. The health centre outlined in the Coalition White Paper can be fairly described as an aggregation of doctors' consulting and waiting rooms, with common nursing and clerical help. This does not meet the real need. What general practitioners need, above all, is the provision of facilities for fuller diagnosis, with special emphasis on pathology and radiology. The extent to which such facilities can be made available in health centres should be a matter of widespread experimentation before the lines of central policy are laid down.

21. The building of health centres will take a considerable time. Pending their construction the effect of the Government's proposals will be not what it seeks, the encouragement of group medicine, but the opposite. The abolition of goodwill will of itself destroy the present basis of partnership agreements, breaking up partnerships into bits of individual practitioners who may or may not make such arrangements between themselves. This may be still the case when health centres are in action. Further, no indication is given that the Government contemplates, in its proposed arrangements, the status of "assistant." It appears that all general practitioners in the proposed service, whatever their age or experience, will practise as individuals.

22. If the duty to provide and maintain health centres is vested in local health authorities, it will be difficult to avoid the present limitations of local facilities to the residents of particular local government areas. It is doubtful whether a health centre provided and maintained by one local authority would be available to the residents in an adjacent local authority area. This would involve some restriction of the patient's free choice of doctor. As has been urged in an earlier paragraph, the ownership and administration of health centres should be vested in the regional body.

23. The following statement was made by the Minister of Health in the House of Commons on Thursday, December 6, 1945:

"1. The Government have not yet finally decided upon the proposals which they will be submitting to Parliament for a National Health Service.

2. They believe, however, that it will be incompatible with the provision of an efficient service that the future exchange of medical practices and the creation of new practices within that service should be left entirely unregulated, and that no effective steps should be taken to secure a proper distribution of doctors to fit the public need.

3. I appreciate that intervention in this field, in whatever form it may take, will probably have the effect of preventing the sale and purchase of the practices of doctors taking part in the new service, and the Government therefore think it right to give warning of this probability at once and in advance of the formulation of their full proposals.

4. At the same time and in order to allay the natural anxieties of doctors already in practice, or coming into practice from the Forces or elsewhere, the Government wish to make it clear that there will be an appropriate measure of compensation to doctors in respect of loss of capital values directly caused by the new arrangement.

It is intended that discussions should be undertaken immediately with the profession's representatives with regard to the steps to be taken to give effect to this decision."

24. The Government proposes to control the distribution of doctors and recognizes that such control will destroy the selling value of practices wholly or partly in the public service. The method of control will be to require entrants to the public service to apply to the local executive council, which will pass the application on to the Central Committee on the Distribution of Medical Practices, for decision as to whether the applicant is to be allowed to practise in a particular area being made by the latter body.

A central point of Government policy is the decision to achieve a better distribution of general practitioners under control. In the view of the profession such control is unnecessary and undesirable. An examination of the figures of the distribution of doctors in relation to population before the war shows, admittedly, an irregularity of distribution and some under-doctored areas. Generally speaking, these areas are not local government areas; usually they are pockets and not complete towns or counties. But it must not be thought that such irregularity merely exhibits a preference on the part of doctors for wealthier areas. For example, the ratio of general practitioners to population shows that Barrow-in-Furness, Darlington, and Macclesfield were in the years before the war provided with more doctors per thousand of population than Richmond, Rugby, or Winchester. When the age and health record of the local doctors has been examined, as it has been by the Central Medical War Committee during the war, it has been commonly shown that apparently over-doctored areas are, in fact, no better served in terms of medical man-power than apparently less well-doctored areas.

25. The introduction of National Health Insurance was briskly followed by a more even distribution of doctors. The introduction of a scheme available to the whole community will of itself exercise a very considerable influence in evening out medical distribution. The main problem which, in the Association's view, will remain unsolved by the introduction of a 100% service is the problem of the sparsely populated rural area. The method of extra inducement can and should be applied to solve the

problem of the sparsely populated area, as it can be applied—if experience shows it to be necessary—to other areas. In addition, the Minister could retain the powers given in Section 15 of the National Health Insurance Act, 1911 (and in Section 37 of the Act of 1936), enabling appropriate arrangements to be made in areas where medical service is inadequate. The profession will willingly establish an advisory machinery for helping to assist incomers to practice to select areas where the need is greatest. What it is opposed to as both unnecessary and undesirable is the form of negative direction proposed by the Government.

26. It was the Government's proposals for control which, because of their anticipated effect on the capital value of practices, led it to put forward proposals for compensation. Clearly there should be full compensation for any adverse effect on capital values occasioned by the Government's proposals. But, in the Association's view, the Government should not proceed with proposals to control the distribution of doctors if improved distribution can be secured without such control. If the "control" proposals are not proceeded with, it will be unnecessary to interfere with existing arrangements for the buying and selling of practices. The profession can and will make possible by its organization the entry or re-entry of demobilized practitioners to general practice under terms which are not onerous.

Clearly the proposal to abolish the buying and selling of practices is a crucial issue. Already the profession has expressed the view "that it is in the national interest and essential to the independence of the profession that doctors should continue to own the goodwill of their practices." The three proposals (a) to abolish buying and selling, (b) to institute basic salaries, (c) to control the distribution of doctors, considered either separately or as related parts of the plan, would take the profession much nearer the whole-time State-salaried service to which it is so strongly opposed.

27. It is understood that a substantial proportion of general practitioner remuneration will be derived from basic salary. The Association can find no justification for this proposal. It desires that the main, if not the only, element in general practitioner remuneration should be the choice of the individual doctor by the individual patient. The basic salary proposal, particularly if the proportion of the total remuneration is substantial, will lead to whole-time salaried service—something to which the profession is wholly opposed. It believes that in the future, as at present, there will need to be an appropriate proportion of assistants to principals in general practice, those assistants being employed by principals. It would be appropriate to establish agreed general salaries for assistants. It would be reasonable to require that a practitioner shall not become a principal in the new service until he had served for a prescribed period of time as an assistant. When he becomes a principal his remuneration should be related to the number of patients on his list.

28. If the Government proposes to pay basic salary only when a certain minimum number of patients have chosen the doctor, its proposal is superfluous. If it proposes to pay a basic salary to a practitioner entering the public service, however small the number of patients who are on his list, then the proposal is extravagant.

AMOUNT OF COMPENSATION

29. After discussion between the Ministry of Health and the Compensation Subcommittee of the Negotiating Committee the following letter was sent to the Minister:

March 8, 1946.

DEAR MR. BEVAN,

The Compensation Subcommittee of the Negotiating Committee has entered into discussions with the Ministry on the question of compensation, without accepting the policy from which the necessity for compensation arises. The medical profession is in no way committed to the policy of abolishing the custom of buying and selling goodwill. Indeed it has in the past expressed its opposition to this policy.

Important principles affecting the freedom of the medical profession are involved, and the amount of money offered by the Government in compensation is irrelevant. The Government's proposals must be considered as a whole and not merely in terms of finance.

The view of the Subcommittee is that if the Government persist in this policy, and Parliament approves, then the sum of £66,000,000 which the Government, after negotiations with the Subcommittee, now offers may, on the evidence available, be taken to represent the aggregate capital loss involved in respect of the goodwill of general practices.

The Compensation Subcommittee understands that this sum of £66,000,000—

(a) is based on the Government's estimate that 17,900 principals will enter the National Health Service;

(b) will not be subject to increase if in fact more than 17,900 principals so enter;

(c) will be subject to reduction if the number of principals so entering is below 17,700; the reduction for each principal in defect of 17,700 to be 1/17,900 of £66,000,000

Yours sincerely,

(Signed) CHARLES HILL,

Secretary.

The Right Hon. Aneurin Bevan, M.P.

SOME OTHER POINTS

Civil Rights of Doctors

30. It should be secured in the Bill that doctors who participate in the National Health Service are not disqualified to serve as Members of Parliament, as members of local authorities and of any bodies concerned with the administration of the service, including regional boards, local hospital management committees, and local executive councils.

Industrial Medical Service

31. The exclusion from the scheme of the industrial medical service cannot be justified. The medical supervision of the worker at the factory should be linked with the supervision of his home environment as part of the same health service. Medical services in industry are of comparatively recent growth, and the opportunity should not be lost of integrating them with the main health service.

Specialists in the Public Health Service

32. While it is proposed to inaugurate selection committees for the appointment of specialists there is nothing in the Government's proposals to indicate that senior specialist officers in the Public Health service will be appointed otherwise than by local authorities.

Medical Research

33. No new proposals are advanced for the expansion and development of medical research. The facilities and resources for medical research should be greatly increased.

THE PROPOSALS AND THE PRINCIPLES

34. There are four of the profession's essential principles upon which the Government's proposals have a particular bearing:

PRINCIPLE I

The medical profession is, in the public interest, opposed to any form of service which leads directly or indirectly to the profession as a whole becoming full-time salaried servants of the State or local authorities.

35. The State will own all the hospitals in which consultants work, will appoint the governing bodies of hospitals, and, through regional boards, will employ the consultant to work in or from its premises, the consultant being employed on a whole-time or part-time basis. Whether the hospital proposals will lead directly or indirectly to consultants and specialists becoming "full-time salaried servants of the State or local authorities" will largely depend on the composition and functions of the regional board, the local hospital management committee, the board of governors of the teaching hospital, and the committee of management of the individual hospital.

36. General practitioners will be in contact with local authorities, half professional and half lay. At the earliest possible moment they will conduct their public general practices in premises owned and administered by a local authority. They will be remunerated in substantial part by salary. New entrants to public general practice will be appointed by a mainly medical body set up by the Government and working under its general direction. The Government's proposals, in the Council's view, will lead to general practitioners "becoming full-time salaried servants of the State or local authorities."

PRINCIPLE IV

Doctors should, like other workers, be free to choose the form, place, and type of work they prefer without governmental or other direction.

37. For the reasons set out in earlier paragraphs the Government's proposals are in conflict with this principle.

PRINCIPLE V

Every registered medical practitioner should be entitled as a right to participate in the public service.

38. The Government's proposals violate this principle. They contain no provision whereby a medical practitioner could claim the right to take part in the service somewhere. The local executive councils will consider not only the need for a new practice or replacement, but also the suitability of the applicant. The applicant, although recognized and approved by the General Medical Council, might therefore find himself or herself excluded from the service, either in particular areas or in every area.

The present proposals, in the Association's view, should be replaced by provisions similar to Sections 35 (2) (b) and 36 of the National Health Insurance Act, 1936. Section 35 (2) (b) secures a right on the part of any medical practitioner who so desires of being included in the lists of medical practitioners who have agreed to attend and treat insured persons. Section 36 is as follows:

"If the Minister, after such inquiry as may be prescribed, is satisfied that the continued inclusion in the list of any medical practitioner would be prejudicial to the efficiency of the medical service of the insured, the Minister may remove his name from the list."

PRINCIPLE VII

There should be adequate representation of the medical profession on all administrative bodies associated with the new service in order that doctors may make their contribution to the efficiency of the service.

39. The profession is promised medical representation on central advisory bodies, on regional boards, and on local hospital management committees. Although it is promised a majority on the Central Health Services Council, the composition of regional boards and local hospital management committees, as of boards of governors of teaching hospitals, is not known. Even though local health authorities are to be required to establish public health committees, there is not to be a requirement to co-opt doctors and other non-members of the authority with experience of the health services. Thus the Government's present proposals present some points of conflict with this principle.

PLAN FOR A HOSPITAL SERVICE

A few days before the appearance of the National Health Service Bill the British Hospitals Association published its plan for a national hospital service within a National Health Service. Briefly it proposes that voluntary hospitals should be retained alongside local authority (or State) hospitals, but working together in a service properly planned and organized over regions and centrally directed on a national basis. The Minister of Health would assume general responsibility for the direction and financing of the hospital service and would appoint, after consultation with the appropriate bodies, a central hospitals board, to which, subject to his veto, he would delegate major duties and responsibilities, including framing national policy. This board would be wholly or largely representative of doctors, voluntary hospitals, local authorities, dentists, nurses, and pharmacists. Regional hospital services would be planned by regional hospital boards, also appointed by the Minister, and each region would be associated with one of the medical teaching centres. The regional board would decide what services were required from each hospital in its area and have the necessary executive powers to ensure that its plans were carried out. These regional boards would be wholly or mainly representative of the interests concerned, including the universities. The individual hospital, through its committee of management, would be entirely responsible for the internal management and general conduct of its affairs. Voluntary hospitals would retain in trust their buildings and assets, but would receive payment from the State for services required and rendered. They would still be free to attract personal interest in their work and support for special purposes, for activities which are outside the scope of the national service, and for the general improvement of services, including the comfort both of patients and of staff.

In an introduction the British Hospitals Association states that the plan provides on a secure financial basis a comprehensive service free to the citizen, combining State resources with all that is best in existing services, including the voluntary hospitals. It maintains a balance between the organization required for a national service on the one hand and the obvious dangers in any national plan—loss of the personal and human touch and loss of local interest—on the other. The success of the voluntary hospitals has been chiefly due to their methods of direct management and to the widespread personal interest which they have attracted to their work.

APPLICATION OF NUTRITION TO PUBLIC HEALTH*

SOME LESSONS OF THE WAR

BY

H. E. MAGEE, D.Sc., M.B.

The war of 1914-18, and the food problems which then arose, more than any other event in the past 50 years focused attention on the importance of food for health. The stream of new knowledge of nutrition coming in increasing volume from research centres in different parts of the world after 1918 soon began to affect medicine in all its branches, especially public health. By the early 'twenties the discoveries in the physiology of calcium and phosphorus and of vitamin D were having effect on the prevention and treatment of rickets; by the end of the twenties the feeding tests of Corry Mann and of Orr and his colleagues¹ had demonstrated the high nutritive value of milk, and, by inference, many defects in the diets of large numbers of people. Those in charge of the public health were quick to apply these discoveries, and issues of preparations of calcium, vitamin D, and dried milk to mothers and children became a common practice in all welfare centres. The general body of the profession were not behind their colleagues in the public health services.

It had to be admitted, however, that the new knowledge of nutrition lacked wholeness, and required integration and synthesis of its various bits and pieces before it could be expected to impress those in control of the health of nations. It was appropriate, then, that this task should be taken up by the Health Organization of the League of Nations: first, because nutrition is of universal significance; and, secondly, because it is a health matter not to be dominated by other interests—agricultural, economic, or what not.

League of Nations Commission.—The Technical Commission of the Health Organization was the first international body of authoritative standing to make a comprehensive statement on the principles of nutrition. The Commission was succeeded by the Mixed Committee, which, in a series of reports, indicated the effects of the application of the new knowledge on the agriculture, economics, industry, and commerce of nations. It recommended the participating countries to set up national committees on nutrition, which would seek to put into effect the Commission's recommendations. In Great Britain a small expert committee of physiologists had been established by the Ministry of Health in 1931. It was succeeded in 1935 by a committee appointed by the Minister of Health and the Secretary of State for Scotland, representative of physiology, clinical and preventive medicine, agriculture, social and economic affairs, and statistics. The committee welcomed the report of the Technical Commission, expressed general agreement with it, and said that "the Commission has set up a new and high level of nutrition which we have adopted." This is noteworthy in view of the many statements made during the war that the standards of the Technical Commission were intended to be minimum.

Advisory Committee.—The Advisory Committee, through the machinery of the Agricultural Departments and the Board of Trade, accumulated statistics of home production and of imports and exports of food, and studies of the food consumption of families of different occupations in town and country were initiated or conducted by the Health Departments. The Ministry of Labour at the request of the Committee carried out a budgetary survey of several thousand families throughout the country. Much of the knowledge gained in these studies was published in summary form.² The budgetary survey made by the Ministry of Labour was published independently.³

War.—These studies were pursued as a purely peacetime activity without reference to war. When war broke out the information accumulated was of great assistance to those concerned with drawing up a food policy for war. Without this information the supply and distribution of food could not so readily have been placed on a scientific basis. The wartime

food policy was, in fact, the first real try-out of the science of nutrition.

The Food Policy

Mode of Application of Nutrition.—In applying the science of nutrition the following five points had to receive attention. These are stated briefly and are illustrated by examples which indicate roughly how the wartime food policy was put into effect.

1. *Production of Vegetable Foods.*—Account had to be taken of differences in yield of nutritive value per acre for different crops. Potatoes and certain vegetables come high in order of yield, one acre of potatoes yielding, on the average, nearly 50% more calories than one acre of wheat, and one acre of cabbage yielding about as many calories as one acre of wheat. It was therefore very desirable to produce the maximum of potatoes and vegetables. People cannot, however, live on potatoes and vegetables alone, even in wartime, and the demands of farming practice had to be taken into account. In addition, potatoes and vegetables are our chief native sources of vitamin C, and it was likely that imports of fruit, which was an important source of vitamin C before the war, would have to be restricted.⁴

2. *Production of Animal Food.*—First place had to be given to milk, well called the keystone of the nutritional arch. It was important to prevent production falling as in the last war, and even to increase it if possible. First priority in animal-feeding stuffs was therefore given to dairy cattle, and throughout the war production was fairly well maintained. Taking production in 1936-7 as 100, it was 101 in 1938-9 and 96 in 1944-5. Consumption, however, went up and up during the war, made possible by diverting more and more milk from manufacture to liquid consumption. Another important advantage in giving milk production priority over all other animal foods is that it provides a better return in human food than production of meat or of any other food of animal origin.⁵ The dairy cow, for instance, converts about 60% of the energy content of its food into energy in the form of milk and meat. The corresponding figure for the beef animal is about 10%; the figures for pigs and poultry are intermediate. Pigs and poultry, which feed mainly on cereal grains, are competitors with man for these foods; their numbers had therefore to be drastically reduced.

3. *Imports of Food.*—Important modifications in shipping were introduced to achieve the maximum importation of nutritive material in the limited shipping space available for food. Carcasses of meat were telescoped, and later the bones were removed so that more could be packed into a given space; in the later years of the war some dried meat was imported. Shell eggs occupy much space in relation to nutritive value; by having them dried we were able to increase by many times the amount of nutrients in the form of eggs per unit of shipping space. For about the first year of the war imports of fruit were restricted to the orange, because, all things considered, the orange beat all competitors. Later, when the shipping position deteriorated still further, all imports of fruit had to cease.

4. *Integration of Food Supplies.*—In order to provide a balanced diet for the average person the schedules of production and of imports of all foods were integrated and collated with the varying needs of different sections of the population. Schedules of production and of imports were so arranged as to approximate as closely as possible the requirements of the population computed from nutritional standards. The relative steadiness of the rations of different foods throughout the war is eloquent testimony of the completeness with which the schedules of production and imports were fulfilled.

5. *Distribution of Food.*—In planning for distribution according to physiological requirements, the first step was to define the needs of special sections of the population and then to earmark allowances of appropriate foods to meet them. Those who had thus to be taken into account were expectant and nursing mothers, children, adolescents, heavy workers, and invalids. Having made provision for these categories, a fair division of the remaining foods amongst the whole population would, it was believed, meet the essential requirements of everyone. A cardinal principle was that rationing of bread and potatoes should be avoided if at all possible. Bread is the most important elastic reserve to cover variations in energy requirements, and so long as bread and potatoes remained unrationed there could be no real hunger. However much people may have complained about their food, one fact stands out above all others—no one

* The Milroy Lectures (abridged), delivered before the Royal College of Physicians in 1945.

The specific needs of mothers and children are constructive and protective nutrients. These were provided by the National Milk and Vitamin Schemes and by special priorities for eggs. School-children had the Milk-in-Schools Scheme, school meals, and half a pint (284 ml.) of milk daily delivered at home. Adolescents also had half a pint of milk at home, and they could obtain the national milk cocoa at their place of work. Many efforts were made to provide more for adolescents, but always the administrative problems involved were too complex. Heavy workers were able to obtain the extra food they required from their canteens; those who had not access to such canteens could obtain extra food at the British Restaurants. Agricultural labourers, miners, and certain other classes of heavy workers who could not obtain extra food from community feeding centres were given an extra ration of cheese. The special requirements of invalids were looked after by a committee of the M.R.C. Hospitals had special allowances of certain foods—e.g., milk, dried milk and eggs, and fish. Religious customs and the habits of vegetarians received due recognition. Finally, the ingenious "points" scheme made it possible for people to vary their diets somewhat according to taste.

Responsibility for Food Policy.—The planning, administration, and implementation of the wartime food policy was, of course, the responsibility of the Ministry of Food. The several other Government Departments concerned in one way or another with food were always consulted whenever major decisions were taken. The Ministry of Food naturally maintained particularly close contact with the Departments of Health and of Agriculture. The Ministry of Health, as the Department responsible for nutritional policy, had the special task of advising the Ministry of Food on the health aspects of food policy. The Ministry in discharging this task endeavoured to see that the nation was provided with a diet which would maintain health, stamina, and morale at a sufficiently high level to stand the strain of total war. The thesis I put forward is that this aim was in large measure achieved.

Departures from Desirable Levels of Consumption.—While the food policy in the main conformed to scientific principles, there were certain deviations from them, notably in regard to milk and bread.

Notwithstanding the National Milk Scheme and the other priority schemes for supplies of milk, consumption during the years of war was below what was considered desirable from the health point of view. The Advisory Committee reckoned that if everybody in Britain were to receive the desirable quantity of milk the overall average consumption would be about 0.88 pint (500 ml.) per head daily. The consumption in 1936-9 averaged 0.41 pint (233 ml.), in 1940-1 0.56 pint (318 ml.), and in 1944-5 0.66 pint (375 ml.).⁴ Consumption was therefore three-quarters of requirements at the end of the war.

The bulk of the bread consumed till April, 1942, was made of white flour of about 68-75% extraction, which is almost devoid of protective nutrients. Bread of this sort has never met with the approval of experts in nutrition, but the activities of the enemy rather than scientific advice prevailed with the Ministry of Food. It was the dearth of ships rather than the arguments of the scientists which persuaded the Ministry of Food to raise the milling extraction rate to 85% in April, 1942. Many experiments by workers of the M.R.C. and of the Cereals Research Station, Ministry of Food, showed that this rate of extraction gave the maximum nutritive value of wheat with the minimum of indigestible residue. The lowering of the extraction rate to 80% in January, 1945, reduced appreciably the nutritive value of bread.

Effects of Food Policy on Food Consumption.—The Combined Food Board published global figures for foods moving into consumption up to 1943-4 and compared them with corresponding figures for 1934-8.⁵ Important increases were: for potatoes, 45%; vegetables, 34%; milk and milk products, 28%; and grain products, 17%. Important decreases were in tomatoes and citrus fruits, 50%; other fruits, 44%; poultry and fish, 39%; sugar, 31%; meat, 21%; and fats, 16%. Eggs were down by only 6%, which may seem strange; the explanation is that the eggs were imported without shells and most of the water.

Nutrients Available for Consumption.—The amounts of nutrients available for consumption give a truer picture of the nutritional value of the national diet. It is important to note that the amounts published by the Combined Food Board⁶ are

those available for consumption and not necessarily the amounts consumed. Wastage of food was greater before than during the war, and there can be little doubt that many people consumed more food during the war than before it. There are no figures available, but figures would be an unnecessary refinement. The additional muscular exercise spent by large sections of the population in longer hours of work, more intensive effort, and other extra activities such as A.R.P., Home Guard, and allotment work required extra energy, which had to come from the food if wasting was to be avoided. There was no substantial or progressive decline in the weight of adults of either sex during the war, as the special body-weight survey of the Ministry of Food has shown. This survey was carried out on the same individuals—several thousands—at regular intervals from 1943. Therefore the increased output of energy must have been in the main balanced by increased consumption.

Since the estimates in the table are an overstatement of consumption, particularly for the pre-war years when wastage was greater, it follows that the actual increases in consumption during the war years are greater than the figures of the Combined Food Board would indicate, while the real decreases are smaller.

Calories show an apparent decrease of 130 per head daily, but, for the reasons just given, it is probably not real. Total protein was up by nearly 5 g., due mainly to increases of 4 g. in milk protein and 6 g. in cereal protein, but animal protein fell by nearly 3 g. Fats were down by 16 g., but calcium was up by 360 mg. because of increased consumption of milk and vegetable and the fortification of flour with chalk. The amounts of vitamins B₁ and C available for consumption were also increased—B₁ by 0.71 mg. and C by 15 mg. per head daily. The increase in B₁ did not become apparent until 1942, when 85% extraction flour became compulsory. The worst year of all for food was 1941, and yet the figures show that the actual diet was little different from the pre-war one. Fat consumption was down by 18 g., vitamin C by 10 mg. protein was up by 2 g., calcium by 10 mg., and there was little change in the other nutrients.

Inequalities in Distribution.—The national diet as a whole was unquestionably better balanced during the war than before it, but it was important to know how it was distributed. For this purpose the Ministry of Food in late 1940 began to conduct systematic surveys of family diets on a large scale. The Ministry of Health gave much advisory and technical assistance in the conduct of these surveys. The results are still confidential, but it can be said that the distribution of different foods and the consumption of different nutrients are much more equal and more in accordance with requirements as between families of different income levels than before the war. This, of course, was achieved by rationing and priorities, by good wages, and by subsidies on staple foods.

The report of the survey of family diets made in the West Riding of Yorkshire in 1935-7 by Potts and myself⁷ shows that consumption of many important nutrients was well below the desirable level—namely protein, calcium, and iron, and, there can be little doubt, in the important vitamins. Knowledge of the vitamin content of foods at that time was insufficient for a satisfactory calculation of vitamin consumption.

I am at liberty to quote some recent findings of the Ministry of Food's dietary survey. Compared with the intake of nutrients by the West Riding families in 1935-7, the diets of working-class families in 1944 were much superior. For instance, for all the Yorkshire working-class families the average consumption as a percentage of requirements was: calories, 99%; protein, 88%; iron, 94%; calcium, 41%; compared with 105%, 117%, 134%, and 79%, respectively, for the families of manual workers, of similar composition to the Yorkshire families, in the third quarter of 1944.

Decreases in Consumption.—The nutritive value of the wartime diet was also improved by the fall in the consumption of sugar, which was 31% less in 1943-4 than in 1934-8. An important consequence was that less carbohydrate was consumed which lacked corresponding amounts of the B vitamins for complete physiological oxidation. The B vitamins necessary for the oxidation of sugar must be drawn from other foods. The greater the quantity of sugar consumed the more is the balance of the diet likely to be upset.

Effects of Dietary Changes on Health

Towards the end of 1941 steps were taken by the Ministry of Health to obtain systematic and up-to-date information about the nutritional state of the population. The Chief Medical Officer arranged with the Rockefeller Foundation for Dr. Sydenstricker, of the University of Georgia, to spend a year in Great Britain making clinical surveys of the nutritional state. After Sydenstricker's departure his surveys were continued by other clinicians experienced in deficiency diseases. Systematic studies of the heights and weights of school-children were also made, and further information showing the effects of the war-time diet on health was obtained from surveys carried out by M.R.C. workers, local health departments, and others. Thus during most of the war the Government had under constant surveillance the total amounts of food available, the way in which it was distributed between families, the nutritional status of the population, the growth rate of children, and other information indicating how the public health was reacting to the changes in diet and the strain of war. One of the most conspicuous and surprising phenomena of the war was the way the health, vigour, and stamina of the population were maintained in spite of all the stresses, physical and mental, to which they had been subjected. Not everyone, it is true, was subjected in the same degree to the stresses of war, but no one could escape the general anxiety, the trials of the black-out, the harder work, and the lack of amusements. In addition, housing and the general environmental conditions were worse than they had been for years, and there were fewer doctors, dentists, nurses, and health visitors to attend to the needs of the people. Nevertheless, the general state of the public health during the war was in many respects better than before it.

Growth of School-children.—My colleague Dr. Bransby, with the co-operation of the Ministry of Education and school medical officers, has been, since 1940, making systematic studies of growth in children in several parts of the country. In evacuation areas, like Liverpool and London, as well as in neutral and reception areas, heights and weights were higher in 1943 than those of children of the same ages in the same areas before the war. During 1940–1 there were in many areas small regressions compared with pre-war, but these generally had been more than made good by 1943. In a special study of about 18,000 children living at home, mainly in the evacuation areas but including a few neutral areas, the mean height was 1/4 in. (0.64 cm.) and the mean weight about 6 oz. (170 g.) greater in 1943 than in 1940. Bransby's¹ most recent findings are in Table I. They show consistent increases in the rate of

TABLE I.—Average Percentage Increases in Growth Rate in 1944 over 1938 and 1939 for School-children in 21 Areas of Great Britain

Age (years)	4	6	8	10	12	14
Height { Boys	0.4	0.1	0.8	1.1	0.7	0.6
Girls	0.3	1.1	0.6	1.5	0.4	0.1
Weight { Boys	1.7	1.7	3.1	4.1	3.1	2.5
Girls	2.9	1.8	3.8	6.7	2.1	2.9

growth of 0.1 to 1.5% in height and of 1.7 to 6.7% in weight in 1944 over the growth rates of children of the same ages in the same areas in 1938 and 1939. The improvement in growth rate was not confined to school-children, for Milligan and Lewis-Faning² found that infants in Glossop in the first year of life grew more rapidly in 1940–2 than before the war.

Health of Mother and Child.—The results of important investigations carried out in recent years have done much to remove any doubts there may have been that consumption of adequate diets by the mother plays an important part in reducing the incidence of the ills and accidents peculiar to childbirth. The best evidence is of comparatively recent date, but many previous attempts had been made to throw light on the matter. Mellanby³ in 1929 found that the puerperal morbidity of about 140 women receiving daily supplements of vitamins A and D during the last month of pregnancy was only one-quarter that of an equal number of women who received no supplement. Theobald⁴ carried out a similar test on a group of 50 pregnant women; they were given, from the fifth month, daily supplements of calcium lactate and vitamins A and D. The incidence of symptoms of toxæmia—albuminuria, oedema, headaches, etc.—was less than half that in a control group of women. These and other similar tests⁵ supported the conviction in the

minds of many workers on this subject that improvements in the diets of pregnant women would go a long way towards reducing the morbidity and mortality of mother and child.

Toronto Test.—A comprehensive experiment was obviously desirable; such a one was carried out by Ebbs, Tisdall, and Scott.¹¹ They ascertained the diets of about 400 women in the fourth month of pregnancy in Toronto. The diets of 170 were found to be fairly good, and they were further improved by vigorous propaganda. The diets of the remainder were deficient in practically all the known nutrients; but for 90 of these women the defects were remedied by daily supplements of appropriate foods. The poor diet of the other 120 remained unchanged. Thus, for the last 4½ months of pregnancy, 260 women were receiving a well-balanced diet and 120 a diet deficient in most nutrients. The women and their babies were observed until 6 months after labour. During pregnancy the mothers getting good diets had better health, fewer complications—toxaemia, haemorrhage, miscarriages, premature births, stillbirths, and mastitis—and were, in general, considered to be better obstetrical risks than the women on the poor diets. The incidence of illness in the babies and the number of deaths during the first 6 months of life were much lower in the well-fed groups. For instance, 21% of the babies in the badly fed group had frequent colds and 5.5% had pneumonia, compared with 4.7% and about 1%, respectively, in the well-fed groups. The incidence of anaemia was also much higher in the deficiently fed groups.

People's League of Health Test.—A test with less attention to detail was conducted on about 5,000 pregnant women in 1938–9 in London under the supervision of a committee appointed by the League.¹² Half the women were given daily supplements of calcium, iron, iodine, manganese, copper, and vitamins A, B, C, and D for periods of not less than 16 weeks before delivery. The findings were a significantly lower incidence of toxæmia and of premature births in the supplemented group than in the control group.

Other Tests.—It was formerly the custom to treat women showing signs of toxæmia with a low-protein diet or even a semi-starvation diet. The evidence just quoted casts doubt on the soundness of the basis for this practice. Recent observations by Arnell *et al.*¹³ make it even more dubious. They made observations on 400 pregnant women and found that 169 of them whose diets were much too low in protein—less than 54 g. daily—had lower haemoglobin and higher rates of general morbidity, of toxæmia, and of stillbirths than the remaining 231 women, whose diets were more satisfactory. Supporting evidence has been brought forward also by Burke,¹⁴ who kept dietary and clinical records of 216 women during pregnancy and the puerperium. The diets were rated "good," "fair," and "poor," and the incidence of toxæmia in the three groups was 0, 8%, and 44% respectively. The health of the babies was also graded, and it was found to be best in the "good" group. Stacey¹⁵ in a recent review says: "More deficiency states have resulted from this restriction than the good accruing from a liberal protein allowance in the diet."

Vital Statistics

Except for temporary setbacks in 1940–1, the maternal, infantile, and neonatal death rates and the stillbirth rate fell fairly steadily to the lowest levels ever.¹⁶ There are, of course, other factors besides food which can influence these rates, but the general environmental conditions and the facilities for medical care had deteriorated rather than improved during the war. Vital statistics for the 1914–18 war were not nearly so good. Between 1914 and 1918 neonatal mortality showed little change (39 and 36 respectively); infant mortality declined from 104 to 98, but maternal mortality rose from 5.1 to 7.6. Unlike in the late war, environmental conditions had not deteriorated, but the diet had.¹⁷ Table II shows the changes in consumption

TABLE II.—Changes in Consumption of Certain Foods during the Two Wars compared with Pre-war

	1913 v. 1909–13	1943–4 v. 1934–5
Milk	-26%	+25%
Eggs	-40%	-6%
Meat	-27%	-21%
Vegetables ..	-9%	+34%

of certain important foods during the two wars. The most important differences are for milk and vegetables. During the first war the consumption of milk fell by 26% and of vegetables by 9%; in the second world war milk consumption rose by 28% and vegetables by 34%. It is clear from these differences and from the others shown in the table that the national diet during the second war was far superior in constructive and protective nutrients to that during the first war.

Tuberculosis.—In regard to tuberculosis, the circumstances altered appreciably for the worse in the early part of the war. Many patients, who in peacetime would have remained in sanatoria, were sent home to make room for anticipated air-raid casualties. Many of these tuberculous people may have become infective after discharge, and the increase in the incidence of, and death rate from, tuberculosis in 1940–1 was not surprising.¹⁷ The death rate was 635 per million in 1938; it had risen to 699 in 1940, but had reached the lowest level ever—583 per million—in 1944. The incidence was 50,689 in 1938, 54,300 in 1943, and practically the same in 1944. The increased incidence is unquestionably, to some extent, a measure of improvement in ascertainment rather than in real incidence. Ascertainment was improved by the medical examination of large numbers of young people for military service, and by the introduction of mass radiography.

Increases in the incidence of, and mortality from, tuberculosis during the war have been reported from some European countries. Debré¹⁸ reported increased mortality rates of 38% to 74% in different districts of France in 1943, compared with 1935–8. The Institut National d'Hygiène¹⁹ reported that the increased deaths were confined mainly to urban and industrial areas, and that in some rural areas the death rate actually declined during the war. There is evidence, the source of which I cannot quote, that the diets of rural people in the occupied countries of Europe were generally well balanced and rarely below about 2,600 calories per head daily, whereas urban people in the same countries usually had ill-balanced diets, which were often well below 2,000 calories per head daily.

Tuberculosis has always flourished where there is poverty or famine, and it is generally believed that poor food is the dominant factor. The European evidence just quoted and the striking differences between the death rates during the first and second world wars support this view. During the first world war the death rate from tuberculosis rose from 1,340 per million in 1913 to 1,694 in 1918, whereas it decreased during the second world war. In a recent review Leitch²¹ has brought forward evidence indicating that diet plays a dominant part in maintaining the body's resistance against tuberculosis. There is therefore good reason to believe that the well-balanced diet during the war did a great deal to prevent increased mortality from tuberculosis.

Anaemia.—Before the war much attention was given to the incidence of anaemia among women of child-bearing age and young children, particularly of the poorer classes. The evidence of combined dietary and clinical surveys—e.g., those of Davidson, Orr, *et al.*²² in Aberdeen, of Charles and Magee²³ in Newcastle-upon-Tyne—has not always revealed a clear-cut relationship between the incidence of anaemia and the iron content of the diet. The anaemia which prevailed responded readily to iron therapy and was relatively rare in the better-fed sections of the population. There was justification, therefore, for believing that the anaemia was due to insufficient consumption of some nutrients, of which iron was believed to be the most important. Other nutrients—protein, the haemopoietic factors, calcium, copper, cobalt, and vitamin C—are known to be concerned in blood formation, but they were considered to be less implicated than iron in causing the nutritional anaemia found in this country. The relationship of vitamin B to nutritional anaemia has been the subject of many investigations, but they have not led to a definite conclusion. Recent work by Spies²⁴ suggests, however, that folic acid plays an important part in haemoglobin formation.

There does not appear to be general agreement as to what exactly constitutes anaemia. To some, haemoglobin below a certain level, somewhat arbitrarily chosen, is the chief criterion; others attach as much importance to signs and symptoms such as dyspnoea and asthenia. Like other biological characteristics, the haemoglobin level varies from person to person of the same

age, sex, and occupation, and the levels of a number of healthy people are always found to fall along a normal frequency-distribution curve. This was well brought out in the surveys of Price-Jones and others²⁵ in 1931 and 1935. They showed that the values for healthy men varied from 92% to 122% (Haldane). Since the subjects were healthy, we cannot regard 92% as any more abnormal than 122%, for a high haemoglobin is not necessarily a sign of health—it may mean quite the opposite. For instance, high haemoglobins are always found in polycythaemia, whether idiopathic or due to known causes—i.e., erythrocytosis. Anoxia is the normal stimulus to increased production of red cells, and this can arise from diminished oxygen in the air breathed, from pulmonary changes which impede the gaseous exchange in the lungs, or from impairment of the systemic circulation. Thus, erythrocytosis with correspondingly high haemoglobin is found at high altitudes, in heart disease (particularly mitral stenosis), and in pulmonary disease—e.g., emphysema. At heights of 14,000 feet, and in cardiac and pulmonary conditions of the above types, red cell counts of 7 to 8 millions and high haemoglobin values have been found.²⁷

Excluding such abnormal circumstances and conditions, variations of haemoglobin in healthy people may be explained to some extent by variations in the rate of blood-flow and in the efficiency of pulmonary aeration. The sedentary worker with sluggish circulation and shallow respiration may well require more haemoglobin than a person who lives a vigorous outdoor life. Price-Jones and his colleagues²⁸ thought that the higher haemoglobin they found in American men (112%) than in Englishmen (105%) might be due to breathing carbon monoxide, because all the Americans, but few of the Englishmen, possessed cars. Lack of exercise on the part of the Americans seems to me an equally plausible theory.

M.R.C. Haemoglobin Survey

The report of this survey of haemoglobin values²¹ shows variations between occupational groups which seem to lend support to the above theory. Tables VII and VIII of the report show the highest levels in men whose occupations involve little muscular exertion, and the lowest in those in occupations demanding much muscular work. For example, amongst the highest values for single men were: police office workers, 112%, civil servants 108%, laboratory workers 105%; amongst the lowest were: workers in textiles 96%, locomotive builders 97%, agriculture 99%. Similar differences were noted amongst married men, but the occupational differences for women, married and single, although showing the same trend, were not so marked as for the men. Thus married women workers in textiles had a mean of 85%, in agriculture of 93%, while laboratory workers had a mean of 95% and civil servants of 97%. Differences in diet are an improbable causal factor; any advantages there may have been were almost certainly on the side of the industrial and agricultural workers rather than of the sedentary workers, most of whom lived in cities. These occupational differences in haemoglobin values may well be an expression, in an inverse sense, of bodily vigour. It is obviously desirable that the precise cause of occupational differences should be settled, in order to place our interpretation of haemoglobin values on a more satisfactory basis than at present.

M.R.C. Survey Results.—The survey was undertaken at the request of the Ministry of Health. About 16,000 people of both sexes and of different ages and occupations all over the country were surveyed during 1943. The Haemoglobin Committee placed the normal value for the adult male at 105%, but it was unable to arrive at normal values for women and children of different ages. The report suggests, however, that values in women and children below 70% should be regarded as indicative of anaemia, and values between 70 and 80% as suggestive of anaemia. The Committee concluded that there was less anaemia than before the war, particularly in women and children. Since the survey was completed further evidence of decrease in the incidence of anaemia has been obtained by Fullerton²⁹; Dobbs, Mackay, and Bingham³⁰; and Davidson.³¹ It is difficult to conceive of any factor other than improvement in diet which could have produced such a remarkable change during the war.

Teeth and Gums

Teeth.—The dependence of the teeth on the nature of the diet for normality of structure and soundness is self-evident. Present teaching is that the diet of the mother during pregnancy and lactation is as important as that of the child itself after birth, for it would seem that the foundations of the teeth are laid *in utero*. Surveys of the condition of the teeth of 5-year-old children in East London were made in 1943 by Mellanby and Coumoulos¹¹ in the same schools in which Mellanby¹² had made a similar survey by the same methods on similar children in 1929. The teeth of the children in 1943 were found to be of sounder construction and to be less diseased than the teeth of their predecessors in 1929. Over one-fifth of the children in 1943 had caries-free teeth, compared with under one-twentieth in 1929. Reports of similar improvements have come from the School Dental Service. For instance, the Cambridge school dentist's report for 1944¹³ shows steady improvement during the war in the dental condition of school-children. The percentage of teeth showing decay in 5-year-old children was 20 in 1936, 22 in 1938, 14 in 1942, and 11 in 1944. The returns for Glasgow¹⁴ are even more striking. In 1938 only 18% of school entrants had mouths free from caries; in 1944 the proportion was 48%. It cannot be argued that this evidence of improvement was due to better dental hygiene; dentists were fewer and tooth-brushes were harder to get and more expensive than before the war. Then there were, particularly in London, the air raids and the disturbances and inconveniences they produced. It seems reasonable, therefore, to conclude that the improvement observed in the teeth of the children during the war years was due in no small measure to the better-balanced wartime diet.

One thinks naturally of the increase in consumption of calcifying factors—calcium and vitamin D—as the main cause of the improvement in the teeth of children, but it might be argued that decreased consumption of sugar was also a cause. Sugar consumption fell by about 9 oz. (253 g.) per head weekly compared with pre-war, but, for obvious reasons, there can be no certainty that the children actually consumed less sweets during the war. Moreover, King¹⁵ has recently produced evidence showing that supplements of sweets (1.5–3 oz., or 42.5–85 g., weekly) or of chocolate-coated biscuits (2 oz., or 57 g., weekly) given to children aged 3 to 4 years for 6 to 24 months had no effect on the teeth. The supplements were eaten just before the children went to bed, and after they had cleaned their teeth with tooth-brush and mouthwash, so as to give the acid products of carbohydrate fermentation ample opportunity to attack the teeth.

Gums.—Shortly after the outbreak of war there was an increase in the incidence of gingivitis, especially in and around military camps, where it had sometimes the prevalence of a minor epidemic. It was very prevalent among Gibraltarians in London in 1941, and King, Francklyn, and Allen¹⁶ obtained much success in treating them with a combination of local and systemic methods. Local treatment consisted in the removal of irritants and in the application of antiseptics; systemic treatment in the administration of niacin. King¹⁷ has therefore put forward the hypothesis that lowered resistance due to nutritional deficiency, particularly of the vitamin B₃ complex, often, but not always, plays a part in the causation of gingivitis. He, and several other observers, did not find ascorbic acid to have any effect on gingivitis, even when combined with local treatment. On the other hand, Campbell and Cook¹⁸ and some others, claim to have found ascorbic acid effective, and believe that too low consumption of ascorbic acid is a causal factor. The evidence, on the whole, suggests that ascorbic acid is ineffective against the gingivitis commonly found in this country, and it would seem that the B₃ complex is more likely than vitamin C to be at fault in those cases of gingivitis which are of nutritional origin. The bulk of the gingivitis seen at present is apparently of traumatic origin, unless, as with the Gibraltarians and others early in the war, change in environment, dietary habits, occupation, and mode of life causes some unusual strain on the organism as a whole. In this event the rate at which the vitamins are used up may exceed the intake, which, under more normal conditions, would be sufficient for maintaining health (see King¹⁹ for references).

Vitamins

Vitamin-feeding Tests.—During the war the notion prevailed in many quarters that concentrated preparations of vitamins—it did not seem to matter which one or ones—were a specific defence against war-weariness, anxiety, and strain, and that they were a tonic of particular value for what were called “war workers,” but people not so classified were not considered to have any special need of them.

In 1941 a group of United States physicians generously provided the Ministry of Health with several millions of multi-vitamin capsules. With these, feeding tests were carried out on factory workers and school-children in 1941–2 and 1943–4. The first test was done on 1,242 school-children in London, Ipswich, Glossop, and a camp school, and on 214 men working in smelting furnaces; it lasted 6 to 12 months, half the subjects receiving one vitamin capsule on 5 to 7 days of each week. Each capsule contained about an adult's daily needs of vitamins A and D and of aneurin, riboflavin, niacin, and ascorbic acid. Since the national diet was thought to provide a sufficiency of all nutrients, including vitamins, the groups receiving the capsules were believed to be consuming the vitamins in excess of requirements to the extent provided by the capsules. Therefore the feeding tests were a trial of excess of vitamins, unless our estimates of their amounts in the national diet were over-optimistic. In this event, the vitamins, by making up the deficiencies would be expected to show some discernible effects. Inequalities in the nutritive values of the home diets were controlled by random division of the subjects, according to age and sex, into control and vitamin groups.

The second test was done in 1943–4 on 1,620 children aged 5 to 14 years in Stoke-on-Trent and Salford, and lasted for 12 months. The procedure adopted was the same as that in the first test. In the second test the diets of the children were specially surveyed. The results obtained showed no appreciable differences in the nutritive value of the diets between the groups.²⁰

Results of Feeding Tests.—The results of both tests were similar.^{21, 22} In the factory workers the vitamin supplements were without effect on weight, haemoglobin, blood pressure, morbidity, or output of material. In the school-children the vitamins had no consistent effects on growth, strength, endurance, hearing, incidence or severity of a variety of clinical criteria, general nutritional state, or absence from school through illness. The vitamins had, however, an apparently beneficial influence, just statistically significant, on gingivitis in the Stoke children, but not in the Salford children or in the children or adults in the first test. Two considerations must be mentioned: (1) the vitamin groups of children in Stoke, by chance, had initially higher proportions affected with gingivitis than the corresponding controls; and (2) the beneficial influence was most apparent after the first three months, but was not fully sustained for the remainder of the test. In view of these facts of the absence of effect of the vitamins on the gums in the first test and in the Salford children in the second, it would not be justifiable to interpret the Stoke findings in other than a narrow and restricted sense.

Other Vitamin-feeding Tests.—The findings in the important vitamin-feeding tests done in recent years have been reviewed.²³ Only those carried out during the war in this country, where the basic diet was roughly the same, are strictly relevant. Weighing up all the relevant feeding trials with vitamin supplements, the results do not show any consistency. There can therefore be no certainty that large-scale additions of vitamins to our wartime diets would have improved their nutritive value. The decision of the Ministry of Health to resist the many requests to recommend the issue of vitamins as a prophylactic measure has therefore been justified. The decision was based on careful estimates made in the early months of the war—estimates which were an integral and essential part of the wartime food plans.

Vitamins as Therapeutic Substances.—Since their isolation and synthesis, the better-known vitamins have been used in curative medicine not only for the treatment of specific deficiency states—e.g., vitamin D in rickets—but also, and to an increasing extent, for their supposedly general tonic effects. In some instances, as in the use of aneurin for neuritis or sciatica, some

semblance of rational therapy might be argued, but more generally the underlying theory would seem to be—Since a little of the vitamins does some good then a lot of them will do more good. This is not to despise every therapy that is not based on physiological or pharmacological research, for the clinician cannot always wait on the results of the experimentalist. Indeed, many advances in physiology have originated in the successes and failures of the clinician. Scurvy, for instance, had been robbed of its terrors for sea-going folk long before vitamins had been heard of. Whether the administration of pure vitamins, in an irrational and blunderbuss fashion, is worth while is a question which the clinician must answer for himself. There are, however, some recent additions to our knowledge which may assist him.

Frankau⁴⁸ subjected groups of R.A.F. men to a test involving speed, stamina, and co-ordination. After giving each man 50 mg. of niacin, alone or with other vitamins, daily for a few days, the men performed the test with greater skill and efficiency. It should be noted that (a) the basic diet of the men was excellent, (b) the men were very fit, (c) the dose of niacin was four to five times the daily requirements, and (d) the effects became manifest after a few days. Borsook⁴⁹ gave 528 men working in an aircraft factory on every working day for a year 50,000 i.u. of vitamin A and correspondingly large amounts of vitamin D, riboflavin, niacin, ascorbic acid, and calcium. He found that work was more efficient and that absences through illness and other causes were significantly reduced. He calculated that each worker saved on an average 10½ days' work in the course of a year. In this test the workers were receiving a great excess of vitamins—to the extent of about 10 times the daily requirement. Frankau believed that the effects of niacin in her tests were pharmacological; very probably those described by Borsook were of the same order.

Ultimate Effects of Excess of Vitamins.—The public health specialist is entitled to ask what the ultimate effects would be on the health of men and women taking vitamin supplements at high levels for the whole of their lives, and on the health and development of their children. Many are of the opinion that, at of colossal doses, vitamins can do no harm. Some recent researches, however, cast doubt on the wisdom of this.

Richards⁴⁵ found that the addition of a small supplement of aneurin to rats fed on a diet low in the B complex vitamins, but not so low as to cause signs of deficiency, produced unmistakable evidence of deficiency of other factors of the B complex in the next generation, but not in the parent rats. These findings have, in general, been confirmed by Pett *et al.*⁴⁶ Leitner,⁴⁷ after treating two patients for some time with large doses of B₁, found that one developed symptoms of thyrotoxicosis and the other of anaphylaxis. Foster *et al.*⁴⁸ found that mice fed on adequate diets supplemented with aneurin became more susceptible to poliomyelitis virus than controls.

Nutritional Status

The systematic clinical surveys which the Ministry of Health has been conducting since 1942 give a picture of the nutritional state of the public as a whole.^{49, 50, 51} These have shown that the general standard of nutrition of the population has been maintained at a high level during the war. It is remarkable that, after six years of rationing and of war, out of 20,235 people examined only 9 were found to show evidence of deficiency disease, only 0.7% were of "poor," and only 10.5% of "fair" nutritional state. The returns of the Ministry of Education support this evidence; the percentage of children for England and Wales found to be below normal was 11.3 in 1938 and 9.7 in 1944.

The systematic surveys were conducted by Dr. Sydenstricker in 1942, using the procedure developed by him in the U.S.A., and later by Drs. Hawes, Stannus, Adcock, and Fitzgerald, all of whom had had much previous experience of deficiency disease. All possible care was taken to ensure uniformity of method and of standards. Frequent consultations on the same subjects took place from time to time, and two clinicians usually worked together. The procedure consisted in a search for evidence of deficiency disease and then of an assessment of nutritional status—the slit-lamp, special tuning-fork, and other clinical aids being used.

The clinical method has its critics, but there is none other which would serve the purpose the Ministry had in mind. The other procedures that have been suggested are anthropometry and biochemical and physiological measurements. These can be regarded only as adjuncts to the clinical method; for by themselves they tell us little. The reports of nutritional surveys of undernourished people in Europe that have come to hand, many including biochemical analyses, seem to have been singularly unproductive on the basis of the biochemical results alone; the clinical findings, on the other hand, were always of value. The time is not yet ripe for full discussion of this difficult subject, and it is to be hoped that the reports of the European and Eastern experiences, when they become available, will help to solve some of its many problems.

Two clinical conditions—follicular keratosis and corneal vascularization, the one observed frequently, the other rarely, in clinical surveys—require further discussion.

Follicular Keratosis

Follicular keratosis, or folliculosis, is found in as high a proportion as 30% of older school-children and adolescents, less frequently in younger children, and rarely in children under 5. The presence of the condition bears no apparent relation to the general nutritional state. It is found frequently in healthy adolescents of both sexes, particularly in girls; it is very common in children leading a healthy open-air life, and is seen more often in winter than in summer. Female adolescents in a sausage factory showed no evidence of the condition, whereas a high proportion of girls of the same age in factories in the same district were affected. This suggested that the presence of animal fats on the skin prevented the development of the condition. Hawes and Stannus then conducted feeding tests lasting for three months or more on several hundreds of children and adolescents in institutions and schools. They used preparations of vitamin A in high concentration (so as to avoid possible effects of fatty acids), ascorbic acid, nicotinamide, pantothenic acid, and a special preparation of maize oil rich in unsaturated acids considered to be essential—viz., linoleic and linolenic acids. These were given by mouth in the following doses: vitamin A, 10,000 i.u.; ascorbic acid, 50–100 mg.; nicotinamide, 50 mg.; pantothenic acid, 50 mg.; and maize oil, 0.75 ml. per day. No definite effect could be attributed to any of the substances, but maize oil in some cases seemed to cause a softening and diminution in size of the follicular projections. Pantothenic acid seemed to have a slight effect on the follicles in some cases, but none of the other substances had any discernible action. Vitamins A and C were given very extensive trials, but no effect of any sort was observed. Deficiency of vitamin A or vitamin C was evidently not the cause. Stannus⁵² has suggested that the condition is not nutritional in origin, but is identical with keratosis pilaris or lichen pilaris, which is generally believed to be unimportant. Zieler⁵³ says of it: "Das Leiden hat keine besondere Bedeutung (Schönheitsfehler)"—"a beauty blemish," is all he thinks of the condition.

In Stannus's view the follicular keratosis, or phrynodermia, said to be pathognomonic of vitamin A deficiency is nothing more than an exaggerated and more generalized keratosis pilaris, which by itself means nothing in a nutritional sense.

Corneal Vascularization

The earlier view that corneal vascularization is pathognomonic of riboflavin deficiency has been shown to be too sweeping—just as much so as the inferences drawn from defective dark-adaptation relative to vitamin A deficiency in the early days of that technique. Ariboflavinosis has been reported in as high a proportion as 99% of subjects examined.⁵⁴ Subsequent observations by a number of workers have made it clear that the corneo-scleral junction is not avascular, as was formerly thought, and that the pathological pattern of the vessels is not easy to distinguish. Deficiency of riboflavin is not the only cause of vascularization of the cornea; exposure to bright light, heat, and cold also cause it. The subject was discussed by Stannus in his Lumleian lectures⁵⁵ and by Ferguson.⁵⁶ Both are of the opinion that vascular changes in the cornea due to riboflavin deficiency are rarely encountered in this country at present.

Intravenous Alimentation

The theoretical basis of intravenous alimentation is quite rational. It consists in the administration by vein of sufficient metabolizable nutrients to keep the body going and to repair damaged tissues when the body is unable to absorb food taken by mouth. The treatment would seem to be indicated in any condition in which absorption of enough nutrients cannot be achieved. There would seem, however, to be an overriding condition for the adoption of treatment—viz. the circulating blood should be of sufficient volume and rate of flow to sweep away rapidly the injected material so as to obviate local accumulation and thrombosis. Until about 1938 intravenous alimentation was confined almost entirely to the administration of glucose and saline solutions. Elman and Weiner¹ first reported the use of protein hydrolysates for the treatment of patients suffering from inanition arising out of, or as a complication of, a variety of pathological states. In 1943 Elman and Lischer² reported much success for the treatment in several hundred cases. Elman claimed that his preparation rarely if ever caused reactions, but the same could not be said of other preparations, most of which gave rise to reactions of an anaphylactic type. The subject has been reviewed by Elman,³ Gaunt,⁴ and Cuthbertson.⁵

The most successful of all the American preparations is amigen. The British preparations for intravenous use are made by hydrolysing casein with sulphuric acid. This breaks down the tryptophan which has to be added to ensure the "vollwertigkeit" of the preparation. Sometimes supplements of cystine and methionine are also added.

Scope for extensive use of these preparations seemed likely to develop with the prospect of starvation in Europe at the end of hostilities. In starvation there is progressive failure of digestion and absorption and when the stage of dehydration is reached, both of these functions would seem almost to have ceased because of degeneration of the intestinal mucosa.⁶ It is then that intravenous alimentation appears to be most appropriate, if for no other reason than that food of any sort given by mouth to people in such a debilitated state tends to increase the diarrhoea and dehydration. In the German horror camps, after liberation, a number of people were treated by intravenous alimentation, but the results were far from being uniformly good. The treatment evidently met with greater success in the Bengal famine of 1943.⁷ Doubtless lack of adequate nursing was a cause of failure, as Vaughan and others⁸ have pointed out, but many of the subjects were evidently unsuitable. A circulation of sufficient vigour to ensure rapid dispersal of the nutrient fluid throughout the body and the prevention of local thrombosis is evidently indispensable for success. For this reason, restoration of the circulation by transfusions of plasma, serum or whole blood would seem to be an essential preliminary to the adoption of intravenous alimentation in starving people.

A few repatriated prisoners of war were treated with protein hydrolysates in England in 1945 with some, but not spectacular, success. Although no untoward reactions were reported, thrombosis of injected veins occurred in every case.

Conspicuous by contrast is the success of treatment with amigen in the U.S.A. A recent paper by Brunschwig and others⁹ provides an example. They kept alive a man aged 50, who had had two major operations, for 56 days on amigen and glucose by vein, no other nourishment of any sort was given. The man recovered completely. A fully satisfactory preparation could probably be put to wide clinical use. Treatment should obviously be restricted to persons unable to absorb food taken by mouth, and it should give way to ordinary feeding as soon as there is reason to believe that absorption is restored.

Oral Hydrolysates

An enzymic digest of protein not so fully broken down as the acid hydrolysate was also used in Europe for the treatment of starvation.¹⁰ Little success was obtained. There are two objections to these semi-digested preparations. The first is that the stuff is too nauseating, and the second that there is no physiological basis for such a half-way measure between ordinary feeding on the one hand and intravenous feeding with metabolizable nutrients on the other. For anatomical reasons

impairment of digestion is hardly conceivable without impairment of absorption. Therefore, if a patient cannot digest food he is not likely to be able to absorb it either.

Summary and Conclusions

The wartime food policy was the first large scale application of the science of nutrition to the population of the United Kingdom. This application was brought about by home production and importation of suitable foods in suitable amounts, by rationing according to needs, by subsidies on staple foods, and by adequate wages. A diet more than ever before in conformity with physiological requirements became available to everyone, irrespective of income.

The other environmental factors which might influence the public health had, on the whole, deteriorated under the stress of war. The public health, so far from deteriorating, was maintained and even in many respects improved. The rates of infantile, neonatal, and maternal mortality and the stillbirth rate reached the lowest levels ever. The incidence of anaemia declined, the growth rate and the condition of the teeth of school-children were improved and the general state of nutrition of the population as a whole was up to or above pre-war standards. We are therefore entitled to conclude that the new knowledge of nutrition can be applied to communities with the expectation that concrete benefit to their state of well being will result.

The national diet showed, however, some significant departures from physiological requirements, especially with respect to milk and bread. Consumption of milk was not more than about 75% of the desirable amount. In regard to bread, the defect was removed by the adoption of a higher milling ratio of wheat in 1942. The subsequent lowering of the ratio reduced the nutritive value of bread, but, so far as our present knowledge goes, the 80% ratio is about sufficient to ensure enough B vitamins for the metabolism of carbohydrate in bread. It is, however, questionable if it would suffice for the metabolism of additional unbalanced carbohydrate such as would follow a large increase in the consumption of sugar, unless consumption of other vitamin B rich foods—e.g., milk and eggs—were correspondingly increased.

If we are to retain what has been achieved during the war we must see that the quality and quantity of our agricultural produce and imports are determined primarily by health requirements and that, when, in the fullness of time, free choice of food returns the public are made aware of the dietary requirements for health. Steps should also be taken so to arrange our social and economic affairs as to make it possible for everyone to secure a diet sufficient for his needs.

The need for up-to-date information about food distribution and the nutritional state of the public will continue. Accordingly, surveys of food consumption and of the nutritional state of samples of the population should be carried out from time to time. The technique of dietary surveys is now fairly well established, but that for surveys of the nutritional state is much less satisfactory. More research requires to be done, involving laboratory and clinical studies, therapeutic tests, and feeding tests. Among subjects worthy of study are the significance of haemoglobin levels, and of a variety of commonly occurring signs and symptoms of a minor order, such as gingivitis, pyriasis sicca, and corneal vascularization, and the relationship of diet to the incidence and progress of disease, including dental disease. The perfection of preparations of protein hydrolysates and of the technique of administration would open up a wide field for their use in curative medicine.

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TREATMENT OF CHEST WOUNDS IN FORWARD AREAS

A REVIEW OF 100 CASES

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Chest wounds comprise a considerable section of the injuries of war, and the importance of their early treatment is now generally recognized. A series of 100 consecutive cases treated at a casualty clearing station (C.C.S.) is reviewed.

Statistical Survey

Undoubtedly many chest casualties die on the battlefield, and further deaths occur before surgical aid is available. Those surviving at C.C.S. level represent a varying proportion of the total casualties admitted, as shown in Table I. Of the 220 cases analysed the 100 reviewed in this article were all dealt with by one surgical unit.

TABLE I.—Analysis of 220 Cases

	Cumtort Wounds	Shell Wounds	Mortar Wounds	Bomb Wounds	Grenade Wounds	Mine Wounds	? Wounds	Missile	Total	Total Admissions	% of Total
July	19	10	28	—	—	—	—	—	57	905	6.3
Aug.	15	9	20	—	—	—	—	—	45	611	7.3
Sept.	16	4	6	—	1	—	—	1	30	424	7.0
Oct.	20	30	6	2	—	2	—	3	63	1,096	6.0
Nov.	3	10	—	—	—	—	—	—	20	560	3.5
Dec.	3	1	—	—	—	—	—	1	5	428	1.2
Totals..	76	64	62	2	3	4	9	—	220	4,024	

July, August, September, and October were active battle phases when an attached field dressing station filtered off light

and walking wounded, passing only the more serious cases to the C.C.S. During this period the incidence of chest wounds was in the region of 6.6%. In November there was a fall to 3.5%, due to seasonal increase in medical cases. In December the C.C.S. took casualties without filtration, and the rate was only 1.2%. The overall rate, including the numbers filtered off, for the period July to December was 2.7%. This is an increase of 40% over comparable figures for the last war (War Office Publication, 1944), and may be due to such factors as improved first aid, more rapid evacuation, and higher priority in treatment.

The proportionate incidence of wounds due to various causative agents changed during the progress of the campaign. In Normandy mortar wounds accounted for a relatively high proportion. During the advance into the Low Countries small arms wounds were predominant. In November and December when contact with the enemy was limited to patrols, shellin accounted for most of the wounds. Aerial bombs, mines, and grenades did not at any time cause many casualties. There was no instance of wounding by bayonet or knife.

Types of Wounds.—Chest wounds are of four types. The non-penetrating wound does not enter the pleural cavity; the penetrating wound has an entry only; the perforating wound traverses the chest, with entry and exit. In the thoracic abdominal or abdomino-thoracic injury the same missile passes either through the chest into the abdomen or in the reverse direction. Any of these types penetrating the pleura may give rise to a sucking wound.

First-aid Treatment

Treatment begins on the battlefield. The stretcher-bearer work demands brawn more than brain, but with a little training he is capable of doing a great deal for chest casualties. The marked dyspnoea caused by a penetrating chest wound is easily recognized; the stretcher-bearer may be able to plug a large sucking wound with a field or shell dressing. Distress and anxiety should be relieved by morphine, and the stretcher-bearer can give 1/4 gr. (16 mg.) intramuscularly into the thigh or shoulder by means of a "syringe." Subcutaneous administration is of little value, since peripheral circulation in chest wounds is quickly impaired and absorption from the tissue delayed. All patients with chest wounds should be stretcher-borne, preferably with the head and shoulders elevated by high cushion of blankets or clothing.

When the patient reaches the aid post the regimental medical officer is able to examine the wound more carefully and apply the proper dressing. As many wounds begin to suck at a late stage it is safer to treat every penetrating wound as a potential "sucker." The skin around the wound is cleaned of blood and sweat, and a pad of vaselined gauze, plugged into the wound if necessary, is covered with a field dressing and held firmly in place by a generous application of adhesive strapping, which completes the seal. Elastoplast is unsuitable because it tends to stretch and "sweat off." If the patient has not yet had morphine it should now be given by the medical officer—intravenously, if possible.

The principles of first-aid treatment adopted by the R.M.C. also hold in the field ambulance. Dressings, if still satisfactory, should not be disturbed, and the average patient, after a short rest, is able to continue his journey to the C.C.S. If dyspnoea continues to be severe it may be due to persistence of "suck." For the majority re-dressing may suffice, but for large wounds this may be inadequate. In these circumstances the skin edges can be approximated by a single suture over vaselined gauze pack. This is a temporary measure only, to enable evacuation to the C.C.S., where normal surgical procedure then takes place. Where respiratory distress is severe and respirations are shallow, oxygen by B.L.B. mask is of value. If it is necessary at the field ambulance it should be continued during the journey to the C.C.S.

Transfusion for chest injuries at field ambulance level is of debatable value. Transfusion produces its best results when closely allied to surgery, and if the patient is transfused forward the improvement in his general condition is usually nullified by the journey to the C.C.S. Pre-operative transfusion in these cases is then found to be more difficult, and the patient responds more slowly than he would if he had been evacuated without

preliminary transfusion. It is permissible if evacuation is delayed or the journey is a long one, but such circumstances were rare in this campaign.

Pre-operative Treatment and Diagnosis

On arrival at the C.C.S. the patient is admitted to the resuscitation ward and propped up on a back-rest. Enough clothing is removed to allow a rapid but careful scrutiny of the chest wall. Some wounds are now found to be sucking, either because the dressing has become loose or because "suck" has developed in a wound which appeared closed at the field ambulance; these require immediate sealing. Traumatic emphysema may be present. It indicates a penetrating wound, and may be extensive, causing gross swelling as far as the neck and face and extending down the abdominal wall to the groins. It is often associated with a small skin-entry wound. Evidence of pneumothorax must now be sought. The most helpful signs are displacement of the apex beat and deviation of the trachea. Tension pneumothorax is uncommon, but must be excluded. It is rarely seen at the C.C.S., only two cases having been observed in over 5,000 admissions. Cases have, however, been reported from forward areas, and it is possible that this may account for some deaths soon after wounding. Tension pneumothorax results from leakage of air from terminal bronchi and bronchioles into the pleural cavity, whence there is no escape to the exterior. The condition is progressive and treatment urgent. A wide-bore needle is inserted into the second interspace anteriorly and a one-way flow provided by reversing the air-inlet valve of an Army pattern transfusion set.

During rush periods routine radiography is not possible. Some indication of the route of the missile can be gained by an appreciation of the position of the patient relative to the bomb or weapon which injured him. The value of early radiography lies mainly in a knowledge of the final position of the foreign body. Skiagrams of the chest and abdomen should always be taken when there is a possibility of thoraco-abdominal injury. It is not necessary in through-and-through wounds.

Diagnosis of thoraco-abdominal injury may present considerable difficulty. Chest wounds alone can cause abdominal rigidity and sometimes abdominal pain, either from irritation of the diaphragmatic pleura or from spinal or intercostal nerve involvement. Rigidity in a penetrating abdominal wound can be variable, depending on the extent of haemoperitoneum or bowel injury. Clinical differentiation of thoraco-abdominal from pure chest injury may be impossible on purely clinical grounds, and in cases where radiological evidence is not conclusive the final diagnosis may be possible only at operation.

Transfusion

For statistical purposes the cases under review have been divided into four groups: (A) Penetrating and perforating chest wounds uncomplicated by other major injury. (B) Penetrating and perforating wounds with associated major injury. (C) Thoraco-abdominal wounds. (D) Non-penetrating wounds of the chest with or without associated major injury.

TABLE II.—Numbers of Cases Transfused in Different Groups

Group	Total Cases	Transfused	Total Blood (pints)	Total Plasma (pints)
A	23	4	11	2
B	37	19	47	12
C	22	18	60	7
D	18	9	23	4
Totals ..	100	50	141	25

Of the 100 cases, 50 were transfused with an average of 3.3 pints (1.9 l.) of protein fluids. The proportion of blood to plasma used was in the ratio of 11 to 2. Of the four cases transfused in Group A, two had severe intercostal bleeding, each requiring three pints (1.7 l.) of blood, one previously having had two pints (1.14 l.) of plasma at a field ambulance. A third, with a fractured sternum, had one pint (568 ml.) of blood only. The fourth was critically ill on admission, and, despite transfusion with four pints (2.27 l.) of blood, died suddenly during induction. In Groups B and D transfusion rates are similar—an indication that transfusion was required mainly on account of associated injury. This is borne out by the low transfusion rate in Group A. The fact that 18 cases out of 22 in Group C

were transfused is merely an indication of the high incidence of involvement of liver, spleen, and kidney in thoraco-abdominal injuries. Group D includes two known cases of blast-lung. In theory such cases should not be transfused, but since they had very severe associated injuries it was felt that transfusion should not be withheld, for without it they had no chance of recovery.

Transfusion of cases with intrathoracic injury has until recently been regarded with disfavour. It was argued that overloading of the right heart and pulmonary oedema might result and that bleeding from the lung might increase. This has not been observed even in cases receiving as much as seven pints (4 l.) of blood. The response to transfusion does not seem to differ from that in any other type of injury. Transfusion of two to three pints (1.14–1.7 l.) at the rate of 15–20 ml. a minute appears to be well tolerated.

Operative Treatment

No operative intervention is necessary in small penetrating wounds which are not sucking, and these cases may be passed direct to the physician.

A few cases reach the C.C.S. *in extremis*. This may be accounted for by intrathoracic haemorrhage due to hilar or mediastinal damage, but more often inspection shows that because of its site or extent closure of a sucking wound has not been effective. The urgent need is stressed for closure of the wound as a primary measure. Insertion of muscle sutures without an anaesthetic may be necessary before attempting resuscitation. These cases have operation priority second only to severe uncontrolled haemorrhage, and take precedence over all else in the resuscitation ward.

Cases requiring operation have lacerated wounds with comminution of the adjacent ribs. Bleeding is often profuse, and may originate from intercostal or internal mammary vessels and less often from lacerated lung tissues. Operative procedure in the C.C.S. is essentially minimal. In cases with associated injuries the penetrating chest wound is dealt with first. Under gas-and-oxygen anaesthesia the wound edges are excised and devitalized tissues and rib fragments removed. Rib ends are trimmed beyond the edges of healthy pleural tissue so that no possibility remains of subsequent laceration of the lung. Any intercostal haemorrhage is dealt with by a through-muscle suture. The anaesthetist then expands the lung so that the injured area presents in the wound. Lacerations can be sewn up and bleeding controlled, but interference with lung tissue is rarely necessary. Foreign bodies, if readily accessible, are removed, but systematic searching is unwise, since it tends to embarrass still further a mechanically laboured respiration. Possible exceptions to this rule are foreign bodies known to be in the region of the hilum or pericardium. The pleural cavity is then sucked dry and 50,000 units of penicillin introduced in 5–10 ml. of normal saline. The wound edges are dusted with penicillin-sulphanilamide powder and, with lung expansion maintained to the full by the anaesthetist, the pleura is closed—separately, if possible, but generally by incorporation with muscle tissue. Careful approximation of muscle layers is essential to prevent further leakage. Where there is extensive tissue loss it may be necessary to swing a flap of muscle from the pectorales or the latissimus dorsi to obtain closure. When cases can be held at least six days, suture of the skin is permissible.

Thoraco-abdominal Wounds

The incidence of thoraco-abdominal wounds to total chest wounds has been given variously as from 6 to 14%. In this series the figure is 22%. The difference is explained by the transference in Normandy, where lines of evacuation were short, of uncomplicated penetrating chest cases back to base for treatment.

Expectant treatment is the normal procedure where the skiagram shows a small foreign body lodged in the liver from a right-sided chest wound, and no attempt should be made to remove it. In the majority of cases the wound of entry is in the lower chest, the tract proceeding horizontally through the diaphragm and involving upper abdominal organs. In some it is directed downwards and may injure any of the abdominal contents. The operative approach depends on the site of the entry wound. As diagnosis is often confirmed by following the track of the wound it is generally expedient to use an incision

starting at the point of chest entry, running downwards and forwards towards the upper abdomen along an intercostal space. By this approach exposure of the diaphragmatic wound and left upper abdomen is adequate, and many forward surgeons have commented on the ease with which splenectomy can be carried out by the transthoracic route. Further advantages are easy repair of the diaphragm and the avoidance of confirmatory laparotomy in doubtful cases where the peritoneum is found to be intact.

In the series under review there were 22 cases of thoraco-abdominal injury. One case was treated expectantly and 21 were submitted to operation. The principal abdominal organs involved were: liver (11), spleen (7), kidney (7), stomach (3), jejunum (2), and colon (1).

Post-operative Treatment

The post-operative treatment of chest wounds is carried out by the physician. Haemothorax or haempneumothorax persists in the majority and treatment is largely guided by radiological control. Until some two years ago the initial aspiration was delayed up to four days, and even this was considered to be setting the pace. Present opinion and experience indicate that early aspiration, even on the morning following operation, is advisable, and amounts of up to two pints (1.14 l.) of blood-stained exudate have been aspirated without undue distress. Air should always be aspirated first, for in some cases where this was delayed difficulty was experienced in obtaining complete re-expansion of the lung. Aspiration of fluid is then repeated daily or on alternate days until the chest is dry. After aspiration, 50,000 units of penicillin are introduced into the pleural cavity every two days. Absorption by the pleura is slow, and penicillin concentration is maintained at a relatively high level. It is stated by d'Abreu *et al.* (1944) that one to five units per ml. of fluid aspirated have been found up to four days after introduction. This concentration is considerably higher than that attained in the blood, which is about one-tenth of a unit per ml. after intramuscular injection of a similar dose. In addition penicillin is required in cases of multiple injury, to prevent pleural sepsis from wound contamination, and to control infection from foreign bodies lodged in the mediastinum. Breathing exercises carried out under supervision have proved of value in obtaining re-expansion of the lung and should be instituted as soon as the patient is able to co-operate.

The duration of stay of these patients in the C.C.S. is tending to increase. During the earlier phases of the campaign many cases of penetrating chest wounds were evacuated on the second post-operative day. They are now held up to five or six days or, better still, until the pleura is dry and dyspnoea at rest subsided. A marked improvement in their condition has been reported from base since this policy has been adopted. Duration of stay of thoraco-abdominal cases in the C.C.S. determined by the abdominal lesion. An interval of 10 to 14 days must elapse before these can begin the journey to base.

Mortality

Of the total of 220 patients (Table I) 7 were dead on admission and 18 were moribund or failed to respond to resuscitation. The operative mortality in the series of 100 cases under consideration was 16%.

TABLE III

	Pre-operative Deaths in 220 Cases Admitted to the C.C.S.			Post-operative Deaths in 100 Cases under Review	
	Total Cases	Brought in Dead	Failed to Resuscitate	Total Cases	Deaths
July ..	57	3	2	18	4
Aug. ..	45	—	5	18	3
Sept. ..	30	—	3	19	7
Oct. ..	63	2	6	26	1
Nov. ..	20	—	1	15	1
Dec. ..	5	—	1	4	—
Totals ..	220	7	18	100	16

Deaths following operation have been ascribed to several factors: (1) gross intrathoracic damage, 3 cases; (2) associated injury, 6 cases; (3) thoraco-abdominal injury, 5 cases; (4) blast-

lung, 2 cases. There was no definite evidence of injury to the pericardium, myocardium, great vessels, trachea, or oesophagus in the cases operated on in this series, but it is possible that a proportion of those who were brought in dead or failed to resuscitate died from such injuries or from thoraco-abdominal wounds.

Summary

A series of 100 cases of chest injury with a mortality of 16% is reviewed.

Chest injuries occurred in 6.6% of admissions to a casualty clearing station in active battle phases.

Early occlusion of the sucking chest wound is the most important first-aid measure.

Transfusion at field ambulance level is rarely advisable: pre-operative transfusion at the C.C.S. is required mainly on account of associated injury. The presence of a chest wound is no contra-indication to transfusion.

Arrest of haemorrhage, removal of devitalized tissues and accessible foreign bodies, and sound closure of the pleura should be the aims of forward surgery.

Intrapleural penicillin should be given to prevent sepsis in the lung and pleura. Penicillin should be injected intramuscularly for mediastinal or other associated injuries.

Early and repeated aspiration of air and fluid should be instituted and continued until the chest is dry and the lung expanded.

Causes of death are indicated.

Our thanks are due to Lieut.-Col. R. Evans, R.A.M.C., for permission to publish this article; to Brig. R. K. Debenham, Consulting Surgeon, Second Army, for helpful criticism; and to Lieut.-Col. G. A. H. Buttle and G. A. G. Mitchell, R.A.M.C.

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MYELITIS FROM MUMPS

BY

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The use of the name "epidemic parotitis" for the condition more commonly known as mumps unduly narrows our conception of this disease. Although parotitis is usually present it must not be assumed that it is either primary or essential. There is no evidence that the infective process begins in the parotid glands, and certainly it may take a number of atypical forms, notably submaxillary involvement, orchitis, mastitis, and pancreatitis. Neurological syndromes must also be recognized and the commonest of them is a lymphocytic meningeal reaction which may be brisk enough to cause the classical signs of meningitis, although, more often, it is a minor symptomless change discovered only as a result of lumbar puncture. Close study of this meningeal reaction has suggested that the mump virus is primarily neurotropic (a view which Doptor holds). Thus, examination of the cerebrospinal fluid of symptom-free mumps contacts (Laverne *et al.*, 1938) showed an increase in the lymphocytes in many instances. Usually this increase was found three days before the end of the incubation period. The ordinary signs of mumps followed in some of these cases showing lymphocytosis, but not in all. This evidence suggests that the primary localization often occurs in the nervous system and that the contacts showing only the lymphocytic reaction had had abortive attacks.

Much less frequently the neurological manifestations of mumps are of a major order, taking the form of acute meningitis, encephalitis, myelitis, or a combination of the foregoing. A few instances of what appeared as neuritic lesions have also been recorded in mumps. It is said that the neurological symptoms appear most usually at the height of the attack of mumps, although they may precede or follow it by a few days.

Clinical involvement of the parotid glands not being an essential feature of mumps, the development of a neurological picture without parotitis may present a difficult problem in

diagnosis Harris and Bethell (1938) described a case of meningo-encephalitis and double orchitis, yet without parotitis, and Frankland (1941) in a mumps epidemic among soldiers saw some patients with meningeal involvement who had neither parotitis nor orchitis, and postulated that this epidemic may have been caused by a neurotropic type of virus. Similarly, a child with acute meningitis following contact with mumps was seen by me, the fluid was opalescent with lymphocytes and there was spontaneous recovery, neither parotitis nor any other sign of mumps supervening. Again, mumps parotitis may be so slight as to attract little or no attention. Halcrow and Wang (1945) described orchitis and meningo-encephalitis which came on three days after an almost latent parotitis. Thus an acute neurological syndrome accompanying parotitis or orchitis is not likely to cause difficulty, but in their absence the diagnosis may be difficult. The clinician will be helped if a history of contact is obtained and a knowledge of the possible neurological pictures will also be of assistance.

Mumps can lead to any of the following conditions: meningo-encephalitis, encephalomyelitis, labyrinthitis, optic neuritis, neurorhinitis and retrobulbar neuritis. Paralysis of a cranial nerve may be seen in mumps encephalitis, notably involvement of the seventh nerve (Ford, 1937). In writing of myelitis Ford mentions the possibility of paralysis of all four limbs, also of paralysis of the diaphragm, and cites two cases of the ascending type of myelitis similar to Landry's paralysis. He also quotes two cases of "local paralysis" recorded by Dopter and by Janbon *et al.* respectively. An example of the local type of paralysis, in which there was paralysis of the serratus magnus following parotitis and orchitis, is given by Harris and Bethell (1938).

When mumps attacks the nervous system the prognosis as a general rule is good and recovery may be expected within a few days, frequently, indeed, it is dramatic. There are two exceptions to this favourable prognostic rule: deafness provides one, and occasionally fulminating cases of meningo-encephalitis have proved to be fatal. Donohue (1941) recorded such a case, and the histological lesion was a perivascular demyelination similar to that seen in other cases of post-infective encephalitis.

The following example of "local paralysis" resulting from mumps is of interest, especially as it bore a strong resemblance to poliomyelitis. It is not possible to say for certain whether the causative lesion was a true myelitis or perhaps meningoradiculitis or neuritis, however, no sensory loss was found.

Case Report

A boy aged 16 years 9 months developed bilateral parotid mumps on March 28, 1945 and Dr. H. Gwynne Jones who saw him, found the temperature raised to 102° F., by March 31 it had subsided. However, with the appearance of orchitis on April 3 the fever returned (101° F.). Two days later (April 5) the boy noticed pain in his right knee and a numb or "dead" feeling in the leg and when his doctor visited him he found that he had to exclude the possibility of poliomyelitis. On examination that evening I noted the following: He was flushed, temperature 105° F., headache, which increased on standing up, patient not drowsy, tongue furred. The parotid swellings had subsided, but there was still orchitis on the left side. There were no other abnormal findings except in the nervous system: fundi and cranial nerves normal, no cervical or spinal rigidity, Kernig's sign positive, right knee jerk absent, right ankle jerk diminished, plantar reflexes flexor, weakness of the flexor muscles of the right calf and of the anterior tibial muscles of the right leg. There was no sensory loss. Lumbar puncture was not thought to be necessary. The temperature subsided during the next 48 hours and the patient recovered without sequelae except for a sensation of "pins and needles" in the right foot for about a week after getting up.

Summary

An example of mumps is presented, showing parotitis followed by orchitis and then myelitis which caused "local paralysis". Without this clear evidence of mumps the sudden development of paralysis of this type would almost certainly have been ascribed to poliomyelitis. Recovery set in early and proved to be complete.

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INTESTINAL OBSTRUCTION DURING LATE PREGNANCY

BY

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Intestinal obstruction complicated by the existence of a viable child *in utero* presents the same problems that are common to all abdominal emergencies occurring late in pregnancy. The diagnosis is not easy, and the presence of the enlarged uterus renders operative treatment difficult. Lower-segment Caesarean section performed at the same time is a formidable undertaking, especially if intestinal resection is necessary. On the other hand, if the pregnancy is allowed to continue, a situation may arise in which the patient is subjected to a natural labour during the critical days which are likely to follow an operation of this kind. The following case illustrates another possible method of treatment. It is reported in order to show that in certain favourable circumstances laparotomy for intestinal obstruction may be delayed until natural delivery has been effected.

Case History

Mrs. A., aged 26, a 2-gravida, was admitted to the North Herts and South Beds. Hospital on Dec. 4, 1945, at the 32nd week of pregnancy, for acute abdominal pain and vomiting. In 1936 she had had an operation at which an ovarian cyst had been removed. In 1938 appendicectomy had been performed. In 1940, following recurring attacks of abdominal pain, she had been x-rayed after a barium meal, and had been told that she had a "twisted bowel." She was advised that an operation was unnecessary unless her symptoms became worse. In 1942 she became pregnant, and the attacks of abdominal pain were aggravated during this pregnancy. Delivery, however, was accomplished spontaneously at term after a quick and easy labour lasting 10 hours. After the birth of the first child she had no more attacks of abdominal pain until she became pregnant again. This time the attacks were worse, and it was one of these, associated with severe vomiting, that finally brought her to hospital.

On admission she complained of spasmodic pain in the upper abdomen and she had vomited several times during the day. Her temperature was 100° and her pulse rate 98. There was a small scar in the right iliac fossa, and a larger scar having the appearance of a Battle's incision which had been prolonged upwards. The size of the uterus corresponded with the dates, the foetal head was engaged in the L.O.A. position, and no obstetric abnormalities could be found to account for the abdominal pain. The epigastrium was distended and some peristalsis could be seen. A vaginal examination showed that the foetal head was low in the pelvic cavity and there was no dilatation of the cervix. No uterine contractions were felt. Her bowels had not acted for two days. Subacute intestinal obstruction was diagnosed, and a treacle enema produced a good result with some improvement in her general condition. The following day she complained of slight abdominal pain but did not vomit. Further enemata were returned clear, but she remained fairly comfortable all day. The next morning, however, she complained of increased pain and vomited about 1 pint (570 ml.) of dark fluid. Her pulse rate remained at 100, but the uterus was now contracting and it was difficult to distinguish intestinal colic from possible uterine pain. On vaginal examination the cervix appeared to be taken up, and as it was thought that she was about to start labour the membranes were ruptured artificially. Five hours later she was delivered spontaneously of a living child weighing 6 lb. (2.7 kg.).

Immediately after delivery she complained that she still had severe abdominal pain, and, with the uterus now well retracted, the signs of intestinal obstruction were obvious. The abdomen was very distended, and the thinness of the abdominal wall after delivery made the peristalsis in the distended coils of intestine plainly visible. There was also a point of tenderness over the larger of the two scars. An enema again failed to produce a result, and four hours after delivery her general condition had deteriorated and it was decided to perform laparotomy.

Operation.—The abdomen was opened through a right lower paramedian incision, and a quantity of dark blood stained fluid was found in the peritoneal cavity. The approach was rendered difficult by numerous adhesions between the omentum and the abdominal wall and by the distended coils of intestine. Inspection of the caecum was also difficult because it was bound down by adhesions in the right iliac fossa. It was found to be collapsed, and the peritoneal surfaces of the two scars were then inspected. A thickened band attached to the larger of the two scars was divided, but the coils of intestine remained distended. A further search revealed that the real site of the obstruction was at a point 3 in. (7.6 cm.)

above the ileocaecal junction, where angulation of the ileum had been caused by adhesions to an enlarged gland. After this portion of the ileum had been gently dissected free the obstruction was relieved and it was decided to do nothing further. The abdomen was closed without drainage. The uterus had been observed to be well retracted and it had in no way added to the difficulty of the operation. A continuous intravenous drip saline was given, and next day the patient was quite comfortable. A bile enema produced a faecal result with much flatus, and this was repeated twice daily for two days, after which the bowels acted naturally. There were no puerperal complications, and the child, although eight weeks premature, made good progress. Both were discharged from hospital after four weeks.

Commentary

The causes of intestinal obstruction during pregnancy are the same as those which produce it in the non-pregnant state. It is probable, however, that pregnancy predisposes to an attack. This is explained partly by the rearrangement of the viscera due to pressure by the enlarged uterus, and partly by the physiological atony which is believed to occur in the smooth muscle of the intestine as a result of endocrine changes.

From the obstetric point of view there are four possible methods of treatment, depending upon whether the obstruction is acute or subacute. They may be summarized as follows:

1. Immediate laparotomy. Lower-segment Caesarean section followed by treatment of the obstruction on general surgical principles.
2. Immediate laparotomy. Relief of the obstruction without disturbing the pregnancy. Morphine and progesterone to postpone labour as long as possible.
3. Surgical induction of labour. Spontaneous relief of the obstruction after delivery.
4. Surgical induction of labour. Laparotomy immediately after delivery if the obstruction is unrelieved.

The method chosen will depend upon the individual case. The first method is recommended by DeLee and Greenhill (1943) for all cases in which the symptoms are urgent and the child is viable. The second method would be chosen by most obstetricians only in the early months of pregnancy. The third and fourth methods are applicable only to certain cases of subacute obstruction, and may be considered together in connexion with the case described.

It has been shown experimentally (Wright, 1940) that animals with low and uncomplicated obstruction can be kept alive for as long as 28 days provided that sufficient fluid containing chloride is given and vomiting is controlled by aspiration of the stomach. Valuable time may thus be gained in cases of subacute obstruction. Moreover, uterine contractions are likely to be initiated by the violent peristalsis of the intestine, and conditions are therefore favourable for the onset of labour.

Before deciding to delay the laparotomy when the obstruction appears to be subacute, it is necessary to be absolutely satisfied on three conditions: (1) that strangulation is absent; (2) that obstruction is low; (3) that there is a reasonable prospect of rapid delivery. The first and second of these can be determined only by clinical observation. The third depends upon the history of previous labours, the state of the cervix, and the presence or absence of uterine contractions.

In the case recorded above all three conditions were favourable. The obstruction was at first subacute and uterine contractions were detected after 36 hours. After delivery the obstruction was not relieved, but the operation was made considerably easier by the absence of the enlarged uterus, and the patient was saved an unnecessary Caesarean section.

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As a part of the health programme for displaced persons, two x-ray teams will visit U.N.R.R.A. displaced persons' centres in the U.S. zone of Germany. Each team consists of a doctor and three technicians from the International Red Cross, using mobile micro-film x-ray units carried in ambulances. This mass operation, to be completed in a reasonably short time, will enable U.N.R.R.A. to discover and treat incipient cases of tuberculosis as well as improve the methods used in the advanced cases. Its hospitals in the U.S. zone now have 2,000 beds for patients.

TRAUMATIC BLEPHAROSPASM AS AN ISOLATED SYMPTOM

BY

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The following case of spasm of the orbicularis oculi, which occurred as the result of trauma and responded to local nerve blockage with procaine, is described because no record of any similar occurrence is to be found in the literature.

Case Record

A girl aged 13 attended hospital with a history that her brother had poked a stick in her right eye five days previously, since when she had been unable to open it. On examination this eye was screwed up as though a foreign body were present. She was unable actively to open it, but it was easy to force the lids apart, revealing a normal globe. There was no conjunctivitis or any other inflammatory process, and no foreign body was present. The skin surface of the lids was intact and there was no bruising or oedema, but fibrillary twitchings of the orbicularis oculi were evident on inspection. This finding was magnified on palpation, when the muscle could be felt twitching beneath the fingers, giving the same impression as if a sparrow or other small bird were in the hand.

A diagnosis was made of spasm of the orbicularis. The treatment adopted was blockage of the facial nerve as in akinesia for cataract extraction. Two ml. of procaine was injected at the neck of the mandible with satisfactory results. Within five minutes the twitching ceased and the patient could open and close her eye in the normal way. Breakage of the vicious circle was all that was required, for when seen four days later there had been no recurrence and full movement of the lids was present. Vision was 6/6 in each eye.

Discussion

'Reflex blepharospasm occurring in conjunction with external lesions of the globe is an everyday incident; isolated blepharospasm unconnected with bulbar mischief is rare.' Benedict (1941) has usefully classified the condition as symptomatic, hysterical, and essential. The first of these, whilst reflex in origin, is assisted by voluntary contraction in many cases, and is difficult to overcome on attempted passive opening of the lids, as all know too well from experience.

The hysterical type persists during sleep and is characterized by incomplete closure of the lids, which show fibrillary twitchings; attempted opening of them is attended with increase of spasm, but the condition can be cured by persuasion. Essential blepharospasm, on the other hand, presents tonic and clonic forms, and is precipitated by a lesion in the central nervous system; it is alleged to follow encephalitis in some cases, and has been observed in the Parkinsonian state. In that case the lid movements are athetotic, resembling those of the fingers, but attempts at forcible opening meet with increased resistance. In the present case the lids were separated comparatively easily and without the superintention of extra spasm.

Taylor (1934) describes a case of local tetanus in which the only muscles involved were the masseter and ipsilateral orbicularis oculi. The wound of inoculation was a laceration of the scalp incurred while diving in sub-tropical waters 17 days previously. The ocular manifestation was a tonic spasm of the orbicularis which resulted in a marked narrowing of the prepebral fissure without complete closure of the lids. The case responded to antitetanic measures combined with a reopening of the healed scalp wound, which was then swabbed with neocarbolol.

In cases of blepharospasm associated with trauma the findings will vary greatly with the individual case. It may be noted, however, of recent injuries that a surprisingly small number of cases show any blepharospasm, closure of the eye being due, reactionarily, to oedema or haematoma. Children of course form an exception to this, a voluntary contraction often being superadded owing to nervousness. But, in adults, lid spasm is seen commonly in diseases affecting the anterior segment, including injuries of some standing when iritis has begun, but only rarely in the earlier stages when they first attend hospital. In many cases a lid oedema will have damped down the response; others a paresis of the muscle resulting directly from the trauma must be presumed; while there is, of course, that large group

which has incurred ocular damage without injury to the lids. The case described falls in none of the usual classifications, and is readily amenable to treatment.

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Medical Memoranda

Obstructed Labour due to Sacral Tumour of Foetus

Tumours occurring at the caudal end of the foetus are rare enough to be of real interest when they are met with. Chaffin (*Surg. Gynec. Obstet.*, 1939, 69, 337), quoting Calbet and Fochier, states that sacrococcygeal tumours of the newborn may be expected to arise once in approximately 34,500 births. One-fifth of these infants are stillborn. Others, although born alive, do not survive many days.

All types of tissue have been found in these tumours, from simple undifferentiated cells to a parasitic foetus. It occurs more frequently in females than in males. Commonly an antenatal diagnosis of a foetal abnormality can be made, but it is more often impossible till labour is well advanced, as in the case described below. If for no obvious reason labour is not proceeding according to plan, the existence of a tumour of the foetus causing delay would, of course, be thought of.

CASE REPORT

On April 28, 1945, Mrs. K., aged 41, was admitted to the County Hospital at 8 a.m. Her last child is now 12 years old. She had no obstetrical history in the meantime. On admission she was suffering from severe pre-eclamptic toxæmia. She was about two weeks off full term. Her B.P. was 185/110; albuminuria $++$; there was extensive oedema right up to the xiphisternum. It was not possible to diagnose the presentation by palpation, but the foetal heart was thought to be heard about half-way between the umbilicus and the pubis. A skiagram of the abdomen showed a single foetus lying in the longitudinal axis with the head fully extended into a face presentation.

She went into labour the same day about noon and progressed rapidly—so much so that the face, chin anterior, was lying on the perineum at about 1.30 p.m. There was no advance from this point even though conditions seemed favourable for a natural delivery. Forceps were applied, the head was delivered easily, and the anterior and posterior shoulders were extracted. From here the foetus would not budge even with a strong pull in both foetal axillæ. A hand was inserted beyond the foetus and a large soft cystic lump was found attached to the foetal buttocks. It felt larger than a foetal head. A long wire was passed into the uterus under guidance of the already inserted left hand and a hole made in the tumour. Thin blood-stained fluid came away. The tumour was now broken up to reduce its size. The child was then extracted, and in so doing the tumour separated from the foetus and was left behind in the uterus. It was easily delivered manually afterwards.

The foetus was a well-developed female stillborn infant weighing 5 lb. 12 oz. (2.6 kg.). The area from which the tumour arose extended over the whole buttocks. The lower end of the sacrum and coccyx was absent. The lower end of the gastro-intestinal tract was long and tapering, ending apparently in the perineal end of the tumour mass. The anus was imperforate. There was no other foetal abnormality.

Description of Tumour.—It weighed approximately 3 lb. 1 oz. (1.39 kg.). It was a large soft cystic mass covered with healthy skin and no hairs. On the perineal end of the skin there was a small dimple to which the imperforate intestine was attached. Throughout the mass were groups of cysts filled with blood-stained light fluid, and in other areas were soft gelloid masses looking not unlike a sarcoma. Microscopic appearance: "The tissue consisted of an embryonic matrix resembling glial tissue, in which were acini lined with epithelium, columnar in type with a suggestion of ciliation. The outstanding feature was masses of hyaline cartilage. The tumour is a congenital sacral teratoma."

The mother made an uninterrupted recovery. Her blood pressure was normal and the albuminuria had disappeared within two weeks.

I wish to thank Prof. W. D. O'Kelly for the pathological report.

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The National Council for the Unmarried Mother and her Child held in London last November a conference entitled "Homes and Hostels of the Future," when the speakers included Dr. Dorothy Taylor, Dr. John Fenton, M.O.H. for Eastbourne, and Dr. Letitia Fairfield. The conference was attended by a very representative audience of over 350 people. A full report has now been printed as a pamphlet of 48 pages, and copies are available at 1s. 6d. from the general secretary, N.C.U.M.C., Carnegie House, 117, Piccadilly, London, W.1.

Reviews

SURGERY OF THE HAND

Chirurgie de la Main. By Marc Iselin. (Pp. 238; illustrated. 145 francs.) Paris: Masson et Cie.

This volume is a study of the treatment of injuries of the hand of every type and is evidently based upon a very wide experience. The opening chapters deal with the examination of the injured hand in order to ascertain the precise nature of the injury, which is often so different from what at first appears, and this is followed by a brief account of the methods of treatment and the general results of injury, including the fixation of joints and tendons. Now comes an admirable account of the treatment of cutaneous lesions, which in the hand may be of supreme importance, and this includes detailed descriptions of methods of grafting and of the treatment of burns and contracted scars. There follows a discussion of the modern methods of treating divided tendons, and only those who have dealt with these difficult cases can appreciate the importance of these methods. The next section is on nerve injuries, and here we must part company with the author as regards the treatment of the nerves themselves, though there are valuable suggestions for the management of the damaged hand. The later chapters describe ingenious methods for replacing lost fingers, and especially the reconstruction of the thumb, and deal with prosthetic appliances for use after amputation.

With the one exception of the chapter on nerve injuries, which after all is a very special subject, the book is admirable and contains many ingenious proposals and suggestions of value. The importance of injuries of the hand is fully recognized today, and we regard this as a valuable contribution to the subject.

SULPHONAMIDE TREATMENT

The Sulphonamides in Theory and Practice. By J. Stewart Lawrence, M.D., M.R.C.P. (Pp. 125. 9s.) London: H. K. Lewis and Co. 1945.

Dr. J. Stewart Lawrence in *The Sulphonamides in Theory and Practice* has produced what we believe to be the first British book on this subject, although M.R.C. War Memorandum No. 10 has served the same purpose, despite its unbound condition and modest price. This book is of modest size, and gives a simple account of sulphonamide therapeutics, after describing the properties of the various drugs and dealing briefly with their *in vitro* study, particularly from the point of view of relative degrees of activity. An interesting feature is provided by the author's original observations on the treatment of six conditions, each represented by a series of cases with controls. Sulphonamide treatment was of no apparent benefit in tonsillitis, influenza, or bronchitis; there was, of course, marked benefit in urinary tract infections. Sonne dysentery responded best to sulphapyridine, and the same drug, administered for several months, is somewhat surprisingly effective to have been of benefit in pulmonary tuberculosis; the effect is believed to have been on the tubercle bacillus itself, since it is categorically stated that "the secondary invaders were quite unaffected." Penicillin is not mentioned except in a brief final chapter on the relative indications for these two forms of chemotherapy. The author suggests that in infections due to organisms susceptible to both, the indications for penicillin are suppuration, necrosis, or bacteraemia. This is an ingenious rule, but not to be taken too literally or in disregard of other factors in the individual case.

This book should be of considerable service to the practitioner: if its precepts were generally followed sulphonamide therapeutics would be more efficient, and the consumption of these drugs would probably diminish by half.

A TEXTBOOK OF MEDICINE

Textbook of Medicine. By various authors. Edited by J. J. Conybeare, M.D., F.R.C.P. Seventh edition. (Pp. 1,164; illustrated. 30s., plus 9d. postage.) Edinburgh: E. and S. Livingstone. 1945.

It is a striking commentary on wartime developments that Dr. J. J. Conybeare's *Textbook of Medicine* in its seventh edition should be the fourth since 1939, and that more copies have been sold during the war than in the preceding ten years. Dr. Conybeare manages his team of sixteen contributors with

great skill, putting in his own work just at the right place, and the revisions for this edition indicate editorship at its best. Several pages on sulphonamides and half a page on penicillin, at the beginning of the section on infectious diseases, give an excellent summary of present-day chemotherapy and cleverly get over the difficulty that arises when advances come at a quicker rate than books can be printed and published. Sampling the text for advances in medicine reveals no serious deficiencies, though an unfortunate page reference (255 for 225) makes the finding of work on the rhesus factor a little difficult. Glandular fever now appears under infectious diseases; so does tetanus, though poliomyelitis is still in the section on diseases of the nervous system. These are problems that must haunt every writer or editor of a medical textbook, and it is, perhaps, unfair to mention them instead of stressing the sterling qualities of this work. But it has already won a firm place with students and practitioners, and as it seems likely to go on appearing in peace or war a word or two of criticism will not be taken amiss.

SURGICAL ANATOMY

A Manual of Surgical Anatomy. By Tom Jones and W. C. Shepard. (Pp. 195; 267 illustrations, 153 in colour. 25s.) London: W. B. Saunders. 1945.

There can be no doubt about the thoroughness with which the United States entered into all aspects of the prosecution of the war. Few in this country, for instance, would have thought that the preparation and publication of a book on surgical anatomy could be considered part of the war effort, yet that is the intention of *A Manual of Surgical Anatomy*. The fact that this was possible may be considered as an indication of the difference in the impact of the war on the two countries. The book was prepared under the auspices of the Committee on Surgery of the Division of Medical Sciences of the National Research Council especially "to furnish the Medical Departments of the United States Army and Navy with compact presentations of necessary information in the field of military surgery." The original manual was published just before the end of World War I, but the present volume (coming too late for World War II) is almost completely new.

The book is actually an atlas of some 267 anatomical drawings, with an explanatory index (giving both Standard English and B.N.D. terms) at the end. The line illustrations are all delightfully drawn by the two artist editors, whose styles are so similar that it is difficult on cursory examination to distinguish between them. In addition to the purely anatomical drawings there are others devoted to the illustration of applied anatomy, such as incisions, the technique of paravertebral injections, and so on. Those showing the operative exposures for various sympathectomies and in pneumonectomy are particularly well conceived and useful. On a page size of 11 by 8 inches (28 by 20 cm.) there is no need to cramp the drawings; in consequence a lot of detail which would otherwise be lost can be included.

Altogether an admirable volume, and at 25s. must in these times be acknowledged a bargain. The publishers also issue a pocket edition at 15s.

MEDICAL SCIENCE IN THE NETHERLANDS INDIES

Science and Scientists in the Netherlands Indies. Edited by Pieter Honig, Ph.D., and Frans Verdoorn, Ph.D. (Pp. 491; illustrated. \$4.00 or £1 1s.) New York: Board for the Netherlands Indies, Surinam, and Curaçao; London: William Dawson and Sons, Ltd. 1945.

For many years before the war of 1939-45 the Dutch Government medical staff in Java issued—year by year—pamphlets recounting their researches. These disappeared during the military occupation, and the material is now dealt with in the volume *Science and Scientists in the Netherlands Indies*, which gives a picture of the development and status of a number of branches of the natural sciences in Indonesia. The present work consists of original articles, biological sketches, reviews, and a list of scientific institutions.

Formerly there were three services in Indonesia—the civil medical, the military medical, and the vaccination service. More recently a public health service was instituted to provide curative medicine for the inhabitants of the archipelago. This now gives special attention to prevention of disease. There are medical colleges, central and regional laboratories, institutions for leprosy and smallpox—all of good standard; also a number

of medical journals, published weekly. In this large tropical belt (an area of 760,000 square miles, 3,000 islands, and 65,000,000 inhabitants) there is wide scope for investigation and research. Malaria is rife and much attention is paid to the control of it. The numerous salt-water lagoons have been found to be ideal for *Anopheles sundaicus*, which, though not a carrier of malaria in other parts of the world, is one of the most dangerous vectors in the Netherlands Indies. Since 1921, thanks to careful quarantine measures and extensive vaccination, the archipelago has been almost free from cholera. Though nearly all the epidemics were due to genuine cholera vibrios, strains isolated in the Celebes Islands were found to be definitely haemolytic. The aetiology of a group of febrile diseases was traced to a spirochaete, closely related to the leptospirae which cause Weil's disease. Plague, which first reached Java from Rangoon in 1905, has since become endemic. In 1933 there were over 20,000 cases, but since 1939 plague diminished considerably. Its incidence in the ports and on the coasts of Java has always been negligible.

This book is full of interesting data on diverse tropical subjects, though one might hope that subsequent issues will be less bulky and not so heavy. The many good illustrations give a clear idea of the country and its scientific institutions.

Notes on Books

Dr. Maitland Radford's last appointment was that of M.O.H. for St. Pancras, the borough in which B.M.A. House stands, and he became well known to many members visiting headquarters or working here. His death in 1944 was widely and deeply mourned. All could recognize his brilliant gifts, but not many were aware that he wrote occasional verse. Some of his friends, headed by Dr. C. E. Wheeler, have prepared a small volume *Poems by Maitland Radford*. These twenty-eight short pieces reflect vividly the man they loved. Dr. Wheeler's introduction is followed by contributions headed "Maitland as we Knew Him" by seven intimates, and a preface to the poems by Sir Henry Slesser. During the thirty years covered by the poems in this volume Maitland Radford did not write one line he had been specially stirred by some incident of his experience emotional or intellectual, or both. The edition—a fine example of book production—is limited to 500 copies, and George Allen and Unwin Ltd. are the publishers (price 7s 6d.).

H. K. Lewis and Co. have published a second version of the little book entitled *Notable Names in Medicine and Surgery*, by M. HAMILTON BAILEY, F.R.C.S., and Mr. W. J. BISHOP, Sub-librarian of the Royal Society of Medicine, which was noticed in these columns after its first appearance in 1944. There is no need now to do more than quote the subtitle, "Short biographies of some of those whose discoveries (not necessarily the greatest medical discoveries) have become eponymous in the medical and allied professions." The price is 15s.

The British Drama, by JAMES BRIDIE, is No. 12 of the pamphlet published at 1s. 3d., under the general heading "The British Way" by Craig and Wilson Ltd., 70, Bath Street, Glasgow. One or two earlier members of the series have had health and science as the subjects. Our reasons for mentioning this one are that the author (Dr. O. H. Mavor to us) is physician as well as playwright; that anything Bridie says is always worth listening to; and that doctors are not indifferent to the art of the theatre, about which he writes with knowledge, cool common sense, and pungency.

MISS EVELYN PEARCE, for many years senior sister-tutor at Middlesex Hospital, has added to her writings for the benefit of nurses a booklet *First Aid Quiz*, reprinted from the *Nursing Mirror*. It is published at 3s. 6d. by Faber and Faber.

Hospital Care of the Surgical Patient, by Drs. GEORGE CRUJN, and FRANKLIN L. SHIVELY, jun., was reviewed in this column, Aug. 26, 1944, when we said that a newly appointed house officer would find it of considerable value in his early encounters with surgical patients. A second edition has now been received from Charles C. Thomas, 301, East Lawrence Avenue, Springfield, Illinois, U.S.A., price \$3.50; it is published in this country at 14s. Baillière, Tindall and Cox.

The Joint Tuberculosis Council has issued two pamphlets which were approved on Nov. 17, 1945. One is the second report of the Committee on Development of the Tuberculosis Services (formerly the Committee on Reorganization of the Tuberculosis Service) and the other is a memorandum of advice on Mantoux conversion in hospital and institutional staffs. Copies may be had from the honorary secretary, Joint Tuberculosis Council, 1, Becket Street, Oxford.

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THE HEALTH SERVICE BILL

The National Health Service Bill was published on Thursday last week. The White Paper summarizing its provisions is printed in the opening pages of this week's *Journal*, along with a statement on it issued by the British Medical Association. The Association has already circulated both these documents to all members of the profession. The second reading is expected before Easter, and the Government is likely to hasten on legislation. Medical men will therefore have to think clearly and quickly if they are to secure those modifications in the Bill which they believe will ensure the progressive evolution of the science and art of medicine. Anything which hinders or hampers this will harm the public.

Medical thought has always found its fullest expression and originality in an atmosphere of freedom. It has become stagnant and retrogressive when it has been restricted by external authority. For long periods in the past Medicine has been kept immature by the dogmas of those in power. In the worship of the State, which is the modern dogma, it is threatened by forces no less powerful than those of the past. If Medicine is to extend its frontiers and renew its strength in each generation it has to go on working out its own salvation and keep itself clear from the influence of prevailing ideologies founded on less exact knowledge. This is what "freedom of the profession" means. The Anglo-Saxon world has made its great contributions to medical knowledge in the framework of a free tradition which makes the highest call on individual responsibility and initiative. It is now our collective responsibility to the future to see that this framework is not destroyed and replaced by a prefabricated structure, however dazzlingly bright the new gadgets may appear to the designer's eye. We must hold fast to what has been proved good and see that it continues. If the new service in its evolution can preserve the continuity of what is sane and sound in our medical history the details will fall into place; adjustment of these is a matter of ingenuity; but if the structure is unsound no amount of ingenuity will improve it—if it is rigid it will crack at the first strain.

In brief, the Bill offers to the whole of the population of Great Britain a complete medical service—general practitioner, consultant and specialist, institutional, nursing—free of immediate charge for the service rendered. It excludes the industrial and the school medical services and therefore is not comprehensive. The cost of the service will be paid for by the ratepayer, the taxpayer, and the contributor to the national insurance fund. The "middle-men" who distribute the public's money to the doctor and the hospital

and the health centre will be the Minister of Health, the Regional Authority, and the Local Authority. The pooling and distribution of money in some such way as this is necessary if a nation-wide organization, for example, of hospitals, is to be efficient. To what point it should be carried in the provision of personal services needs consideration.

The Minister of Health is to have responsibility for the service, and considerable powers in the exercising of it. The principal feature of central organization is the Central Health Services Council, composed of representatives of the main operatives in the service—doctors, dentists, nurses, midwives, chemists, and hospital and local government managers. Medical representatives will be in a majority. The function of the Council will be advisory, not executive. There will also be standing advisory committees on special aspects of the service, and these are to be empowered to advise the Minister directly. A small Central Committee on the Distribution of Medical Practices, mainly professional in composition and working under the direction of the Minister, will supervise the distribution of doctors in the service. This Central Committee will decide whether a doctor may start a new practice or change from one to another in the public service.

Local administration will be effected through (1) Regional Hospital Boards and Local Hospital Management Committees; (2) County and County Borough Councils for certain domiciliary and clinic services; and (3) Local Executive Councils for family practitioner services by doctor and dentist. The Minister of Health proposes to become the owner of all the hospitals in the country, voluntary and municipal, special and general, teaching and non-teaching. He proposes, in fact, to rope all hospitals into a State Hospital Service. A consultant service will be based on the hospitals.

The endowments of voluntary teaching hospitals will pass directly to the new Boards of Governors. A Hospital Endowment Fund will absorb the endowments of other voluntary hospitals. After existing debts and liabilities have been met from this the Minister will then apportion the capital value of the Fund among the Regional Hospital Boards.

Regional Hospital Boards—to the number of 16 or 20—will administer all hospitals in "natural hospital areas" based on the eleven University medical teaching centres in England and Wales. The Minister will appoint the members of these Boards after consulting the appropriate university teaching centre, the medical profession, and the local health authorities. Within the Region, Local Hospital Management Committees appointed by the Board will be responsible for local groups of hospitals, or for single large hospitals. These committees will be made up of representatives of local authorities; general practitioners in the area, and senior medical and surgical staff of the hospitals concerned. Undergraduate and postgraduate teaching hospitals will be managed by their own specially constituted Boards of Governors, with representation of the university and teaching staff. They will also have members nominated by the Regional Hospital Board and members appointed after consultation with the major local

authorities concerned. The teaching hospitals will have separate financial arrangements. The Governors, advised by a selection committee, will appoint their own staff. Private patients may be treated in separate hospital accommodation by part-time specialists in the service, provided that fees are within a controlled scale and that non-paying patients may be treated in the same accommodation if medical considerations require this.

The second part of the proposed local organization concerns certain clinic and non-hospital services the administration of which becomes a statutory duty of the Local Health Authorities—County Councils, County Borough Councils, or combinations of them. The services include maternity and child welfare; domiciliary midwifery; health visiting; home nursing; vaccination and immunization; ambulances; provision of Health Centres; and the school medical service (under the Education Act, 1944).

General practice will be conducted from Health Centres provided and equipped by the Local Health Authorities or by arrangements with doctors in separate practice who will join the service from their own surgeries. Local Executive Councils (successors in effect to the Insurance Committees)—one for each local health authority—will arrange for the general practitioner services in accordance with regulations under the Act; make contracts with and remunerate the doctors, dentists, and chemists in the service; provide local disciplinary machinery; and make available information on the facilities of the service. The Local Health Authorities, as mentioned, will provide, maintain, and equip Health Centres, and appoint nursing, secretarial, and other auxiliary staff to them. The local authority will arrange with the Local Executive Council for the use of the centres by the doctors and dentists in contract with it. General practitioners in the service will receive a basic salary plus a capitation payment which tapers as the number of persons on the doctor's list increases. The Government proposes to abolish the sale and purchase of public practices and to pay compensation on terms announced elsewhere in this issue. Finally, a National Public Laboratory Service for the control of infectious diseases has been set up through the agency of the Medical Research Council.

Such in brief outline is the scheme now before Parliament, the public, and the profession. The Council of the A. is "opposed, on grounds of public interest, to . . . in important features of the Government's proposals," and the reasons for this opposition are set out clearly on pages 469-74 of this week's *Journal*. The Minister is proposing to set up at least three services—a hospital service administered regionally; a general practitioner service administered by one form of local organization; and clinic services administered by another form of local organization. Add to this a school medical service administered under the Education Act, an Industrial Medical Service run partly by industry and partly by the Ministry of Labour, the existing Public Health Service shorn of its major attractions, and two forms of laboratory service (National and Local)—and it seems as if the Minister has failed to co-ordinate the whole into a "comprehensive" health service. The B.M.A. Council proposes as a rational step that co-

ordination should be effected at the regional level. The Regional Boards, it suggests, should own and administer Health Centres. The Boards should, in fact, be responsible for all treatment as distinct from environmental services. As to central organization, the B.M.A. Council would like to see the Central Health Services Council made a working instrument by having the reports of the standing committees submitted to it, and by it to the Minister.

Although it does not own the voluntary hospitals of this country, the medical profession is vitally concerned in their fate, because it is by, with, and from them that British doctors have for centuries received their nourishment and inspiration, especially the great teaching hospitals, and such intellectual pioneers as the Hospital for Nervous Disease in Queen Square and the Brompton Hospital in London. These institutions, and others like them, have more than a local habitation and a name. Their renown is world-wide. Whatever safeguarding clauses may be introduced, no one can regard with equanimity the proposal that these places of learning should become State hospitals owned by the Minister of Health. Is this proposed ownership put forward on medical or on political grounds? And if the Minister owns all the hospitals in the country, appoints the governing bodies, and appoints the Regional Boards and through them the Local Hospital Management Committees, what finally will be the status of the men who work in the hospitals? Outside the teaching hospitals they will be appointed by the Regional Boards. Will they not in the slowness of time become the employees of the solitary owner presiding over the Ministry of Health in Whitehall? It is the first blow that counts, and once the blow of ownership is delivered it would be surprising if it were not followed by others, delivered at the principle of private and personal responsibility for the conduct of professional life and action. Power whets the appetite for more power. The more responsibility is centralized, the less is the responsibility left to the individual. And the practice of medicine demands the highest exercise of individual responsibility. A committee can't heal a sick man.

The general practitioner of the future will work in a Health Centre owned by the local health authority and be paid, to begin with, partly by salary. He will be unable to start practice or change practice except by permission of a central committee working under the direction of the Minister at the Ministry of Health. Owning nothing except the right to work under direction—presumably not even the tools of his craft—and inspired by the prospect of controlled security, what kind of effort will the future general practitioner put forth? Will the kind of regimented medical service contemplated give the right setting and stimulus to the Jenners, Hunters, Budds, Snows, and James Mackenzies of the future?

To bring these questions into relation with Principle I of those listed on page 468 do the Government's proposals of State ownership of hospitals and local authority ownership of Health Centres—the two places of practice of the consultant and specialist and of the general practitioner respectively—lead "directly or indirectly to the profession as a whole becoming full-time salaried servants of the State or local authorities"? This is the question. If the answer

is Yes, then the medical profession must decide anew whether this is what it wants or does not want. If it decides that a State service would lead to the frustration of Medicine, then it would be against the interests of the public to promote it.

Once the dividing line is passed and doctors are absorbed in a service which in effect makes them all employees of central and local government their independence and professional freedom will come to an end. They will become officers in a technical service responsible to central and local officials. They will no longer have that direct responsibility to the patient which has hitherto been the inspiration of medicine and the mainspring of medical knowledge and ethics. Once all that is sound and sane in the tradition of Medicine is sacrificed to administrative convenience and centralized governmental control, then medicine will cease to be a profession. The Bill as a whole must be looked at in this light, and this must not be obscured by preoccupation with details. If the conception of the whole is right, and the framework such as will maintain the essence of professional tradition, then details can be adjusted. And it is for the medical profession as a whole to decide what the issue is to be.

REFECTION

Nearly 35 years ago, in a paper now recognized as one of the classics of modern nutrition, Hopkins¹ described the remarkable effects on the growth of rats of small additions of milk to a diet otherwise lacking in accessory food factors. Some years later the two great Americans, Osborne and Mendel,^{2,3} confirmed these findings, though they had to feed much more milk to get their rats to grow satisfactorily. Workers since have inclined to agree that milk in quantities as small as those used by Hopkins would not support growth, but the reasons for this discrepancy have remained unexplained for many years. The mystery has now been largely solved, and it is fitting that the solution should be given by Sir Frederick himself.⁴ It is gratifying to know that the distinguished doyen of biochemistry is still actively contributing to a science he helped so much to create. The explanation of the mystery lies apparently in the nature of the carbohydrate forming part of the purified ration. With rice starch, dextrinized potato starch, or sugar the amounts of milk originally used by Hopkins prove insufficient, but when the diet contains raw potato starch the old findings are confirmed in every detail. Though this was not specifically stated in the 1912 paper, it is clear from the recent publication that potato starch was used in the early experiments. Peculiar effects of this starch were noticed also by other workers. Fifty years ago Eijkman⁵ showed that hens given this carbohydrate instead of polished rice did not develop polyneuritis, while between 1923 and 1927 Randoïn and her collaborators published a series of papers⁶ describing its vitamin-sparing effects. They also

pointed out its low digestibility—a property previously noticed by Langworthy and Deuel.⁷

In the meantime a striking dietary phenomenon, which later was to prove especially closely connected with potato starch, appeared accidentally in the laboratory of Fridericia in Denmark in 1925.^{8,9} A young rat declining in the usual way on a diet containing raw rice starch and deficient in vitamin B suddenly recovered, started to grow, and at the same time began passing bulky faeces containing undigested starch. The condition could be transmitted to other deficient rats in that laboratory. This ability to grow and thrive in the absence of vitamin B from the diet was aptly called "refection" by Fridericia.⁸ By a curious coincidence it appeared somewhat later independently and spontaneously at the Lister Institute, also among rats receiving rice starch.¹⁰ About the same time Kon and Watchorn,¹¹ in studying the vitamin-sparing effect of potato starch, showed that with it refection, which with rice starch is an exceedingly rare spontaneous phenomenon, was of quite common occurrence. Their experience was abundantly confirmed by other workers.¹²

It is generally agreed that a "refected animal" is able to make use of the vitamin factors synthesized by its intestinal flora, though a normal rat may possess this faculty only to a small degree or even hardly at all. Attempts to explain the phenomenon in a simple way—for example, as an infection by a specific organism—have not been successful, and it appears that the condition is due to a fairly complicated chain of events. Hopkins and Leader⁴ favour the following explanation put forward by Kon *et al.*¹² Micro-organisms in the caecum thrive on the undigested starch present there, while the presence of starch-splitters leads to a vigorous fermentation, resulting in an acid pH. These conditions favour the synthesis of much larger quantities of vitamins of the B group than are formed in the alkaline caecum of a deficient rat in the absence of available carbohydrate. The acid reaction in the caecum enables the rat to absorb and utilize a proportion of the vitamins found there, and the animal becomes in fact akin to the ruminant in nutritional independence, the caecum acting as a vicarious rumen. The same reasoning can doubtless explain established rice-starch refection, but it has never been satisfactorily shown why the rat becoming spontaneously refected on a rice-starch diet suddenly and largely loses the power to digest the starch. There may possibly be some connexion with the rather similar condition of starch dyspepsia described in man by Hurst and Knott.¹³ The bacterial basis of potato-starch refection is well demonstrated by the inhibitory effect of sulphonamide drugs on the growth of refected rats¹⁴ and on the formation in their gut of vitamin B₁ and riboflavin,¹⁵ and the study of this interesting condition may well help in the investigation, on the one hand, of processes of vitamin synthesis and uptake in the ruminant, and, on the other, of the nutritional role of the symbiotic flora of man. It should

¹ *J. biol. Chem.*, 1920, 42, 27.

² *Skand. Arch. Physiol.*, 1926, 48, 55.

³ *J. Hyg., Camb.*, 1927-8, 27, 70.

⁴ *Roscoe, M. H., Ibid.*, 1927-8, 27, 103.

⁵ *Con. Kon, S. K., Proc. Nutr. Soc.*, 1945, 3, 217.

⁶ *J. Hyg., Camb.*, 1923, 33, 1.

⁷ *J. Physiol.*, 1930, 70, xxxvii.

⁸ *Kon, S. K., Proc. Nutr. Soc.*, 1945, 3, 257.

⁹ *Coates, M. E., et al., Nature*, 1946, 157, 262.

¹ *J. Physiol.*, 1912, 44, 425.

² *J. biol. Chem.*, 1918, 34, 537.

³ *Ibid.*, 1920, 41, 515.

⁴ *J. Hyg., Camb.*, 1945, 44, 149.

⁵ *Vitamins Arch.*, 1897, 148, 523.

⁶ Cf., for example, Randoïn, L., and Lecoq, R., *J. Pharm. Chim.*, Paris, 1927, 5, 147.

be noted, however, that some of the potato-starch effects may not be related to bacterial activity, and, indeed, Hopkins and Leader⁴ believe that the milk-sparing effect, in spite of superficial similarity, is different from, and wholly independent of, refection; and they do not exclude the possibility of the presence of certain growth factors in potato starch.

STREPTOMYCIN

We referred recently (Feb. 23, p. 278) to the use of streptomycin for the chemotherapy of tuberculosis. There are numerous other infections—notably those due to various Gram-negative bacilli—which may prove amenable to this substance, and the growing volume of American literature dealing with it is a measure of the hopes entertained for its future. Of all the innumerable antibiotics studied during the past few years streptomycin appears to be the only one combining a wider range of antibacterial activity than that of penicillin with such freedom from toxicity that parenteral injections of large doses are harmless. Discovered two years ago by Waksman and his colleagues, it is extracted from cultures of *Actinomyces griseus*, and has been obtained and used clinically in varying degrees of purity. Weight for weight it appears to be less active than penicillin, and the unit of activity is also even smaller: it is defined as that quantity which when dissolved in 1 ml. of broth will just prevent the growth of a standard strain of *Bact. coli*. A unit of penicillin so defined, with *Staph. aureus* as the test organism, would be roughly one-fiftieth of what it is, and the existing unit has been condemned as inconveniently small; why that of streptomycin has been so fixed that an ordinary daily dose runs well into seven figures is not clear.

Several groups of workers¹⁻⁴ have studied streptomycin pharmacologically. When given by the mouth it is scarcely absorbed at all, but retains activity and appears in high concentration in the faeces. For systemic effect it can be given subcutaneously, intramuscularly, or intravenously; it is then excreted by the kidneys, but more slowly than penicillin, with the result that injections at intervals of six hours suffice to maintain a therapeutic blood level. Like penicillin it must be given intrathecally in order to produce a therapeutic level in the cerebrospinal fluid, but it passes from the blood into other body fluids. No serious toxic effects have been seen, but injections into tissues may be painful and into veins may cause thrombosis; fever, uraemia, and headache have also been observed. To what extent impurities are responsible for such effects is not clear.

Streptomycin has naturally been exploited chiefly in infections due to bacteria insusceptible to penicillin. One of the earliest reports—that of Reimann *et al.*⁵—described the treatment of 5 cases of typhoid fever: these occurred in a single epidemic with unusual features, including an exceptionally prolonged course; treatment was started in some of the cases at a late stage, and the strain of *Bact. typhosum* was less susceptible *in vitro* to streptomycin than most. Even allowing for these unfavourable features, the results were not decidedly encouraging. The same may be said of the two cases of septicaemia due to Gram-negative bacilli described by Anderson and Jewell.⁶ On

the other hand they appear to have cured a patient with *H. influenzae* meningitis. Three cases of this condition, all treated with good results, are included in the series of 45 cases of various infections treated with streptomycin at the Mayo Clinic, and described by W. E. Herrell and D. R. Nichols.⁷ These infections include coliform septicaemias, chiefly associated with severe urinary tract infection, and simple urinary infections, in most of which results were good; several cases of undulant fever, in only one of which a really striking effect was obtained; and 5 cases of bronchiectasis treated by inhalation as well as intramuscular injection with 4 successes. *Bact. friedländeri* was eliminated from the sputum of 2 of these patients, and ozaena due to this organism seems also to have responded to some extent. The treatment of syphilis in 4 patients was followed by relapse. While the efficacy of streptomycin in some of these and other conditions mentioned cannot yet be assessed, there seems to be no doubt of its striking all-round efficacy as a urinary antiseptic. H. F. Helmholz⁸ has shown that *in vitro* all five species of bacteria commonly found in urinary tract infections are suppressed by a concentration only one-fifth of that attained in the urine by ordinary systemic dosage. No other drug has so all-embracing an action.

Streptomycin is still not generally available in the U.S.A. It is being supplied there to one or two hospitals, and is also being used for the treatment of men in the Forces injured in the war. When manufacture is well under way in the States we may expect supplies over here.

SMALLPOX IN THE VACCINATED

"The common tendency is both to underestimate and to exaggerate the capacity of vaccination to protect against smallpox." Because, within limits, that capacity is incapable of exaggeration it is not always realized that sometime the limits may be narrow and the duration of absolute immunity be short-lived. The purpose of vaccination being to confer protection against smallpox, it follows that any attempt at inoculation which fails to raise the level of immunity should be regarded as unsuccessful. Evidence of the immunizing properties of reputable vaccine-lymph is too firmly established to be shaken by a number of reports in the last few years, of smallpox in the recently vaccinated: these do, however, unfortunately leave no doubt that insusceptibility is sometimes assumed on insufficient grounds.

The course of events following primary vaccination is plain enough. In the interpretation of the results of re-vaccination the difficulties and the dangers lie. The immediate reaction can be seen in immunes and non-immune alike. The only certain valid evidence of (temporary) success is vesicle formation; and an assumption of the presence of complete insusceptibility made on the strength of almost any lesser grade of reaction involves a risk which grows greater as the interval since the last successful inoculation lengthens.

The severity of an attack of smallpox measures the resultant of two opposing forces—the patient's immunity and the virulence of the infective agent. The clinical features of variola major in the vaccinated are determined largely, though not wholly—by the level of the patient's acquired immunity at the time of his exposure to infection; and the most highly modified cases—which are prone to occur when often least expected, among individuals assumed to be vaccinated—are as likely to be diagnosed only in retrospect as are the most virulent toxic cases which form the opposite clinical extreme. Yet recent experiences have reminded

¹ Anderson, D. G., and Jewell, Marjorie, *New Engl. J. Med.*, Oct. 25, 1945, 485.

² Stebbins, R. B., Graessle, O. E., and Robinson, H. J., *Proc. Soc. exp. Biol.*, N.Y., 1945, 60, 68.

³ Zimel, H. A., Flippin, H. F., Nichols, Anna C., Wiley, Marjorie M., and Rhoads, J. E., *Amer. J. med. Sci.*, 1945, 210, 421.

⁴ Helmholz, Dorothy H., Helmholz, F. R., Hinshaw, H. C., Nichols, D. R., and Herrell, W. E., *ibid.*, 1945, 210, 576.

⁵ *J. Amer. med. Ass.*, 1945, 128, 175.

⁶ *Loc. cit.*

⁷ *Proc. Mayo Clin.*, 1945, 20, 449.

⁸ *Ibid.*, p. 357.

⁹ Ricketts, T. F., *The Diagnosis of Smallpox*, 1908, London.

of the infectivity of the patient who bears but minimal skin blemishes. To him it matters little that his disease is small-pox; it may cost the lives of his unprotected contacts. The effect on this problem of the proposed repeal of the Vaccination Acts, 1867 to 1907, remains to be seen. Repeal of these Acts was recommended by the British Medical Association's Committee on Immunization¹ in 1935, and this recommendation was reaffirmed by the Council of the Association at its meeting in June of last year.

IDIOPATHIC FRACTURE OF THE FIRST RIB

As long ago as 1885 Arbuthnot Lane² suggested that fractures of the first rib were more common than was usually thought; but in 1937 Breslin³ found only 27 cases in a review of the literature, to which he added 5 of his own; Aitken and Lincoln⁴ described another case in 1939. Mass radiology surveys, however, are beginning to reveal that this fracture is not uncommon. The break is always situated just proximal to the scalene tubercle, and the skiagrams usually show an irregular fracture surrounded by a fusiform swelling of callus or solid bone. Alderson⁵ found 64 cases among 81,682 members of the Royal Navy. Of the 35 men in the first group which he reported 30 were under the age of 25. Only 11 in the whole series gave a history of symptoms of possible trauma, 2 complained of sudden pain in the shoulder region after physical training, 2 had received some previous local injury, and 7 had been lifting or carrying heavy weights previous to their recruitment. In 2 instances serial x-ray examination showed that union was taking place with the development of callus and bone. All the cases occurred in men, and Alderson found no instance of the condition in 3,433 Wrens; it is not, however, confined to the male sex.

The cause of these fractures is not yet established. It is unlikely that they are congenital abnormalities, since the line of fusion of the primary and secondary ossification centres is well behind their usual position in the rib, and sometimes the breaks have been observed to heal, though in other instances non-union and pseudarthrosis result. Lane suggested that trauma might cause the lesion, a heavy blow struck horizontally backwards forcing the clavicle against the first rib. But in these cases a history of trauma is rare. The frequency of the lesion in youth, especially after periods of strenuous physical training, suggests that it may develop gradually, and that the fractures are fatigue or stress fractures of the "march fracture" type. This is the view of Alderson, who also believes that they are sometimes related to the carrying of heavy weights. Hartley,⁶ however, argues that the fractures are usually complete and that frequently there is considerable displacement of the fragments—evidence that muscle-pull does precipitate the fracture. The site of the fracture is certainly where the scalenus anticus is inserted into the rib, and if this muscle contracts violently it will tend to pull upwards the anterior part of the rib while the posterior part is held down by the subclavian artery and brachial plexus. Some observers have called the lesions "cough fractures," suggesting that they are caused by the sudden contraction of the muscle during a fit of violent coughing. This last theory seems the most plausible explanation of this unexpected finding resulting from the routine x-ray examination of the chests of large numbers of apparently healthy individuals.

INDUSTRIAL LIGHTING

Industrial Lighting is the first bulletin published by the Industrial and Welfare Division of the Department of Labour and National Service of the Commonwealth of Australia (37, Swanston Street, Melbourne). It is particularly welcome, as in some respects Australian practice is in advance of that obtaining in this country. Many of the standards formulated in this pamphlet arose from the necessity of war production, and were enforced by statute in new and modified installations in protected factories. It appears that, though not universally compulsory, the standards here advocated have been widely applied. There is much empiricism in these regulations, but a workable scheme emerges in treating the problem as one of distribution of light, of the absence of glare, and the methods for obtaining satisfactory contrast. Australian practice favours diffuse lighting; prominence is therefore given to fluorescent lamps and to standardized cold cathode light. A useful discussion deals with the types of reflectors, screening required at given heights, and the prevention of glare by the use of diffusing filaments. A section on colour gives the range of the paints approved for colour contrast. The suggestion that machines should be painted in light colours is interesting, and fits in with the planned use of colour to aid contrast. The Australian standards have been criticized on the ground that they allow for lower brightness values than is commonly assumed to be necessary. Perhaps the stress here laid on other factors provides a justification for these lower values.

MEDICAL RESEARCH IN MELBOURNE

The twenty-sixth annual report of the Walter and Eliza Hall Institute of Research in Pathology and Medicine is from the pen of the director, Prof. F. M. Burnet, M.D., F.R.S., who succeeded Dr. C. H. Kellaway, F.R.S., two years ago, when Dr. Kellaway came from Melbourne to take up the post of scientific director of the Wellcome Foundation in England. Prof. Burnet, writing in July, 1945, says that during the year under review an effort was in progress to think out and define the new relationships which in one way and another have developed between the Institute, the Royal Melbourne Hospital, and the University. At present there is very little more than physical contiguity between the Institute and the hospital. On the one hand the major lines of investigation by the staff concern problems which are not those of a general hospital, and on the other the demands of the war made it impossible for medical graduates of sufficient calibre to be spared for even part-time clinical research in the wards; it is hoped that once demobilization of the medical services comes into force both the Institute and the hospital will be able again to make full use of their association by developing an active programme of clinical research. If the link with the hospital has been at least temporarily weakened, a more direct link with Melbourne University has been forged by Prof. Burnet's appointment to the newly established chair of experimental medicine. In that capacity he is charged with the organization of a university department within the Institute, its work being naturally determined primarily by the interests of the holder of the chair. Study of the more general problems of the epidemiology of infectious disease will complement the investigations of the laboratory workers in the virus department, and this work should eventually fill an important niche in the field of medical research and teaching in Melbourne. Meanwhile after preliminary discussion with the authorities concerned the Board of the Walter and Eliza Hall Trust has decided that the Institute should be suitably incorporated, and the legal process for this has begun.

¹ *British Medical Journal Supplement*, 1935, 1, 282.

² *Guy's Hosp. Rep.*, 1885, 43, 321; *British Medical Journal*, 1887, 2, 119.

³ *Amer. J. Surg.*, 1937, 38, 384.

⁴ *New Engl. J. Med.*, 1939, 220, 1063.

⁵ *Brit. J. Radiol.*, 1944, 17, 323; *Lancet*, 1945, 1, 287.

⁶ *Lancet*, 1945, 1, 128, 446.

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wards and the dispensing of medicines will of
improvement in medical service. It is some
might well be examined and developed, but
of doctors is necessarily better than an
ly by this physical grouping much is done
is, merely a pretence."

one or two other points relating to
the suggestion in the new White
was capitation payment it should
patients increased—a two a penny—
Another was the restriction whereby
obtained the necessary permission to prac
r area might be prevented by Ministerial
ising in a certain part of that area—say, if in
in a particular ward—which meant that patients
ived of free choice so far as that practitioner was
ned. Yet another was the lack of provision in the com
isation total for loss of capital in respect of professional
premises. The Ministry throughout the discussions on com
pensation had declined to recognize that factor, and if a prac
titioner in selling his house to an incoming practitioner sought
or obtained a price which was substantially higher than its value
as residential premises he laid himself open to fine or imprisonment.

Hospital Ownership

Was the ownership of all hospitals by the State in the public
interest? In future the Minister by virtue of the National
Insurance Bill now before Parliament would become the source
of practically all hospital maintenance income. The Govern
ment would have assumed the responsibility of a compre
hensive service, including the hospital service and would have
become responsible for the cost of hospitals generally. It
would exercise a tremendous influence on hospital development
by reason of that financial power. In the view of the Council
of the Association, to proceed to actual ownership was an
unnecessary and undesirable step.

"It is believed that the effectiveness of a hospital, its responsive
ness to public feeling, its susceptibility to public criticism, the
maintenance of its position as a centre of local interest and welfare
and affection—things essential to humane hospital administration—
will go if in fact the local hospital becomes a State hospital remotely
controlled from Whitehall."

With this destroyed something of lasting value would have
passed out of British life.

There were three administrations in this Bill—hospitals at
the regional level, general practitioner service at the local
executive council level, local authority service at the county
and county borough level. They were bound as a profession to
criticize that vertical division of the health services. It was
bad that much of the work which the general practitioner could
properly undertake in the field of the school medical and the
maternity and child welfare services should be left where it
was. Incidentally under these provisions attendance at con
finements was not necessarily to be a duty upon general prac
titioners, midwives would call in doctors as heretofore, but
only doctors who were "suitably qualified" in obstetrics—the
beginning of the removal of obstetrics from the normal field of
the general practitioner. A branch of the profession which was
cut out badly in this service was the public health medical
service in smaller authorities than counties and county boroughs.

What Does All This Add Up To?

If they believed in a whole time salaried service under the
State, as some of their colleagues sincerely did, they would give
no doubt, a qualified welcome to these proposals, but the
majority of the profession believed that whatever the com
pensation totals, whatever the form of remuneration, they must
search out the principles which lay behind in order to make
sure that the independence of the profession and the freedom
of the public were preserved. The report of the Spens Com
mittee on remuneration was not yet available, but he had no
reason to suppose that it would be unsatisfactory. But was that
the answer they were searching for?

"It is hoped that our profession will be able to examine these
proposals in relation to principles. Will they lead to the submergence
of our profession, the loss of its independence? The answer to that
question must determine our future action."

If they reached the conclusion that these proposals were
contrary to public and professional interest what could they
do? The Government with its majority could carry the pro
posals into law. Clearly the profession must do its utmost
to present its point of view to fair minded people in all parties.
The one hope was in convincing the public that the proposals
were not in the best public interest.

"After all, one cannot help being a little suspicious about these
proposals. For 30 years our profession pressed for the enlargement
and improvement of health services. But when did the interest of
Governments begin? With the publication of the Beveridge report
Sir William Beveridge, approaching these problems as an economist,
saw that to create a social security fund was to create two main out
goings from it, in respect of unemployment and of sickness and he
said quite frankly that before such a fund could be established it
would be necessary to secure a high level of employment (Assump
tion C) and a comprehensive health service (Assumption B). Now
that we have the national insurance proposals in Parliament you will
appreciate how a new impetus was given to the development of the
health service and the desire to exercise control over doctors' cer
tification."

If they were right in detecting the signs of a substantial move
ment toward whole time salaried service then they were at
a crisis in the history of the profession. Once over the line,
with the chance of status the loss of independence, the new
relationship to the State a fundamental alteration would have
been made. It must be clear that this was an issue of public,
not merely of professional interest.

Our profession has nothing to be ashamed of, despite the words
of those of our profession who spend their time belittling it for
political purposes (Loud applause). It has no need to be ashamed
of its contribution to the public good in years gone by. We can
afford to put our position plainly to the public as a matter of public
as well as professional interest, and we must do it."

The Government could legislate but without the co opera
tion of the profession there would be no service. Sooner or
later the profession would have to reach a decision on this
question but the time for decision was not yet. That time
would come when the Bill had become an Act and they could
examine it in its final form. There would be ample time for
the profession to make up its mind. What it was necessary to
do now was to examine these proposals to find out where they
conflicted with public interest and to tell the public. He begged
them now to devote their intelligence rather than their emotions
to an examination of these proposals, not begin to look round
for scapegoats or break up into frictional or fractional groups
or even distinguish between members and non members of the
Association but rather to hammer out their views on this Bill
and make sure that they were points of real principle which
were taken.

My job," said Dr. Hill in conclusion, "is to express as vigor
ously as I can the views of the profession as a whole, and I shall go
on doing that job in the next few months. But it is your job as a
profession to make up your minds on these issues. We are on trial
now. This is the most crucial phase in the history of the profession.
Let us not consider it as a matter of compensation or remuneration.
Let us look at principles and determine where in fact the principles
lie and let us at last learn to stick together." (Loud and long
continued applause)

Questions

Many questions were asked on the details of the Bill. Here,
briefly summarized, are Dr. Hill's replies.

In general, the disciplinary machinery contemplated in the
Bill is the same as under National Health Insurance, ascending
to the Minister.

A doctor in the service who desires to change his area will
make application through his local executive council to the
Medical Practices Committee at the centre. The committee may
or may not permit him to go.

The effect of the proposals seemed at first examination to be
to abolish the status of assistant.

For consultant and specialist appointments a short list was to
be made by an expert committee, so that although the regional
board actually made the appointment, it made it from names of

persons submitted by a well-qualified advisory body. With regard to general practice, the Medical Practices Committee would be predominantly medical; though it should be added that if the system set up was autocratic and destroyed individual freedom it did not matter whether the administrators of the system were medically qualified or not, it was wrong just the same.

One thing which was not yet covered, but which must be ensured, was that where a practitioner was outside the scheme his certificates should be valid for social security purposes equally with those of practitioners within the scheme.

There was nothing to prevent a general practitioner from entering upon or continuing in private appointments—e.g., in works or factories or in insurance companies. These appointments would come within the category of private practice which was permitted under the scheme. But clearly some offices, such as that of district medical officer under the Poor Law, would come to an end.

At the end of the meeting a few three-minute speeches were permitted. Dr. H. R. CRAN suggested that the Council should be furnished with some constructive ideas as alternatives to proposals in the Bill. He thought it should be optional to a practitioner whether he accepted part salary or a larger capitation fee for patients on his list. Dr. KILROE contested the idea that a salaried doctor owed his first obligation to the authority which employed him. Would a tuberculosis officer consider his county council more than his patient? (Cries of "Yes.") That was not his experience. Mr. A. C. DE B. HELME said that not enough stress had been laid on the fact that there had been no negotiation with the Minister. He believed that even now they could if they acted in concert demand negotiation. It was extraordinary what power the Minister took to himself under the Bill. He was made an autocrat, almost a dictator. "If this Bill comes into operation in anything like its present form it will represent something very much like that regime that is now coming to its sorry end at Nuremberg."

Dr. N. E. WATERFIELD said that it was up to them all to get a mastery of the Bill because they could influence public opinion. Dr. WATSON (chairman of Reigate Division) considered that the retention of the goodwill of practices was of fundamental importance. He had in mind especially the case of the elderly man about to retire and the young man coming in. Dr. DAVID HALER drew attention to Clause 69 (3): "Any power conferred on the Minister by this Act to make regulations shall, if the Treasury so direct, not be exercisable except in conjunction with the Treasury." This made the autocracy more complete. It was for the profession to see that it did not pass under Treasury control. Dr. GOUGH, speaking as a young doctor, complained that the view-point of younger doctors was inadequately represented on the Negotiating Committee. He wanted more representation at that level of doctors who had no financial interest in medicine so far as ownership of practices was concerned.

Dr. HILL, in reply to a question, gave some account of how the £66 millions for compensation had been calculated. It had been done by estimating the pre-war aggregate general practitioner income, multiplying by a period of years, and adding a betterment factor. For example, if the aggregate pre-war income figure were taken and multiplied by 1.9 years—a betterment factor of 22% added, or if it were multiplied by 2 years and the betterment factor were 16%, the result in either case would work out to approximately 66 millions. One thing which was important in the division of this money was that those practitioners who had returned from service or had lived in bombed-out areas were entitled to put in not only their current figures but their pre-war incomes. He added, however, that the important demurrer had been made, alike in a letter to Mr. Bevan on March 8 and in the Council's statement of policy on the Bill, that the medical profession was in no way committed to the policy of abolishing the custom of buying and selling goodwill, and although the subcommittee of the Negotiating Committee had entered into discussions on the question of the compensation figure, it did not accept the policy from which the necessity for compensation arose.

The meeting closed after according to Dr. Hill, on the motion of Dr. J. W. STARKEY, honorary secretary of the Surrey Branch, a vote of thanks for "an able, honest, and valuable address."

SOME IMPORTANT CLAUSES OF THE BILL

We print below some of the more important clauses of the Bill which illustrate the power demanded by the Minister of Health. It may be noted that in Section 34, subsection (4), under General Medical Services, a doctor may be able to practice only in part of an area controlled by an Executive Council, a severe limitation on freedom of choice being thus imposed.

1. Transfer of Hospitals to the Minister

6.—(1) Subject to the provisions of this Act, there shall, on the appointed day, be transferred to and vest in the Minister by virtue of this Act all interests in premises forming part of a voluntary hospital or used for the purposes of a voluntary hospital, and in equipment, furniture or other movable property used in or in connexion with such premises, being interests held immediately before the appointed day by the governing body of the hospital or by trustees solely for the purposes of that hospital, and all liabilities to which the governing body of a voluntary hospital were subject immediately before the appointed day, being liabilities incurred solely for the purposes of that hospital.

(2) Subject to the provisions of this Act, there shall also, on the appointed day, be transferred to and vest in the Minister by virtue of this Act all hospitals vested in a local authority immediately before the appointed day, including all property and liabilities held by the local authority, or to which that authority were subject immediately before the appointed day, being property and liabilities held or incurred solely for the purposes of those hospitals or any of them.

(3) If it appears to the Minister that, in the case of any hospital to which the foregoing provisions of this section apply, the transfer of the hospital or of the interests referred to in subsection (1) of this section will not be required for the purpose of providing hospital and specialist services, he may, at any time before the appointed day, serve a notice to that effect on the governing body of the hospital or, as the case may be, on the local authority in whom the hospital is vested, and thereupon the foregoing provisions of this section shall cease to apply to that hospital.

Provided that if the governing body or local authority, within such period (not being less than twenty-eight days from the service of the notice) as may be specified in the notice, serve a notice on the Minister stating that they wish the hospital or interests to be transferred to the Minister, the foregoing provisions of this section shall apply to the hospital.

(4) All property transferred to the Minister under this section shall vest in him free of any trust existing immediately before the appointed day, and the Minister may use any such property for the purpose of any of his functions under this Act, but shall so far as practicable secure that the objects for which any such property was used immediately before the appointed day are not prejudiced by the provisions of this section.

2. Endowments of Voluntary Hospitals

7.—(1) Where any voluntary hospital to which the last foregoing section [section 6 above] applies is, before the appointed day, designated by the Minister under this Part of this Act as a teaching hospital or is one of a group of hospitals so designated, all endowments of the hospital held immediately before the appointed day shall on that day, by virtue of this Act, be transferred to and vest in the Board of Governors constituted under the following provisions of this Part of this Act for the teaching hospital.

(2) All such endowments shall vest in the Board free of any trust existing immediately before the appointed day and shall be held by the Board on trust for the purposes of the teaching hospital generally, and the Board may dispose of any property comprised in those endowments and hold the proceeds thereof on trust for those purposes:

Provided that the Board shall, so far as practicable, secure that the objects of any such endowment are not prejudiced by the provisions of this section.

(3) Where any endowment which is to be vested in a Board of Governors under the foregoing provisions of this section is, immediately before the appointed day, subject to a charge in respect of a liability which would, but for this subsection, be transferred to the Minister under the last foregoing section.

that liability shall, instead of being transferred to the Minister, be transferred to the Board on the appointed day.

(4) All endowments of a voluntary hospital to which the first foregoing section applies, other than a hospital to which the foregoing provisions of this section apply, being endowments held immediately before the appointed day, shall on that day be transferred to and vest in the Minister by virtue of this Act free of any trust existing immediately before that day; and the Minister shall establish a fund, to be called the Hospital Endowments Fund, to which he shall transfer all such endowments.

(5) Regulations shall provide—

(a) for the control and management of the Hospital Endowments Fund by the Minister and for conferring on him any powers required for that purpose, including powers to sell or otherwise dispose of any assets of the Fund and to carry the proceeds into the Fund;

(b) for enabling the Minister to apply, to such extent as may be prescribed, the assets of the Fund for discharging any liabilities transferred to him under the last foregoing section from the governing body of such a voluntary hospital as is mentioned in the last foregoing subsection;

(c) subject to any provision for the discharge of such liabilities, for apportioning the capital value of the Fund among the several Regional Hospital Boards constituted under the following provisions of this Part of this Act, in such shares as may be determined by the Minister in the prescribed manner, and for distributing the income of the Fund to those Boards proportionately to those shares;

(d) for enabling the Minister, on the application of a Regional Hospital Board, to transfer to that Board, for such purposes as may be approved by the Minister, any part of the capital assets of the Fund not exceeding in value the said share of that Board, and for reducing that share accordingly.

(6) Subject to such general conditions as may be prescribed, any income received by a Regional Hospital Board under the last foregoing subsection may be used for such purposes relating to hospital services as the Board thinks fit.

3. General Medical Services

33.—(1) It shall be the duty of every Executive Council in accordance with regulations to make as respects their area arrangements with medical practitioners for the provision by them as from the appointed day, whether at a health centre or otherwise, of personal medical services for all persons in the area who wish to take advantage of the arrangements, and the services provided in accordance with the arrangements are in this Act referred to as "general medical services."

(2) Regulations may make provision for defining the personal medical services to be provided and for securing that the arrangements will be such that all persons availing themselves of those services will receive adequate personal care and attendance, and the regulations shall include provision—

(a) for the preparation and publication of lists of medical practitioners who undertake to provide general medical services;

(b) for conferring a right on any person to choose, in accordance with the prescribed procedure, the medical practitioner by whom he is to be attended, subject to the consent of the practitioner so chosen and to any prescribed limit on the number of patients to be accepted by any practitioner;

(c) for the distribution among medical practitioners whose names are on the lists of any persons who have indicated a wish to obtain general medical services but who have not made any choice of medical practitioner or have been refused by the practitioner chosen;

(d) for the issue to patients or their personal representatives by medical practitioners providing such services as aforesaid of certificates reasonably required by them under or for the purposes of any enactment.

34.—(1) Subject to the provisions of this Part of this Act relating to the disqualification of practitioners, every medical practitioner engaged in medical practice (otherwise than as a paid assistant) who wishes to provide general medical services shall be entitled, on making an application at any time before the appointed day in the prescribed manner to the Executive Council for any area in which he is practising, to be included

in the list of medical practitioners undertaking to provide general medical services for persons in that area.

(2) With a view to securing that the number of medical practitioners undertaking to provide general medical services in the areas of different Executive Councils or in different parts of those areas is adequate, the Minister shall constitute a committee, to be called the Medical Practices Committee, for the purposes of considering and determining applications—

(a) made before the appointed day and by a medical practitioner who is not entitled under the last foregoing subsection to be included in the list of an Executive Council, for inclusion in that list; and

(b) made on or after the appointed day for inclusion in any such list kept by an Executive Council for any area;

and all such applications made in the prescribed manner to an Executive Council shall be referred by that Council to the said Committee, and any medical practitioner whose application is granted by the said Committee shall, subject to the provisions of this Part of this Act relating to the disqualification of practitioners, be entitled to be included in the list.

(3) The Medical Practices Committee may refuse any such application on the ground that the number of medical practitioners undertaking to provide general medical services in the area or part of an area concerned is already adequate, and, if in the opinion of the Committee additional practitioners are required for any area or part but the number of persons who have made applications exceeds the number required, the Committee shall select the persons whose applications are to be granted and shall refuse the other applications.

(4) Except as provided by the last foregoing subsection, the Medical Practices Committee shall not refuse any such application, but the Committee may grant an application subject to conditions excluding the provision of general medical services by the applicant in such part or parts of the area of the Executive Council as the Committee may specify.

(5) The Medical Practices Committee shall be constituted in accordance with the Sixth Schedule to this Act and the provisions of that Schedule shall apply to that Committee.

(6) A medical practitioner who has made such an application as aforesaid which has been refused or has been granted subject to the said conditions, may appeal to the Minister, and the Minister may, on any such appeal, direct the said Committee to grant the application either unconditionally or subject to such conditions as the Minister may specify.

(7) Where the Medical Practices Committee select persons from a number of applicants, the persons selected shall not, during the period for bringing an appeal to the Minister or pending the hearing of any such appeal, be included in the list in question, and on any such appeal the Minister may, if he grants the appeal, direct either that the application shall be granted in addition to the applications already granted or that it shall be granted instead of such one of those applications as the Minister may specify:

Provided that in the latter case he shall make the other applicant a party to the appeal, and no further appeal shall be brought by that applicant in respect of the application in question.

(8) Regulations shall make provision—

(a) for requiring Executive Councils to make reports, at such times and in such manner as may be prescribed, to the Medical Practices Committee as to the number of medical practitioners required to meet the reasonable needs of their area and the different parts thereof and as to the occurrence of any vacancies on the lists of medical practitioners kept by them under this Part of this Act and as to the need for filling such vacancies;

(b) for describing the procedure for the determination of applications by the Medical Practices Committee and for the making and determination of appeals to the Minister under this section, and for requiring Executive Councils and applicants to be informed of the decisions of the Committee and the Minister.

4. Prohibition of Sale of Medical Practices

35.—(1) Where the name of any medical practitioner is, on the appointed day or at any time thereafter, entered on any list of medical practitioners undertaking to provide general

medical services, it shall be unlawful subsequently to sell the goodwill or any part of the goodwill of the medical practice of that medical practitioner:

Provided that, where a medical practitioner, whose name has ceased to be entered on any such list as aforesaid, practises in the area of an Executive Council in whose list his name has never been entered, this subsection shall not render unlawful the sale of the goodwill or any part of the goodwill of his practice in that area.

(2) Any person who sells or buys the goodwill or any part of the goodwill of a medical practice which it is unlawful to sell by virtue of the last foregoing subsection, shall be guilty of an offence and shall be liable on summary conviction to a fine not exceeding—

(a) such amount as will in the opinion of the court secure that he derives no benefit from the offence; and

(b) the further amount of five hundred pounds;

or to imprisonment for a term not exceeding three months, or to both such fine and such imprisonment.

(3) Notwithstanding any other enactment prescribing the time within which proceedings may be brought before a court of summary jurisdiction, proceedings for an offence under this section may be brought either within one year from the date of the commission of the alleged offence or within three months from the date on which evidence sufficient in the opinion of the Minister to justify a prosecution for the offence comes to his knowledge, and for the purposes of this subsection a certificate purported to be signed by the Minister as to the date on which such evidence as aforesaid came to his knowledge shall be conclusive evidence thereof.

(4) Where any medical practitioner or the personal representative of any medical practitioner sells or lets premises previously used by that practitioner for the purposes of his practice to another medical practitioner, or in any other way disposes or procures the disposition of the premises, whether by a single transaction or a series of transactions, so as to enable another practitioner to use the premises for the purposes of his practice, and the consideration for the sale, letting or other disposition is substantially in excess of the consideration which might reasonably have been expected if the premises had not previously been used for the purposes of a medical practice, the sale, letting or other disposition of the premises shall be deemed for the purposes of this section to be a sale by the first medical practitioner or his personal representative of the goodwill or part of the goodwill of the practice of that practitioner to that other practitioner.

Where a medical practitioner or his personal representative sells, lets, or disposes or procures the disposition of, any premises together with any other property, the court shall, for the purposes of this subsection, make such apportionment of the consideration as it thinks just.

(5) Where in pursuance of any partnership agreement between medical practitioners—

(a) any valuable consideration, other than the performance of services in the partnership business, is given by a partner or proposed partner as consideration for his being taken into partnership;

(b) any valuable consideration is given to a partner, on or in contemplation of his retirement or of his acceptance of a reduced share of the partnership profits, or to the personal representative of a partner on his death, not being consideration in respect of past services of that partner or of property of that partner which is transferred or made available to the other partners or any of them for fair consideration; or

(c) services are performed by any partner for a consideration substantially less than those services might reasonably have been expected to be worth;

there shall be deemed for the purposes of this section to have been a sale of the goodwill or part of the goodwill of the practice of any partner to whom or to whose personal representative the consideration or any part thereof is given or, as the case may be, for whose benefit the services are performed, to the partner or each of the partners by or on whose behalf the consideration or any part thereof was given or, as the case may be, the partner who performed the services.

(6) Where any medical practitioner performs services as an assistant to another medical practitioner for a remunera-

tion substantially less than those services might reasonably have been expected to be worth, and subsequently succeeds, whether as the result of a partnership agreement or otherwise, to the practice or any part of the practice of the second practitioner, there shall be deemed for the purposes of this section to have been a sale of the goodwill or part of the goodwill of the said practice by the second practitioner to the first practitioner, unless it is shown that the said remuneration of the first practitioner was not fixed in contemplation of his succeeding to the said practice or any part thereof.

(7) For the purposes of this section—

(a) if a medical practitioner or the personal representative of a medical practitioner agrees, for valuable consideration to do or refrain from doing any act, or allow any act to be done, for the purpose of facilitating the succession of another medical practitioner to the practice or any part of the practice of the first practitioner, the transaction shall be deemed to be a sale of the goodwill or part of the goodwill of that practice by the first practitioner or his personal representative to the second practitioner;

(b) if any medical practitioner or any person acting on his behalf gives any valuable consideration to another medical practitioner or the personal representative of another medical practitioner, and the first medical practitioner succeeds or has succeeded, whether before or after the transaction aforesaid, to the practice or any part of the practice of the second practitioner, the transaction shall be deemed to be a sale of the goodwill or part of the goodwill of the practice of the second practitioner by him or by his personal representative to the first practitioner, unless it is shown that the consideration was not given in contemplation or consideration of such succession to the practice or part of the practice aforesaid:

Provided that this subsection shall not apply to anything done in relation to the acquisition of premises for the purposes of a medical practice, or in pursuance of a partnership agreement, or to the performance of services as an assistant to a medical practitioner.

(8) In determining for the purposes of this section the consideration given in respect of any transaction, the court shall have regard to any other transaction appearing to the court to be associated with the first transaction, and shall estimate the total consideration given in respect of both or all the transactions and shall apportion it between those transactions in such manner as it thinks just.

(9) Where any consideration is, with the knowledge and consent of a medical practitioner or his personal representative, given to any other person, and it appears to the court that the medical practitioner or, if he has died, his estate or some person beneficially interested in his estate derives a substantial benefit from the giving of the consideration, the consideration shall be deemed for the purposes of this section to have been given to the medical practitioner or his personal representative, as the case may be.

(10) A prosecution for an offence under this section shall not be instituted without the consent of the Attorney-General.

5. Compensation

36.—(1) Every medical practitioner whose name is entered on the appointed day on any list of medical practitioners undertaking to provide general medical services shall be entitled to be paid out of moneys provided by Parliament compensation in accordance with this section in respect of any loss suffered by him by reason that he is or will be unable to sell the goodwill of his practice by virtue of the last foregoing section.

(2) The aggregate amount of the compensation to be paid under this section shall be the appropriate proportion of sixty-six million pounds, exclusive of any sums paid by way of interest:

Provided that, if the aggregate number of medical practitioners included on the appointed day in lists of medical practitioners providing general medical services falls short of the prescribed number, the said amount shall be reduced by an amount calculated by multiplying the number by which the said aggregate number falls short as aforesaid by a prescribed amount.

(3) Regulations shall—

(a) prescribe the manner in which and the time within which claims for compensation are to be made, and provide for determining whether any claimant has suffered loss by reason of the matters referred to in subsection (1) of this section and, if so, the extent of that loss;

(b) provide for the distribution of the said aggregate amount among the persons who have suffered such loss as aforesaid, having regard to the extent of their respective losses;

(c) prescribe the manner in which and the times at which the compensation is to be paid, and secure that, except in such circumstances as may be prescribed, it shall not be paid until the retirement or death of the medical practitioner concerned, whichever first occurs; and

(d) provide for paying out of moneys provided by Parliament interest at two and three-quarter per cent. per annum on the amount of the compensation payable to any medical practitioner, in respect of the period from the appointed day until the time when the compensation is paid;

and before making any regulations under this subsection the Minister shall consult such organizations as may be recognized by him as representing the medical profession.

(4) For the purpose of determining the appropriate proportion of the said sum of sixty-six million pounds—

(a) it shall be assumed that provisions corresponding to this section and the last foregoing section will provide for the prohibition of the sale of the goodwill of medical practices in Scotland and for the compensation of persons suffering loss by reason of that prohibition;

(b) the aggregate amount of the losses in respect of which compensation will be payable under this section and under the corresponding provision for Scotland, respectively, shall be calculated in such manner as the Treasury may direct; and

(c) the said sum of sixty-six million pounds shall be apportioned as between England and Wales on the one hand and Scotland on the other, having regard to the said respective aggregate losses, and the amount apportioned to England and Wales shall be the appropriate proportion of that sum for the purposes of this section.

37.—Where the Medical Practices Committee are satisfied, on the application of a medical practitioner or his personal representative, that—

(a) the practitioner has retired from practice or died during the period between the passing of this Act and the appointed day; and

(b) the goodwill of his practice has not been sold in whole or in part before the appointed day;

the last two foregoing sections shall apply in relation to that medical practitioner and to his practice as if his name were entered on the appointed day on a list of medical practitioners undertaking to provide general medical services.

6. Dispensing

39.—(1) Except as may be provided by regulations, no arrangement shall be made by the Executive Council with a medical practitioner under which he is required or agrees to provide pharmaceutical services to any person to whom he is rendering general medical services.

(2) Except as may be provided by the regulations, no arrangements for the dispensing of medicines shall be made with persons other than persons who are registered pharmacists or are authorized sellers of poisons within the meaning of the Pharmacy and Poisons Act, 1933, and who undertake that all medicines supplied by them under the arrangements made under this Part of this Act shall be dispensed either by or under the direct supervision of a registered pharmacist or by a person who for three years immediately before the sixteenth day of December, nineteen hundred and eleven, acted as a dispenser to a medical practitioner or a public institution.

(3) Nothing in this Act shall interfere with the rights and privileges conferred by the Apothecaries Act, 1815, upon any person qualified under that Act to act as an assistant to any apothecary in compounding and dispensing medicines.

7. Powers of Minister where Services are Inadequate

43. If the Minister is satisfied, after such inquiry as he may think fit, as respects any area or part of an area of an Executive Council that the persons included in any list prepared under this Part of this Act—

(a) of medical practitioners undertaking to provide general medical services; or

(b) of persons undertaking to provide pharmaceutical services; or

(c) of dental practitioners undertaking to provide general dental services,

are not such as to secure the adequate provision of the services in question in that area or part, or that for any other reason any considerable number of persons in any such area or part are not receiving satisfactory services under the arrangements in force under this Part of this Act, he may authorize the Executive Council to make such other arrangements as he may approve, or may himself make other arrangements, and for the purpose of such other arrangements he may dispense with any of the requirements of regulations made under this Part of this Act.

8. Powers of Minister to Make Regulations (Clause 69 (3))

(3) Any power conferred on the Minister by this Act to make regulations shall, if the Treasury so direct, not be exercised except in conjunction with the Treasury.

NATIONAL HEALTH SERVICE

GOVERNMENT PROPOSALS TO TAKE OVER VOLUNTARY AND MUNICIPAL HOSPITALS

The following statement has been issued by Lord Latham, Leader of the London County Council.

It is generally accepted that a National Health Service freely available to all is an essential part of any satisfactory scheme of social security and that such a service must include adequate facilities for hospital and similar treatment for all who need it, wherever they may live.

There are at present in this country two parallel hospital systems: the voluntary hospitals, which provide about 77,000 beds, and the municipal hospitals, which provide about 196,000 beds. These figures do not include 189,000 mental hospital beds, almost all of which are provided by local authorities. The Government has decided that the two systems must be co-ordinated into one unified system under national ownership and financed from national funds. To achieve this, the Government proposes to take over all the existing public hospitals, voluntary and municipal, including mental hospitals, and to administer them on a regional basis through Regional Hospital Boards and, for day-to-day management, by local Hospital Management Committees.

It is clear that, since free hospital and ancillary treatment is to be the right of all, towards which all will contribute through the scheme of National Insurance, the Government is bound to provide the necessary facilities and cannot leave one sector of the service to hospitals dependent upon private benevolence, Hospital Savings Association and Hospital Saturday Fund contributions, etc., flag-days and the like. Moreover, when everyone is required to contribute, much of the income from these sources will diminish and ultimately cease for all practical purposes. Thus the voluntary hospitals would not be able to finance the facilities which they will be called upon to provide without becoming increasingly dependent upon contributions from public funds, which will constitute the bulk of their income. Now it is a sound and salutary tradition in this country that where public money is used there must be proper public accountability. Furthermore, the practice of nomination and patronage for entry into voluntary hospitals could not continue side by side with the individual right of every insured person to hospital treatment for himself and his family.

Voluntary hospitals have done fine work and have provided a field for personal service and devoted activity by large numbers of people from all walks of life. But new conditions require new means and ways. There will always be abundant opportunities for voluntary service in many fields of social activity where such service is so valuable. But the proposal to take over the voluntary hospitals involves the future of the

municipal hospitals. Clearly, there cannot continue to be two systems—one of the former voluntary hospitals and another of municipal hospitals. The Government has accordingly decided that it must also take over the municipal hospitals as the only satisfactory way to secure an integrated hospital system, organized on a national basis so as to provide a fair distribution of facilities over the whole of the country, which is far from being the case at present. This will mean that the London County Council will lose its great system of municipal hospitals, which has been welded into a fine hospital service for Londoners, who are greatly attached to and rightly proud of them. They regard them as their hospitals, and so they are. The London County Council has devoted much thought and effort towards making these hospitals—general, special, and mental—the finest in the world. In February of this year big comprehensive plans were approved by the Council for the repair and restoration of damage done by enemy action and for the further enlargement, modernization, and improvement of its many hospitals. It can, therefore, be appreciated with what feelings of regret we shall see them pass from us to the ownership of the State and to their administration by Regional Boards.

I am a local government man; a very large share of my public activities over the past 25 years has been in the field of local government. I believe that local self-government is an essential and valuable part of the governing and administrative structure of this country, which must be preserved if local democracy is to continue and too much centralized government is to be avoided. Encroachment by the central government on the field of local government activities is always regrettable, and appointed Regional Boards are no substitute for popularly elected local authorities. But what is the position that we face? Existing local government units in the country generally do not coincide with what would be satisfactory units for hospital services. Hospital accommodation over the country is inadequate and is also badly distributed in relation to needs: there is concentration in some parts and a grave shortage in many others. In the County of London, for example, there is a large number of both municipal and voluntary hospitals, including twelve teaching hospitals, whereas in other parts of Greater London hospital accommodation is insufficient. If the needs of the people are to be fairly met in the future, existing hospitals must be organized and additional ones located so as to serve much wider areas than the County of London or, maybe, Greater London.

So we must view this matter from the broad standpoint of the greatest service to the greatest number—as I am sure all good Londoners would wish. All persons of good will will agree that if an efficient National Health Service is to be established it must be based upon the provision of hospital facilities for all, with the care and well-being of the patients as the first consideration. With these considerations in mind the Majority Party on the London County Council will support the main principles of the Government's proposals as regards taking over all the public hospitals, voluntary and municipal. The London County Council will, of course, insist that the interests of the people of London are fully safeguarded; that there is adequate representation drawn from the London County Council on proposed Regional Hospital Boards and local Hospital Management Committees, and that in the future administration of the hospitals the needs of the people of London are properly provided for.

Meantime, the London County Council will continue to run its hospitals for the people of London and will pursue with undiminished vigour the work of development and improvement of them.

Londoners are a fine people—their conduct during the war showed this—and I am convinced that they would not wish for narrow selfish reasons to stand in the way of the establishment of a national hospital service freely and fairly available to others in common with themselves. In this supreme matter of the better health of the nation they will be ready to make their contribution—and it is a great one—feeling, however, regretfully, that it is the right and proper thing to do.

LATHAM,

Leader of the London County Council.

The County Hall,

Westminster Bridge, S.E.1.

March 21, 1946.

Correspondence

Foundations of a First-class Medical Service

SIR.—Much of what has been written on the first-class health service for all refers to the sensational subject of "directing" medical talent. An even distribution of doctors through the population is, however, but one of the many reforms entailed. Others, equally pertinent, need prominence.

1. *Numbers.*—The number of doctors needs to be doubled if the essential early diagnosis and efficient treatment are to be meted out to all and sundry. Training a doctor takes about seven years, yet we hear little about schemes to cope with the necessary expansion of the medical schools. Nor shall we raise the standard of our service without doubling the number of our allies of the nursing profession.

2. *Students' Curriculum.*—Medical science, like other sciences, grows prodigiously in this century and in one branch after another. Teachers, consumed with its wonders, have lost a sense of proportion and leave the students no time to develop wisdom and the art of medicine. They assume it is obligatory to pile each new discovery on to the unmanageable load of learning. But much of the detail and of what is new is only of academic interest or useful to the specialist and out of place in the daily round of a family doctor, never entering his mind after he leaves hospital. A radical revision of the syllabus is urgently needed, with diagnosis as the dominant aim, to restore more hours at bedside and out-patient clinics and lessen time at lectures, laboratory, and operating theatre. Mankind's marvels in collective massing and transmitting of scientific knowledge must not make us forget that the brain of the individual remains bounded by an inexpandable cranium. Much of the almost universal contempt for physiology in daily life is due to our obsession with the current outpouring of the products of science. The doctor and the public need arming against the seductive misguidance on the hoardings which makes a mockery of medical education and the salutary prohibition of which has not so far even been hinted at by the Government.

3. *Good Hospital Conditions.*—Even granted a well-balanced training for medical men, bad conditions prevent first-class practice. Constantly having to make shift with low standards and debarred from his proper professional pursuits, a doctor tends naturally to lose enthusiasm and ideals. He longs for the following.

(a) General-practice annexes to hospitals.—He often wants accommodation for patients who need nursing for a few days or weeks. The patient is suddenly ill, requires a bed and waiting on, but, for lack of domiciliary aid, tries to struggle on, with the result that effective application of treatment is uncertain. In another case obscure symptoms call for a few days' close observation under carefully regulated conditions; or initiating a special treatment similarly depends on nursing aid. In every suburb a large house, suitably adapted, with some 20 to 30 beds, would provide the necessary facilities, and yet this is denied the urban doctor, although his country colleague has his cottage hospital. A move in this matter by the Government is another proof we want that a first-class service is in the making.

(b) More general hospital accommodation.—This is woefully short. Thousands of patients, many the victims of cancer, have to wait months and even years with major illness the treatment of which depends on the special facilities and elaborate equipment of large hospitals. A doctor may well wonder whether the effort of diagnosis or consulting with specialists on such cases is justified when it merely leads to a "waiting list." Certainly it seems futile humbug to preach the importance of detecting cancer early, leave alone sending a merely suspicious case to the specialist, when those with late disease are left advancing. Life is at stake; we want plans for the requisite additional accommodation (including that for private patients) clearly foreshadowed before we doctors can believe the words, "a first-class service," are coming true.

What does history teach us? In 1911 Lloyd George's scheme won a place on the Statute Book as a "National Health Insurance." What a fraud, as it catered for only a minority of the people. Don't let the B.M.A. be fobbed off this time merely with the promise of an even distribution of doctors, and let down patients and profession by accepting, as "first-class," conditions of service under which good work is simply impossible. Let our demands for our patients be clear and inexorable. Of course we want equal distribution, but not of

"rotten eggs." The battle with disease is still "on," slaying a few hundred thousand Britons annually; let us apply to the campaign the moral of Field-Marshal Montgomery's words of high praise of the medical services in the Army: "... great work done by our doctors . . . as a result of the immense pains taken our great armies in B.L.A. were far healthier than the armies of the last war.—I am, etc.,

Bristol.

A. WILFRID ADAMS.

B.C.G. Vaccination

SIR.—How fares B.C.G. vaccination against tuberculosis in England? In the Scandinavian countries it has gone from strength to strength since its introduction there about 1927. Its sponsors in these countries have not been obscure, wild-eyed, bagging-at-the-knee enthusiasts but acknowledged leaders in the Scandinavian medical world—Dr. Heimbeck and Dr. Scheel in Norway, the bacteriologist Prof. K. A. Jensen in Denmark, Prof. Arvid Wallgren in Sweden, and many other men with a hard-earned reputation for critical discrimination. It is an illuminating sign of the times that in *Nordisk Medicin* for Jan. 18 of this year Dr. S. Rydén (who deals with some 1,500 vaccinations) says, the stage at which one discussed the risks of B.C.G. having been passed, the questions now remaining to be answered are: whom to vaccinate, and how long does the immunity conferred by B.C.G. last? The papers published in Scandinavia during and after the war on the parenteral administration of B.C.G. have made me wonder what is happening in England now with regard to it. Is it possible that we have been caught napping as we were nearly 30 years ago over the introduction of artificial pneumothorax treatment into England? Has England an intelligent Intelligence Service operating so efficiently that important advances abroad in medicine in general and tuberculosis in particular are promptly brought to the attention of, and if necessary rubbed into, all concerned at home?—I am, etc.,

Leitet, Sunnfjord, Norway.

CLAUDE LILLINGSTON.

* An annotation on B.C.G. vaccination, describing the Norwegian work, appeared in the *Journal* of Feb. 6, 1943 (p. 167). The subject was again reviewed at length in a leading article, "Immunization Against Tuberculosis," in the *Journal* of Dec. 4, 1943 (p. 716), in which we stated this: "To those familiar with the Norwegian work in particular, it may well seem that the experimental period even in man is already over, and that nothing remains but to apply the method at whatever age, on whatever scale, and in whatever classes of persons the circumstances demand." Apparently England has an "intelligent Intelligence Service."—ED., *B.M.J.*

Tuberculin Therapy

SIR.—The obituary notice of Dr. W. Camac Wilkinson (March 2, p. 335) seems to imply that tuberculin therapy has come to an end now that Camac Wilkinson is dead. This is not so. I am still using tuberculin, and getting at least as good results with it as are got by the collapse methods now in use in sanatoria. I say this with knowledge, for I try to keep in touch with all survivors who have suffered from pulmonary tuberculosis in County Down from 1912 onwards, and can compare the results in cases treated in sanatoria with those in cases treated with tuberculin at our dispensaries. The percentage of the latter at work after 5, 10, or more years is quite as good as the percentage of the former.

I agree with Camac Wilkinson that tuberculin has not had a fair trial. The crux of the whole thing is the dosage. This needs to be adapted to each patient, and there are enormous differences in the doses and the ratio of increase of dose that are best in different cases.

In 1932, being the jubilee of the discovery of the tubercle bacillus, the B.M.A. at its meeting in London had a Tuberculosis Section at which a morning session was given to tuberculin in diagnosis and treatment. The opener on treatment mentioned a series of doses which he had used, giving the same series to all patients. This I should expect to do more harm than good, but he concluded by saying that he thought tuberculin was worthy of further trial. Later, when his paper was published in the *Journal*, I wrote pointing out the absurdity of the method of administering tuberculin. But the author replied that if he

were to be criticized in that way he would not use tuberculin any more. This is a fair example of how tuberculin has been abandoned by people prominent in the profession. As a result students are taught that tuberculin is useless and even dangerous, and are given no opportunity of seeing it properly administered. Of course, to use it without knowledge of how it should be employed would be apt to do more harm than good.—I am, etc.,

Tuberculosis Department,
Down County Council, Belfast.

JOHN R. GILLESPIE.

Suprapubic Drainage of the Bladder

SIR.—Mr. E. W. Sheaf's instructive letter (March 2, p. 331) should call for a record of the experiences of other surgeons. Not many will steer so old a patient to safety in such a serious pathological complication.

I always taught that suprapubic puncture of the bladder should be done with a local analgesic and visually—because it presented traps for the unwary to fall into. The first is that the back of the peritoneal fold may be adherent to the bladder, and that surface of it may be torn even without this being noticed. The only evident indication of such an accident may be a slight releasing of the gentle, upward, gauze traction. The second trap occurs if the bladder empties rapidly while the De Pezz tube is being inserted, as may easily happen when some of the causes of such delay are in action. The bladder may then retract off the cannula, and then where are you? The upward and backward direction of the trocar not only is safer but seems to lead to a more rapid closure, by a slow, sliding-shutter action when the catheter is left out.

Thirdly, the best place for puncture seems to be in the middle line just above the pubis, because it suits every size and condition of bladder.—I am, etc.,

London, W 1.

G. H. COLT.

Pathogenesis of Non-specific Mesenteric Lymphadenitis

SIR.—Mr. Ian Aird's communication (Nov. 17, 1945, p. 680) anticipated an article on this subject, now in course of preparation, wherein I shall proceed to elaborate on certain features observed in relationship to "chronic" appendicitis, mesenteric lymphadenitis, and threadworm infestation of the alimentary tract. It was some years ago at the Royal Hospital for Sick Children, Glasgow, that I noticed that every appendix which I removed during the months of January, February, and March, and during the first two weeks in April, of a particular year, contained threadworms, and this was the case even in such appendices as were frankly acute. Mesenteric glands, enlarged to the size of hazel-nuts, were a constant finding in each case, and my interest in the frequency of this association was initiated.

Since then, with an eye on the lookout for threadworms, I have estimated that approximately 70% of these chronic or "normal" appendices, removed during laparotomy because of abdominal pain, tenderness, etc., and associated with mesenteric glandular enlargement, contained threadworms, and during the last few years I have made a point of demonstrating the "threadworm abdomen" to students attending the hospital. Most of these were in the first instance referred by their own doctors to my out-patient clinic as cases of chronic appendicitis. Mr. Aird has given ample details of their symptoms, signs, and preceding history, but I might add that most of them, instead of giving a history of a few previous attacks, complain of many brief attacks of pain over a period of six months to a year, unrelieved by any long intervals of freedom which could be measured in weeks or months. I think Mr. Aird's article passed somewhat briefly over the frequency of nausea and vomiting in such cases—facts which cannot be disposed of lightly when assessing the need for operation.

It should be noted that children suffering from threadworm infestation are not being submitted indiscriminately to operation. Each of these patients is being questioned on such matters as: "Do you get an itchy bottom?" The parents are asked: "Has the child now got, or did the child or any other member of the family have, threadworms at any time?" The examination of the patient includes firm separation of the buttocks to inspect the anus, which sometimes

relaxes into a patent state. Often enough one or more threadworms may appear obligingly to confirm the suspicion of their presence. Cases with a negative history are sent to the ward for an enema, and if the result is negative and other features are not urgent the child is dispatched home, the parent being instructed to observe every motion passed by the child during the following week. Where threadworms are stated to be present, or proved to be so by enema or by observation, medical treatment is instituted. A proportion of these cases continue to complain of abdominal pain in spite of the fact that threadworms have disappeared from the motions, etc., and they are thereupon included in the category of those cases of abdominal pain requiring admission for laparotomy.

To support my contention that mesenteric lymphadenitis (non-specific) is due in the main to the presence of threadworms in the alimentary tract I shall quote from the appendectomy records of one of the two surgical units of the Royal Hospital for Sick Children, Glasgow. The figures for the year 1943 are selected, as during that year reasonably accurate observations were made for the presence or absence of infestation.

226 appendectomies were performed. Of these, 123 were acute, and 103 were chronic or "normal."

Of the chronic 103, 63 contained threadworms. Of the 40 which did not contain threadworms, 6 had previous histories of having had threadworms. Of the 34 without any history or sign of threadworms, 10 case sheets do not indicate that any search was made of the contents of the appendix.

My estimation of the frequency of the association of enlarged glands and infestation is borne out by these figures. Where, on the other hand, the glands are enlarged to the size of a cooked haricot bean, in all probability the aetiological factor is something in the nature of a more acute or virulent infection. To conclude as briefly as possible, the so-called "normal" appendix in threadworm infestation has a characteristic appearance, which, I persuade myself, I can recognize from the outside. Some infestations cannot be cleared up medically, and appendectomy is necessary. Related issues in regard to the foregoing and in regard to the disappearance of symptoms after appendectomy will be elaborated later.

Meantime, in regard to the correspondence which has arisen in response to Mr. Aird's communication, I favour those who for safety's sake perform laparotomy where there are abdominal pain, vomiting, and tenderness in the right iliac fossa and elsewhere, as in less experienced hands many an acute surgical emergency would be misdiagnosed were his precepts too rigidly followed.—I am, etc.,

Glasgow

ANDREW P. LAIRD.

Fractured Bone Graft

SIR,—In the article on survival of cortical bone after grafting, by Mr. David Brown (March 16, p. 389), there is a reproduction of an x-ray film which claims to show union of a fractured bone graft (Fig. 2). In truth the illustration shows an obvious well-marked ununited synostosis with sclerosis on each side. "Fracture" is not quite at right angles to the film, so that it does show through the gap, but the gap is so clear-cut that it is difficult to understand how it could be stated that there is union. In the film of the state of the bone fourteen months after operation one can see the half-inch of the shaft which has not survived as an aseptic sequestrum and will absorb, so producing the radial deviation mentioned. The "fracture" was really the separation of this necrosing bone at its lower end. Close inspection half an inch (1.25 cm.) above this level shows the upper end of the separating fragment and even the outline of the future upper component of the synostosis.—I am, etc.,

Newcastle-upon-Tyne

FRANK STABLER.

Acute Pancreatitis

SIR,—I was very interested in Mr. Norman Godfrey's article (Feb. 9, p. 203) on acute pancreatitis, and also in the case reported by Mr. Hiren De (March 9, p. 367).

I well recall a female patient of under 40 being admitted to hospital in a state of profound collapse, following a severe attack of abdominal pain. A tentative diagnosis of acute

pancreatitis was made; the urinary diastase index was 500. Any surgical intervention during the state of profound collapse was out of the question, and the patient was treated with morphine to relieve the intense pain, and a glucose-saline intravenous drip. Steady improvement was made and the following day the diastase index was 400, and it continued to fall until it was normal, five days later. Recovery was uneventful, and four months later cholecystectomy was carried out, several stones of the mixed type being present in the gall-bladder. Examination of the pancreas did not reveal any definite abnormality. The recovery of this case so impressed me that I feel it is wiser to abstain from surgery in acute pancreatitis—if one can be satisfied as regards the diagnosis—but many cases fall into that group of acute abdomens in which the precise diagnosis is in doubt, and in these cases operation must be undertaken. This case was treated about twelve years ago and no sulphonamide drugs were used.

I was interested to see that the urinary diastase in the case reported by Mr. Hiren De was 500 on the day after operation. I have several times had the diastatic index estimated in the first specimens of urine passed after laparotomy and drainage for acute pancreatitis, and always found it normal. Had this patient been a little less ill, surgical intervention would have been carried out, with perhaps a less happy ending.—I am, etc.,

Lewisham Hospital

J. JEMSON

Cardiac Beriberi

SIR,—We were most interested to read Dr. Brunel Hawes's letter (March 9, p. 366), in which he stated that the immediate response to thiamine can be regarded as a diagnostic test in a case of beriberi heart. In spite of being unaware of this fact, it was the extraordinary response to thiamine which made us consider that the case we published might have fallen into this category. True the child did not inform us she felt better in three minutes, but this is not surprising as she was suffering from terror and spoke only Polish. Also at first we had to give her B₁ by mouth as we had no concentrated solution for injection. Her whole appearance, however, changed in a few days from one of extreme torpor to comparative well-being while the heart symptoms cleared up and the heart regained its normal size with great rapidity. Hence his letter tends to confirm the opinion which we formed, together with the distinguished Swedish physicians who saw the case.

Several other points in Dr. Hawes's letter we find somewhat intriguing. It is interesting to speculate on the identity of the medical school where in the old days students were constantly ploughed in the finals for bringing up the subject of beriberi and where now they are congratulated by the examiners when they do. We are at a loss to understand, however, why "those stout little girls—housemaids, wardmaids, and probationary nurses—with chlorosis" should have their memory "drowned in a meaningless past," or indeed how a meaningless past can be drowned, or, if drowned, how it can be remembered.—We are, etc.,

Dublin

ROBERT COLLIS.
P. C. MACCLANCY.

Psychological Reaction to Loss of One Eye

SIR,—The *Journal* of Feb. 2 has just reached me and I have read the article on the above subject by Lady Duke-Elder and Dr. E. Wittkower (p. 155) with great interest. As one who lost his right eye by enemy action in April, 1941, may I be permitted to make some comments upon their views.

If the article were written as "treatment" and for the encouragement of one-eyed patients then its tone would be acceptable, but as a contribution to a scientific journal, to read largely by those having the management of such patients I feel that it is biased on the side of making far too light of the loss of stereoscopic vision.

It is true that it is during the first six months that the difficulty of judging distances is most felt; by the end of that time one has learnt various tips to compensate for the loss of stereopsis such as always to look down on the cup you are filling, never across it. But after nearly five years I still have not devised a method of distinguishing quickly the "insect near" from "the bird far away." Similarly, vision at night, when the

employment of the parallax error to judge distances becomes very difficult, driving or even movement on foot becomes much more hazardous. In spite of the well-intentioned encouragement of scores of friends who say, "Oh, you'll get used to it" I do not feel that anything approaching full compensation of distance-judging can ever be obtained. I suspect those who say it either are not being honest with themselves or were very undiscerning when they hid their two eyes.

I have made no reference to the embarrassment of disfigurement, which admittedly is only great if one allows it to be, but I feel the profession is in danger of being too harsh if it sweeps aside the complaints of monocular persons that they cannot judge distances, and accepts the statement made by the writers that the psychological effect of the loss of an eye is out of proportion to the actual physical disability.

I should very much like to know whether either of the authors has been permanently deprived of stereoscopic vision. I think it is agreed that no man can honestly psycho-analyse himself, and I shall not attempt to assess my emotional reaction to the loss, probably after reading this letter I shall be adjudged as a gross case of class—self-centred, self-pitying anxiety—I am, etc.,

Bombay

PAUL T. MERLIN

Our War Chest

SIR,—The *Journal* of March 9 contains a challenge and a message of hope to all who have the true interests of medicine at heart. The restraint and calm semi-obscenity of the announcement of the Emergency Guarantee Fund contrasts with the publicity it received in several daily papers.

Sir Ernest Graham-Little is only too right in his remarks about the flooding of the medical labour market with suddenly released Service medical officers. As one of them, I find that Ministerial thunderings have made the purchase of a practice or a partnership at this juncture too perilous. Specialization is thwarted because the specialist training posts are engulfed by the same flood, and a married man cannot live on a house physician's salary. Many of us were waiting with disillusioned gloom for the onset of the threatened State medical service as a means, however distasteful, of getting a living. We felt that the B.M.A. would not fight, and the impertinence of Messrs Laski and Bevan encouraged this fear. Now we know where we stand. The profession may not yet be showing its teeth, but it is getting them scaled.

Medicine and politics do not mix. Because the Socialist Medical Association is becoming an example of Socialism rather than medicine we must remain the British Medical Association, not Conservative, Liberal, Communist, or Fascist. If a project concerns medicine we are affected, and should support or oppose it on its merits regardless of its political sponsors.

It may be said that Fund A is not needed. Certainly some of the Opposition newspapers would subsidize our propaganda free. By paying for it ourselves we remain independent, and the public, whose wish in the end must prevail, will see that our motives are non-political. Our hands are very clean. What trade union leaders would "negotiate," as ours have done, with the Minister and keep their promise not to divulge his projects to their own supporters until the Minister has spoken? The present Government has had enough experience of strikes in the most vital industries to know that its chosen weapon of other days is open to all. It is not for the trusted family doctor to become an agitator for any policy. The consulting-room and waiting room are not political platforms. It is different if the patient, interested in the issue as raised in the press or elsewhere, asks for his doctor's opinion. If that opinion is not given unasked it will be respected.

Now we come to Fund B. This is literally the measure of our loyalty, not only to ourselves but to our principles. It is the price we are prepared to pay to gain a new and better medicine instead of bureaucratic slavery. On our support of this fund and the B.M.A. we rest our hopes of a brave new world. It is our chance—perhaps our last one—of raising our prestige to new heights in the eyes of the whole country and of our colleagues throughout the world—I am, etc.,

High Lane

J. L. BROWN

The Minister Listens

SIR,—Dr P. G. S. Davis (March 16, p. 411) contends that "some 40,000,000" of our people are united in the "attempt" to coerce "some 20,000 doctors" into accepting proposals which the vast majority of those doctors sincerely believe will worsen, rather than better, the nation's health and happiness. Dr Davis goes one better than the egregious Prof. Laski, who has declared that he would not allow the House of Lords to interfere with the will of "20,000,000 electors." These wild exaggerations look particularly foolish when one examines the authentic figures. Not more than some 27,000,000 votes were recorded in the last election, and of those only 11,992,222 supported Socialism.

And how should doctors, who are not stonemasons, proceed to "shape a milestone," as Dr Davis, in his penultimate sentence, exhorts them to do?—I am, etc.,

House of Commons

E. GRAHAM LITTLE

Homosexuality

SIR,—The amount of prejudice and extreme emotional reaction engendered by this word is quite remarkable. Surely the solution of the difficulty is to establish an age of consent for boys as well as girls, and, if it seems desirable, increase the severity of punishment for all sexual assault or seduction under this age. This would protect all children of both sexes from premature sexual interference which probably everyone would regard as harmful to their future adjustment to life and society. Such a law would protect boys from corruption not only by their own sex but also by women.

I have recently had a case of a young man about whom I heard twelve years ago, though he himself did not come under my care. At the age of 11 he was seduced by the mother of a school-fellow. Intercourse took place regularly for two years and the lady stated to her friends that he was the father of twins to which she gave birth. Finally in a fit of jealousy she accused this boy of interfering with a girl of 13 without the shadow of proof. This led to the woman being charged, but the court did not see fit, or was not able, to convict her. Not unnaturally the boy grew up to a life of extreme sexual instability and has already served a Borstal sentence for improper conduct.

It is time that all children should be protected from homosexuals of both sexes, but boys as well as girls should be saved from heterosexual experiences such as the one referred to above, which are not so uncommon as some sensitive-minded readers would like to imagine—I am, etc.,

Bath

R. G. GORDON

SIR,—This discussion seems to have reached a stage where an attempt might be made to take a realistic and practical view of the problem. If I am didactic it is for the sake of brevity.

Homosexuality is a state of mind and is ignored by the law. Sodomy is a physical act which in this country is always illegal. A bugger is a sodomite (see *Oxford Dictionary*). Many homosexuals are not sodomites, many sodomites are not genuine homosexuals. If a sodomite keeps the rules which apply to normal intercourse the police will have little chance to intervene.

In all the many cases I have seen as a police surgeon the victim was either unwilling or under the age of consent, or the performance was in a public place. It follows that if the law was altered to place homosexual and heterosexual practices on an equality the change would make little difference in practice, but would go far to scotch the idea that homosexuals as such are persecuted.

Your first correspondent made the astounding assertion that most homosexuals can be cured. If this means that after Nature has adjusted most youths of homosexual tendencies the majority of the residue can be cured, then the statement is untrue. It is even doubtful if psychotherapy has any notable effect. The number of homosexuals is large, but the proportion indicted for sodomy is small. How can it be further reduced? I suggest, (1) by equalizing the law between homosexuals and heterosexuals, (2) by providing first offenders with suitable treatment, (3) by dealing surgically with brutal or persistent offenders—I am, etc.,

Plymouth

S. K. MCKEE

Stethoscope versus X Rays

SIR,—With reference to the correspondence "Stethoscope versus X Rays," which has been pursued so vigorously in your *Journal*, I should like to point out that, in my opinion, the whole controversy is based upon a logical error, for if, on the one hand, the x-ray picture is taken as a faithful representation of structural lesions which we seek to recognize by clinical methods, then this picture must be accepted as the final criterion of truth, with the result that the physical signs (or clinical manifestations) must necessarily be misleading in a certain percentage of cases. If, on the other hand, the physical signs (or clinical manifestations) are taken as the faithful representation of the structural lesions, then they must be considered as the final truth, with the result that the x-ray picture must necessarily be misleading in a certain percentage of cases.

Since, as already mentioned, it is by clinical methods that we endeavour to detect structural lesions—i.e., lesions which, generally speaking, can be strictly defined only by anatomical methods—the diagnosis of these lesions by other than anatomical methods must be based on the correlation of clinical data with anatomical data. Since there has not yet been any reliable statistical work done on the correlation of physical signs (or clinical manifestations) with lesions, or of x-ray pictures with these lesions, it is impossible at present to decide which method gives more accurate results.

This correspondence is symptomatic of the confusion of thought which pervades the whole structure of medicine, and bears witness to the need for a revision of its fundamentals, which in turn would be bound to have a profound influence upon the present medical scheme.—I am, etc.,

Polish School of Medicine,
University of Edinburgh.

ANTONY FIDLER.

SIR,—Dr. F. Kellermann's second letter (Feb. 2) so grossly misrepresents the real issue, and is so contemptuous in its tone, that I crave your indulgence for a few words of remonstrance. No competent clinician would dream of using the stethoscope to the exclusion of all other clinical evidence, nor is it conceivable that this was in the minds of members of the Royal Society of Medicine at their much-discussed debate on Nov. 27 last. As Dr. R. C. Hutchinson said in his letter (Jan. 5), which started this discussion: "Most of the speakers obviously felt the limitations of the title ['Stethoscope v. X Rays'] and included in their remarks the full range of physical examination. Several appear to be thinking in terms of early tuberculosis, in which no one would dispute the pre-eminent value of radiology." Dr. Kellermann says that the subject of the debate "can be summarized in two questions with two simple answers." Let us take each question and answer in turn:

"Question 1.—What evidence of pulmonary disease can be detected by auscultation which could not be detected by x rays? Answer.—Rhonchi and pleural friction-rub." No sound clinician would take "rhonchi" and "pleural friction-rub" as specially distinctive of pulmonary tuberculosis (which is the disease more particularly in question). Does then Dr. Kellermann mean to imply that the other and more distinctive signs, such as crepitations, rales, and wheezes (so often missed because the examiner will take the trouble to get the patient to cough), prolonged expiratory breath-sounds, increased vocal resonance, etc., are never found without x-ray evidence being also always obtained? If so, there are numerous cases—as this discussion has brought out—which disprove such a contention. Further, to depart from tuberculous disease only, auscultation can give evidence of bronchiectasis, where x-ray evidence may be negative.

"Question 2.—What evidence of pulmonary disease can be detected by x rays which could not be detected by auscultation? Answer.—Innumerable." This is bad English, but, letting that pass, would many radiologists and clinicians admit the "innumerable"? This illustrates very well one of the remarks made by Dr. C. A. Birch at the debate: "Instruments passed through three stages: extravagant claims, severe criticism, general use until ousted by a better method." If "the stethoscope was now in the third stage" he might equally well have added: "The x rays are now in the first stage"; i.e., that of extravagant claims. One radiologist of distinction would not agree with the claims made by Dr. Kellermann (see letter from Dr. J. F. Brailsford, March 2), but perhaps in Dr. Kellermann's estimation Dr. Brailsford, although he speaks as a radiologist, is included among those whom Dr. Kellermann contemptuously likens to "a fifth-rate provincial soccer club."

It seems impossible to make Dr. Kellermann understand that those who believe that the stethoscope still has a useful place do not undervalue the importance of x rays. Here is the real essence of the misunderstanding. No good tuberculosis officer to-day would fail to make use of x rays because auscultation gave no evidence, and one would have thought that no competent teacher would allow medical students to suppose that because auscultation was negative, therefore—in a suspicious case—x-ray examination was unnecessary, any more than he would teach that a negative sputum examination meant that tuberculosis was not present. Dr. James Maxwell, Dr. Peter Kerley, and Dr. Geoffrey Marshall must feel grateful to Dr. Kellermann for his support, but in invoking their authority let not the unwary be led to infer that the stethoscope is an obsolete instrument. This is by no means the case. In the report of the debate (*Journal*, Dec. 15, 1945, p. 856) we read: "Dr. Peter Kerley said that the rash statement was made from time to time that the stethoscope was obsolete: no experienced radiologist would agree with that." Dr. James Maxwell, in a reply to Dr. Hutchinson, says: "Nobody would deny that physical examination has its place, but the time has come when physical examination and radiography must be brought together, and teaching must be based upon the intelligent combination of all methods of examination," which would include auscultation. This is a very different attitude from that of Dr. Kellermann.

In short, to quote Dr. Kellermann, "Don't let us confuse the issue," as he himself has done. The question at issue is simply this: Is the stethoscope still useful in cases of suspected lung disease, or is it to be discarded as superfluous, because x rays (as in Dr. Kellermann's view) will give all the information required. His gibes at those who believe the stethoscope to be still useful come with an ill grace from one who is a comparatively recent recruit to the ranks of public health tuberculosis workers. The writer of the letter which initiated the discussion was some years ago medical superintendent at one of our foremost sanatoria (to which, by the way, I believe Dr. Geoffrey Marshall holds the appointment of physician); Dr. Brailsford is a well-known radiologist; and both of these, as well as others who have taken part in this discussion, may well be supposed to have had a very much greater experience of both the clinical and the radiological side of pulmonary tuberculosis diagnosis.—I am, etc.,

Tunbridge Wells.

E. WEATHERHEAD.

Penicillin and Purser

SIR,—Although I entirely agree with Dr. O. P. Clark (March 16, p. 408) that penicillin might well be released in small quantities for general use so that experienced practitioners could use it with advantage in obviously suitable cases, I have perhaps misled him by over-condensing my article about surgery at sea (Feb. 16, p. 244).

The pursers aboard American Liberty and Victory ships, after receiving an intensive course of instruction in advanced first-aid treatment, take an examination which qualifies them as a pharmacist's mate. This peculiar status entitles them to the freedom of the ship's medicine chest, which will always contain adequate quantities of sulphathiazole and sulphadiazine. These drugs are kept almost exclusively for the treatment of gonorrhoea as described in my article. In this and other febrile conditions the exact indications for the use of sulpha drugs and their dosage are laid down in a special handbook, and a purser who tried experiments on his own would probably lose his licence. A further licence is required to give penicillin, and I believe that its use is restricted to the treatment of simple gonorrhoea as described. As there are nearly always some victims of what the poet once called "love's journey" on board, this complaint rather dominates the mental horizon, and it is news to the average purser that penicillin can be a life-saver in acute appendicitis. He would certainly never give it empirically without definite instructions from a rescue ship or visiting doctor, and I have always been required to put my instructions for its use in writing.

Of course the whole scheme derives from the astoundingly rapid development of the American Merchant Navy, and is only justified by the absence of available doctors and by so many emergency cases. In practice it seems to be yielding good results, and the discipline and common sense of the average seaman are well reflected in his careful use of these powerful

drugs I was, however, told that penicillin was freely on sale in many drug stores in the United States at a dollar a shot (10,000 units). In contrast to all this is the medical equipment of our own Merchant Navy, which is based on that obtaining in Nelson's day, while its contents are administered by the captain, mate, or steward, who have had no medical training whatever. Fortunately their minds sharpened by the peril of the sea, invariably seem to lead them to the right treatment in real emergency—I am, etc.,

Walmer

JAMES S HALL

Jittery Legs and Happy Feet

SIR—Perhaps your correspondents on the subject of "jittery legs" would be interested in a brief account of a not dissimilar condition which in its early stages revealed many features in common. I refer to the "painful feet" syndrome which occurred with such frequency among P.O.W.s in the Far East. This distressing condition became a serious scourge within the first year of captivity in Hong Kong, Singapore, and the Philippine Islands in the latter half of 1942, after about six months on a restricted rice and "green stuff" diet.

The sequence of symptoms complained of was

1 A feeling of tiredness in the feet, as though a long walk had been undertaken with tight fitting new shoes.

2 A vague aching which was partially relieved at first by movement—"fidgety feet." This was associated with a tingling sensation, particularly troublesome at night when the increasing severity of the pain prohibited sleep. At this stage there were no abnormal physical signs to be observed.

3 The tingling was progressively followed by a constant "pins and needles," and acute pains described as "burning" or similar to that experienced when first immersing very cold feet in hot water. Some would complain of the whole region from ankle to toes as being very tender, and they would be unable to bear the weight of blankets or wear shoes. Others developed a numbness of the feet, even though the pains continued to become increasingly severe.

4 Sharp shooting spasms would dart up the lower extremity, frequently causing spontaneous groans. This condition became unbearable during the hours of darkness. Relief would be obtained by constant walking about, until utter weariness would permit of short snatches of sleep. Or soaking the feet in cold water would give sufficient respite to enable some rest to be obtained.

It thus became a common sight to see increasing numbers of men limping up and down between the huts, with high steppine clumsy gait, assisting each other, or supporting themselves with sticks, or again small groups rubbing their feet, some sitting face to face, each massaging the feet of a fellow sufferer. A stage then developed when the feet became swollen, flushed, hot, and sweating with general arteriolar dilatation below the knees, or alternatively the lower third of the limb would be cold, swollen, and blue.

Objective symptoms followed: sensory loss affecting first epicritic sensibility, later proprioceptive, ascending stocking wise up the leg. Superficial and deep reflexes were variable—at first exaggerated, then tending towards impairment or loss in the majority, muscles wasted, the men became haggard and emaciated more rapidly than their unaffected comrades, nervously exhausted from pain and loss of sleep.

Late in the year I transferred with a draft containing many such cases to Japan. In that first winter there was great distress from this "painful feet" syndrome which was similarly affecting American P.O.W.s arriving from the Philippine Islands. The cases nearly all showed other manifestations of malnutrition: protein oedema and associated physical signs of avitaminosis, corneal ulceration, stomatitis, cutaneous pellagra and eczema of the scrotum. Men would sleep with their feet exposed to an air temperature below freezing, or immersed in ice-chilled water. Before these practices could be stopped cases were being admitted to my care suffering from gangrene of the toes, or occasionally both feet. Others who had lain for weeks with their knees bent up in order more effectively to massage their affected extremities, developed deformities, and contractures of the leg and vertebral column.

Treatment—Every available type of remedy was tried: rice bran, a fermented flour-sugar mixture believed to contain yeast, various unspecified Japanese vitamin B preparations, a whole host of native black magic methods, while an unrestrainable Japanese "surgeon" performed so-called lumbar sympathectomy upon eight of my patients, with disastrous results in six of them. By the time American

Red Cross medicines, including vitamin concentrates, arrived in 1944 all my cases in Osaka had recovered from the actual "painful feet" syndrome, only the distressing sequelae persisting—loss of toes, or even feet, flat feet, contractures, etc.

This gradual recovery over eighteen months I ascribed to the inclusion of soya beans and barley in the daily ration issued in Japan. I observed no new cases developing in Osaka after 1943 unless they arose in conjunction with a wasting disease—chronic enteritis or pulmonary tuberculosis—in which anorexia led to inability to take even bean congee. No facilities were ever available to investigate these men as they should have been, and all my records and notes on nearly 200 cases were found and destroyed by the Japanese in 1944.

Various names were given to the condition "Happy feet" seemed the most popular among these very courageous lads. The syndrome was undoubtedly part of the multiplicity of malnutritional states with which we became familiar. I personally believed it to be at least contributed to by a deficiency in essential amino acids. No specific factor has been implicated to my knowledge, and one awaits with curiosity the reports of those in a better position to investigate and observe the therapeutic response to vitamins. It is extremely unlikely that tobacco played any part in the aetiology, since supplies of cigarettes were always very limited.

In presenting this brief account of "happy feet" one cannot fail to appreciate the similarities which exist between the immersion foot syndrome and those cases occurring at home reported and observed by Dr. Audrey Roberts and others—I am, etc.,

C. A. JACKSON,

Late Surg. Lieut. R.N.V.P.

London W.C.1

Acroparaesthesia

SIR—Although only nearing 26, and therefore half the age of the cases Dr. J. Purdon Martin (March 2, p. 307) describes, I beg the opportunity to record a personal observation, and submit an explanation. For the last two years on a number of occasions I have experienced numbness in feet, ankles, and calves passing on to intense "pins and needles" before returning to normal. This is always regained by voluntary muscular movements though the knowledge of intense "pins and needles" which I know I shall precipitate has often demanded much effort. The whole episode in my case is over in about five minutes, but nevertheless the condition does have these things in common with the cases described by Dr. Purdon Martin. It always happens some hours after I have taken really severe exercise—i.e. exhausting game of squash or a long walk—and am at rest, absorbed in something. Up till now I have always offered myself this explanation. There has been abnormal pressure on my sciatic nerve or branches thereof, resulting in an interference with the blood supply to that nerve. The factors contributing to the abnormal pressure, which might well apply both to the upper limbs and to Dr. Purdon Martin's bed cases, being fatigue, muscle hypotonia and decreased involuntary muscle movement—e.g. very pleasantly physically tired, absorbed in a book, immobility, decreased muscle tone, pressure on the nerve. An additional perhaps contributing factor I would suggest might also be the change in the metabolism of muscles following exercise, which I believe may take many hours before returning to normal—I am etc.,

M. F. BETHELL,

Surg. Lieut. R.N.V.R.

Physical Therapy in Mental Disorder

SIR—Although I think that the resentment of Dr. J. A. Ansie (March 2) and other psychiatrists at my letter (Feb. 16) was caused by my charging certain of their number with behaving like boys who, having been given an electrical gadget, try it on everybody they dare from the cook to the car—that is to say, with causing unnecessary suffering with cruelty—and that this resentment has been conveniently channelled into indignation on behalf of Dr. Frank, I should like to explain that all I know about this gentleman comes from his own pen.

In a talented paper in the *Proceedings of the Royal Society of Medicine* (May, 1945) he tells us that all the 670 cases undergoing E.C.T. at Graylingwell Hospital "without exception" dreaded it and that "after 15 to 20 sessions a plateau type of over politeness is noticeable which is emotionally shallow and insincere"—that is they are well cowed, that "a pre-

convulsive aura of annihilation is remembered in cardiazol by patients as lasting endlessly whereas its objective time is from 15 to 30 seconds"—that is, with cardiazol you can die a dozen times; that after leucotomy "a submissive over-polite attitude" is seen in all who recovered. From first to last there is no suggestion that these terrors should restrict or stop the treatments, nor, to be fair to Dr. Frank, in the somewhat salamander discussion that followed is any suggestion recorded.

But there is one sentence in this paper which introduces a new, and to my mind an evil, element, and with this I now confront his supporters. It deals with one type of case, forms a paragraph by itself, and is not concerned with the sentences before or after it; in short it is not unfairly snatched from a context: "Coarse hysterical syndrome in primitive personalities, especially when malingering is superadded, responds well to the very powerful suggestion of electric convulsant therapy paraphernalia, but they react in the same way to other similarly suggestive remedies." In other words, show the poor wretch the rack and he or she "responds." But how do these patients know what E.C.T. apparatus is for? In itself it is no more terrifying than a wireless set. And what are the other suggestive remedies? This is the most disturbing sentence I have read in medical literature. I should like to hear what Dr. Ainslie and the Board of Control think of it and all that it implies. It seems to me to strike at the very soul of medicine as it is understood in this country. Here are two points of view between which there can be no compromise.—I am, etc.,

Bexley, Rye, Sussex.

C. G. LEAROLD.

Educating Public Opinion

SIR,—On the occasion of the publication in May, 1944, of the late Coalition Government's White Paper outlining its plans for a National Health Service you were good enough to publish a letter from me in which I ventured to urge the medical profession to resist the plan to socialize it and to bring it under the aegis of the State. There can be little doubt that the energetic steps taken by the B.M.A., and the very strong feelings of suspicion and opposition aroused in the profession, in fact prevented the Coalition Government from proceeding with its plan to introduce a Bill to implement the proposals of the White Paper in 1944. If the profession can resist the financial temptations in the Bill and refuse to co-operate this scheme also will fail or have to be drastically amended.

The object of my letter to you in 1944 was to encourage the profession to resist the plan to transfer its allegiance from the patient to the State. I realize that no encouragement is needed now to induce the profession to resist. I have no doubt that the doctors will fight and, if they do, the doctors will be right.

This Bill now before Parliament represents the maximum results of the alliance between bureaucratic officialdom and anational Socialism. It would be a mistake to assume that it is purely the product of Socialism. Officialdom is its progenitor and Socialism has proved a ready tool. Doctors can be assured of a much more powerful resistance to these proposals from the opposition in Parliament than was apparent in 1944. But the opposition, in spite of all its efforts, will eventually be crushed by the big battalions in the voting lobby. The real battle, therefore, must be in the country, and this the profession must undertake itself, to a very large extent, enlisting the help of laymen wherever possible.

There is an enormous measure of potential support to be had from the public, who will view these iniquitous proposals with profound misgiving if only they are made aware of their full significance. I would respectfully urge those members of the profession who will be taking an active part in the struggle against this Bill to concentrate their efforts upon educating the public in the many directions the patient will suffer, and to refrain as much as possible from emphasizing unduly the manifold ways in which the doctors will suffer also.

It is reassuring to learn that plans for resistance have been well and truly laid, and that a great campaign is to be launched forthwith. This campaign will undoubtedly prove a great strain upon busy medical men, but it must be undertaken in order that public opinion may be educated and aroused from its present apathy. Let the profession take as its motto in this crusade, "Nil desperandum."—I am, etc.,

House of Commons.

GUY LLOYD.

Obituary

SIR JAMES BERRY, D.C.L., F.R.C.S.

Sir James Berry, the news of whose death will be received with regret in a wide circle of old friends and colleagues, was a man of retiring disposition and modest exterior whose qualities of intellect and character brought him, without any seeking on his part, to a foremost position in the medical profession. He was one of those surgeons of whom it can be said that surgery was before all else a vocation; he came to it with a stern sense of duty and a moral sensitiveness recalling Lister's. Beneath his gentle manner was a Puritan spirit.

Born in 1860, James Berry was educated at Whitgift School, Croydon. He received his medical training at St. Bartholomew's and qualified in 1882. His choice and aptitude were for surgery, and he became F.R.C.S. at the age of 25. He was associated throughout his career with the Royal Free Hospital, where he was surgeon for very many years and later consulting surgeon. He was also lecturer to the London School of Medicine for Women, which is linked with that hospital. Other hospitals he served were the Alexandra Hospital for Children with Hip Disease and the Elizabeth Garrett Anderson Hospital for Women.



[Photo: Bassett]

A special line of surgery in which James Berry was a pioneer in the 'nineties was the operation for goitre. He once recalled that when he had performed this operation only eight times he lectured to the Royal College of Surgeons on the subject, and mentioned that two of the eight patients had died. Afterwards, to his indignation, he was reproached by a colleague, who told him that he had made a great mistake in mentioning the two fatal cases. It had never occurred to Berry that any surgeon could possibly withhold publication of his bad results or gloss over them. In his eyes they were as important as, if not more important than, his successes. He was a conservative in the matter of operation. While ready to be adventurous if he saw good foothold, he stood firm against "fashions" in operating. Much of the modern teaching and practice with regard to operative surgery in acute appendicitis he regarded as folly, and he would cite his own early experience of the treatment of appendicitis or perityphilitis in attestation of his point. He believed that most young doctors had a grossly exaggerated idea of the mortality of acute appendicitis when properly treated on common-sense lines. He also stood out against the vogue of unnecessary operation for tonsils and adenoids, unnecessary Caesarean section, large operations for hopelessly incurable carcinoma. Progress in surgery to him was measured, not by the new facility with which operations could be done, but by their life-saving and pain-sparing value for the patient. In the course of his fifty years of active surgical practice he saw a good many idols topple from their pedestals, and his detached and philosophic mind could survey the wreckage with equanimity.

Berry was for several years a member of the Council of the Royal College of Surgeons of England and an external examiner in surgery to the University of Wales. In addition to works on travel, history, and archaeology, he wrote several medical treatises. A book of his on *Diseases of the Thyroid Gland and their Surgical Treatment* was published in 1901, a *Manual of Surgical Diagnosis* in 1904, and, with T. Percy Legg, a work on *Hare Lip and Cleft Palate* in 1912. Sir Henry Butlin's *Operative Surgery of Malignant Diseases*, published in 1900, was "written with the co-operation of James Berry."

One of the outstanding events of his life was his joint headship of the Anglo-Serbian hospital unit which went out to Eastern Europe in 1915. Its purpose was to reinforce other foreign units already in Serbia or about to go there; recruited almost entirely

from the Royal Free, it eventually controlled six hospitals with 360 beds. Berry's first task was to improvise disinfectors and destructors and to attend to the sanitary policing. In his plans for controlling typhus fever he worked on the assumption that typhus was carried by lice, and by lice alone, and though the measures he took were improvised and simple they were completely successful. But presently Serbia was overrun, and the members of the unit fell into the hands of the Hungarians, by whom they were well treated and eventually sent home by way of Switzerland. When the party were discussing with a Hungarian officer their position as a Red Cross unit in enemy hands, the officer admitted that they were neither prisoners of war nor internees, and in reply to their question, "Who are we?" he answered, "Let us say guests," and it was as guests that they were treated. Later they took a Red Cross unit to Rumania, where their work again testified to their energy and enthusiasm. Sir James with his first wife and other members of the unit wrote an interesting book on their experiences, *A Red Cross Unit in Serbia*, published in 1916. After the war Sir James and Lady Berry founded a scholarship to enable women students from Yugoslavia to study medicine in London.

For his services in Eastern Europe he received several decorations, being made a member of the Order of St. Sava of Serbia and St. Anne of Russia, and an officer of the Star of Rumania. He was knighted in 1925. Another honour awarded him was the D.C.L. of Durham. He was President of the Medical Society of London in 1921-2, when he devoted his address to his Balkan experiences, and President of the Royal Society of Medicine in 1926-8. He then retired from surgical practice for the Chiltern Hills but revisited London periodically, and his addresses to his old colleagues—notably an oration to the Medical Society of London in 1932—were examples of retrospection at its best. He suffered from an impediment of speech, a fact which once led him to apologize to a reporter for his difficult experience in "taking him down." In reply the reporter assured him that in fact there was no difficulty at all, for, realizing his infirmity, and with his invariable courtesy towards audiences as towards everyone, he took special pains to speak with deliberation and distinctness.

In 1891 he married Frances May Dickinson, a sister of Lord Dickinson; she was anaesthetist to the Royal Free and the Alexandra Hospital for Children. He and his wife undertook many mountaineering expeditions in the Eastern Alps, the Pyrenees, and the Carpathians, and also on bicycles explored many out-of-the-way corners of Europe. They brought back from their travels large numbers of photographs with which, made into slides, and accompanied by racy commentary, they would entertain their friends in Wimpole Street or give lectures. This knowledge of Eastern Europe stood them in good stead in their subsequent Red Cross missions. Lady Berry died in 1934, and in 1935 Sir James married Dr. Mabel Marian Ingram, also of the Royal Free, who survives him.

SYDNEY G. MACDONALD, M.B., F.R.C.S.

Mr. Sydney Gray Macdonald died in London on Feb. 20 after a short illness. In his passing the profession has lost one of its greatest masters of genito-urinary surgery.

The eldest son of the late Eben MacDonald, he was born in Sydney, New South Wales, on Sept. 17, 1879. Educated privately and at St. John's College, Cambridge, he obtained the degrees of M.A., M.B., B.Ch.Camb. in 1906. He received his medical training at St. Thomas's Hospital, qualified as M.R.C.S. and L.R.C.P. in 1906, and obtained the F.R.C.S.Eng. three years later. His early association with those famous surgeons, the late Sir John Thomson-Walker and Mr. John Pardoe, laid the foundations of his skillful clinical work. He had been house-surgeon at St. Thomas's, senior house-surgeon at St. Peter's Hospital for Urinary Diseases, and surgeon to King George Hospital. His many appointments included those of surgeon-in-charge of the genito-urinary department at the West London Hospital from its establishment in 1920 until 1939, at the Royal Masonic Hospital, and at the Chelsea Hospital for Women. His contributions to medical literature dealt exclusively with his branch of surgery. His best-known work was in connexion with prostatic surgery, amounting to several thousand operations. He was the author of "Diseases of the Bladder" (Latham and English's *System of Treatment*); "Affections of the Urinary Tract" (Fairbairn's *Encyclopaedia*

of Midwifery, 1921), and "Diseases of Kidney and Bladder" (Walton's *Textbook of Surgical Diagnosis*, 1928), and also contributed to the various medical journals. He was a valued member of the B.M.A. and acted as secretary of the Section of Urology at the Annual Meeting of the Association at Newcastle in 1921. In 1930-1 he was president of the Urological Section of the Royal Society of Medicine. He was also a Fellow of the Medical Society of London and the Association of Surgeons of Great Britain and Ireland and a member of the Association Internationale d'Urologie, and had been treasurer of the Society for the Study of Venereal Diseases.

Sydney MacDonald served as captain, R.A.M.C., in France in 1915. In 1919 he married Mary Martineau, third daughter of the late Major-Gen. F. H. B. Marsh, by whom he had one daughter, Prudence. To those who knew him he was a rare character of wonderful integrity and singular charm. Colleagues who have worked with him in close contact over many years testify to his sterling qualities and pay tribute to a great surgeon who ever upheld the best traditions of the profession. He was a strong advocate of medical ethics and would not undertake anything outside his own special province. He was a clinician of the highest order, a convincing lecturer, and a gifted operator whom it was a pleasure to watch at work. Underlying his apparently serious manner was a fund of subtle humour which always delighted and encouraged those who came into contact with him. Always calm, with a determination to see things through, this characteristic was shown when he was stabbed in the back by an unknown assailant during the dark in a London street some years before the last World War. Fortunately the penetrating wound healed without complications.

Indefatigable, and kindness itself, he endeared himself to his patients, numbers of whom have written letters expressing their sorrow and deep sense of loss. So another page in the book of life is written. He was laid to rest in Stonegate Cemetery in the heart of Sussex, the county he loved so well. F. C. E.

D. M. writes: His medical colleagues would agree as to his skill, but I should like to add a layman's testimony to the effect that Mr. Sydney Gray MacDonald was the most modest of men. He was firm yet sympathetic; wise, calm, and unfailingly generous. Above all he was never afraid to say "I don't know." He will be greatly missed, not only in the medical profession, but also by the many patients who owe their lives to him and with whom he seemed always glad to keep in touch.

J. D. ROLLESTON, D.M., F.R.C.P.

Dr. John Davy Rolleston, who died at his home at Kensington on March 13 at the age of 73, was junior by eleven years to his more famous brother, the late Sir Humphry Rolleston; but they had a common interest, and both attained distinction as medical historians and bibliographers. John Davy was born in 1873 at Oxford, where his father, George Rolleston, M.D., F.R.S., was Linacre professor of anatomy and physiology. His mother was the niece of Sir Humphry Davy. He entered Marlborough in 1887, and from there went to Brasenose College, Oxford, as a classical scholar in 1891. His clinical training began at Charing Cross Hospital in 1895. He qualified in 1900, and proceeded D.M.Oxford in 1904. He was made a Member of the Royal College of Physicians in 1926 for his published work, and in 1931 was elected a Fellow.

In 1902 J. D. Rolleston entered the fever hospital service of the old Metropolitan Asylums Board and became assistant medical officer at Brook Hospital. There he made excellent use of the opportunities to develop his knowledge of infectious diseases. In 1914-18 the Grove Fever Hospital, at which he was then serving, was made a military hospital, and Rolleston worked as civil medical officer throughout the war. In 1926 he was appointed a medical superintendent in the M.A.B. infectious hospitals service. Four years later under the Local



(Elliott and Fry)

Government Act the hospitals of the Metropolitan Asylums Board were transferred to the London County Council, and Rolleston remained medical superintendent of the Western Hospital, Fulham, until his retirement under the age limit in 1938. He was not only a careful administrator but an observant clinician. His book *Acute Infectious Diseases* (1925) reached its third edition in 1940. He also published in 1937 a short *History of the Acute Exanthemata*, the substance of his Fitzpatrick Lectures delivered to the Royal College of Physicians in 1935-6. He was the author of several of the sections in the *British Encyclopaedia of Medical Practice*; and much other writing, embedded in medical journals, society transactions, and works of reference, helped to establish his reputation as a keen student of epidemiology. His earliest writing on the subject seems to have been some clinical observations on diphtheritic paralysis contributed to the *Practitioner* as long ago as 1904. He also translated medical works from the French and had a knowledge of other languages, which brought him on to the outdoor staff of our *Epitome of Current Medical Literature*.

His interests in medicine were much wider than the specific fevers. Throughout his career he followed the progress of paediatrics, and from 1910 onwards for many years was editor of the *British Journal of Children's Diseases*. He was a corresponding member of the French Society of Paediatrics. But it was as a medical historian that his pen probably found its most congenial employment, and he was never happier than when describing to a medical society some forgotten episode or piece of biography or showing how some modern discovery or practice had been anticipated in an earlier age. On most days after his retirement he was to be found at his favourite table in the library of the Royal Society of Medicine (of which he was honorary librarian) or of the Royal College of Physicians (where he was a member of the library committee) tracking down some obscure reference or bringing to light some page of history or folklore. His work as medical historian was punctiliously performed, but he had also a lively sense of the odd, the quaint, and the unexpected.

J. D. Rolleston acted as general secretary of the International Congress of the History of Medicine. He was an honorary member of the Royal Rumanian Society of Medicine and of the similar society in France. The diversity of his interests in medicine and the recognition of the work he did in many fields are suggested by his accomplishment of what must be a record—namely, his presidency at different times of as many as four Sections of the Royal Society of Medicine—the Section for Disease in Children, the Clinical Section, the Section of Epidemiology and State Medicine, and the Section of Medical History. He was a member of the British Medical Association for forty years, a Fellow of the Society of Antiquaries, and other interests of his were participation in the management of the Chelsea Physic Garden, membership of the Folklore Society, and active work on behalf of the Society for the Study of Inebriety.

Mr. OSCAR STANLEY HILLMAN, who died on March 16 at Hambledon, was one of the leading surgeons in Portsmouth and the surrounding districts of Hampshire. During the last year or two he had been in failing health and went away for treatment and rest. Born at Bangkok, Siam, on Sept. 26, 1895, he entered the Middlesex Hospital and qualified in 1919, taking the F.R.C.S. in 1921, the M.B., B.S. Lond. in 1922, and the M.S. in 1924. At the Middlesex he served as house-surgeon, senior demonstrator of anatomy, surgical registrar, and casualty surgical officer; he was also lecturer in anatomy at the West London Ophthalmic Hospital and examiner in anatomy for the English Conjoint Board. In 1925 he started his very successful practice at Portsmouth and was elected to the surgical staff of the Royal Portsmouth Hospital and visiting surgeon to St. Mary's Hospital, Portsmouth; he was also consultant to the hospitals at Petersfield and Emsworth. He wrote a book *Operative Surgery Described for Nurses* and published papers on jejunostomy and on the technique of spinal analgesia. In the course of a tribute to Stanley Hillman a colleague has said that his help was eagerly sought, and his crowded clinic at the Royal Portsmouth Hospital and long operating lists at all the hospitals where he worked were a testimony to the esteem in which he was held. Possessed of abundant energy and enthusiasm he had in addition two great qualities that stood out—namely, an intense pride in his work and sympathy in applying it to the relief of suffering humanity. By his early death Portsmouth and its neighbourhood has suffered a most serious loss.

Mr. WILLIAM DOBIE, consulting surgeon to the Chester Royal Infirmary since his retirement from the active staff in 1921, died on March 3 at his home in Chester at the age of 89. Born on May 4, 1856, son of W. Murray Dobie, M.D., of Chester, he was a student at Edinburgh before Lord Lister left for London, and he graduated M.B., C.M. with first-class honours in 1881. After further study at King's College, London, in Paris, Vienna, and Dublin, he became resident house-surgeon and later clinical physician at the Edinburgh Royal Infirmary and was for a year senior president of the Royal Medical Society of Edinburgh, and assistant demonstrator of anatomy in the University. Settling in practice in his native city he was appointed surgeon to the Chester Royal Infirmary in 1907, and for some years acted as medical referee for the Chester district of the London and North-Western Railway and district surgeon for the G.W.R. During the war of 1914-18 he was surgeon to several Red Cross hospitals. He had been a friend of Charles Kingsley and attended Gladstone in his last illness at Hawarden in 1898. A keen student of bird life, he was a member of the British Ornithological Union and president for two years of the Chester Society for Natural Science, Literature, and Art, which awarded him the Kingsley memorial medal in 1897. He joined the B.M.A. in 1884 and served as president of the Chester and North Wales Medical Society in 1899.

The Services

Capt. D. W. Clare, R.C.A.M.C., has been awarded the M.C., and Capt. J. F. S. Walmsley, R.C.A.M.C., has been mentioned in despatches in recognition of gallant and distinguished services at Dieppe in August, 1942.

The Efficiency Decoration of the Territorial Army has been conferred upon Lieut.-Col. (Temp. Col.) R. A. Stark, M.C., T.A.R.O., Major (Hon. Lieut.-Col.) T. T. P. Murphy, and Major W. M. Nichols, R.A.M.C.

Surg. Lieut.-Cmdr. S. E. L. Stening, R.A.N.R., has been awarded the D.S.C. for gallantry and resolution while serving in H.M.A.S. *Perth*, lost by enemy action in the Far East on March 1, 1945.

CASUALTIES IN THE MEDICAL SERVICES

Previously reported missing, now officially presumed to have lost his life on Feb. 28, 1942, in Sumatra waters.—Surg. Cmdr. Thomas Craig Stevenson, O.B.E., R.N.V.R.

AUXILIARY R.A.M.C. FUNDS

The annual general meeting of the members of the Auxiliary R.A.M.C. Funds will be held at 11, Chandos Street, London, W., on Monday, April 8, at 5.30 p.m., when the annual report and financial statement for 1945 will be presented and the officers for the current year elected.

Universities and Colleges

UNIVERSITY OF OXFORD

In Congregation the University has gratefully accepted \$19,000 from the Rockefeller Foundation for research on antibiotic substances under the direction of Sir Howard Florey, F.R.S., professor of pathology.

On March 2 the following medical degrees were conferred:

D.M.—J. L. Pinniger.

B.M.—J. C. Gillett, and (in absence) M. H. C. Williams.

UNIVERSITY OF CAMBRIDGE

At a Congregation held on March 16 Dr. Arthur Leslie Banl received the honorary degree of M.A. and the following medical and surgical degrees were conferred:

M.D.—A. S. Hollins, J. C. P. Grey, G. B. Leyton, A. M. Lester, R. Kauntz, M. Chm.—*B. H. Page, G. C. Martin.

M.B., B.Chm.—*F. S. Hubbersty, *D. G. Davidson, *P. P. Philip, *R. J. Gruchy, *J. E. Pitts, *P. H. Walker, T. A. Evershed, R. I. G. Coupland.

M.B.—*W. E. Tucker.

*By proxy.

UNIVERSITY OF MANCHESTER

George Archibald Grant Mitchell, O.B.E., Ch.M., senior lecturer in anatomy in the University of Aberdeen, has been appointed professor of anatomy and director of the anatomical laboratories in the University of Manchester in succession to Prof. F. Wood Jones F.R.S., F.R.C.S. Mr. Mitchell will take up his duties in September.

UNIVERSITY OF EDINBURGH

The Senatus Academicus of the University has resolved to offer honorary doctorates for conferment at a graduation ceremonial to be held on June 28. The names of two medical men appear in the list—Dr John W. Bone, treasurer of the General Medical Council and of the British Medical Association, and Mr J. W. Struthers, consultant surgeon to the Edinburgh Royal Infirmary and past president of the Royal College of Surgeons of Edinburgh—who are to receive the LL.D. degree, with Prof. Frédéric Joliot and Madame Irène Joliot-Curie for their work on the induced radio activity of common elements, and Mrs Lilian Lindsay, honorary librarian and president elect of the British Dental Association.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At an ordinary meeting of the Council, held on March 14, with Sir Alfred Webb-Johnson, Bt., President, in the chair, a Diploma of Fellowship was granted to David Annis (Liverpool).

Prof. W. E. Gye and Dr. Beatrice D. Pullinger were appointed Imperial Cancer Research Fund Lecturers, 1946. The reappointment of Dr. G. W. Hayward and Dr. H. K. Goadby as Mackenzie MacKinnon Research Fellows was reported, as was the appointment of Dr. H. A. Sissons, of Melbourne, as a Prophit Research Student.

It was decided to hold an exhibition in the College from April 15 to 18 of the prehistoric skeletons excavated from Mount Carmel before the war.

Diplomas in Ophthalmic Medicine and Surgery and in Physical Medicine were granted, jointly with the Royal College of Physicians of London, to the following successful candidates—

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.—S. C. Appleton, J. R. Ascott, J. E. L. Bendor Samuel, K. Fawcett, J. D. Fraser, C. M. Heath, F. G. Hibbert, A. Lindsay, R. G. Macdonald, Violet M. M. McFarlane, Margaret H. E. Martyn, P. H. Merory, J. C. G. Moore, M. L. Nairne, D. F. Ritchie, P. Rosefield, Agnes A. S. Russell, Mary Savory, C. M. Shafio, T. E. Shannon, R. E. Smart, M. W. Smith.

DIPLOMA IN PHYSICAL MEDICINE.—F. B. Niernard, J. Shulman, R. J. F. L. Talbot.

External advisers were appointed to assist the selection committees making appointments to the staffs at Middlesex Hospital, St. Bartholomew's Hospital, and the Coventry and Warwickshire Hospital. The appointments concerned are for general, orthopaedic, oto-laryngological, ophthalmological, and dental surgeons, and for an x-ray diagnostician.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

Honorary Fellowship

On the evening of March 14 the President and Council of the Royal College of Surgeons of Edinburgh held a reception in the Surgeons' Hall at which Mr. James M. Graham, the President (see March 23, p. 452), presented diplomas of Honorary Fellowship to Dr. Andrew Davidson, Mr. Eardley L. Holland, Miss Florence Horsburgh, P. C. Mr. Thomas Johnston, P. C., Sir Edward Mellanby, and Air Marshal Sir Harold Whittingham. The recipients were introduced by their respective sponsors, Sir Henry Wade, Prof. R. W. Johnstone, Miss Gertrude Herzfeld, Principal Sir John Fraser, Prof. J. R. Learmonth, and Dr. Douglas Guthrie.

The Honorary Fellowship was conferred, *in absentia* upon Admiral of the Fleet Viscount Cunningham of Hyndhope, Brig-Gen. Elliott C. Cutler (professor of surgery in Harvard University and chief consultant in surgery, United States Army, European Theatre of Operations), Sir Sheldon Francis Dudley (Medical Director General of the Naval Medical Department), Major-Gen. Paul Ramsey Hawley (chief surgeon to the American Forces in Europe), Prof. Johan Holst (Chief Officer to Royal Norwegian Army, Navy, and Air Force Medical Corps), and Sir Alfred Webb Johnson Bt. (President of the Royal College of Surgeons of England).

At this formal assembly, marked by brilliance and colour, the first to be held in the College for seven years, the President, welcoming Mr. J. I. Falconer, the Lord Provost of Edinburgh, who was among the guests, recalled the happy relations which have obtained between town and College since the Town Council of 1505 yielded to the supplication of the Barber Surgeons and granted to them the 'Seal of Cause,' the initial Charter and the foundation of the most ancient of the Royal corporations. The President, in welcoming the present recipients, explained that, by the laws of the College, the Honorary Fellowship might be conferred on members of the medical profession and on others deemed worthy of the honour, a privilege that had been maintained throughout the generations. Each sponsor then made a short speech of introduction, and each recipient a brief reply. It is noteworthy that Miss Horsburgh, the first woman in the 440 years of the corporation's history to be made an Honorary Fellow, was presented for the distinction by Miss Gertrude Herzfeld, who was the first woman to take her seat as a Fellow of the College.

Medical Notes in Parliament

The Government hopes to take the Second Reading of the National Health Service Bill which was presented to Parliament on March 21, in the House of Commons during the week beginning April 15, although the Conservative Opposition would like a longer time to examine it. No decision has been taken on the number of days to be allotted for the debate. The Conservative Opposition will probably move a reasoned amendment to the second reading and press this to a division.

The Budget will be opened in the House of Commons on April 9.

R.A.F. Medical Service

In the debate on the Air Estimates on March 12 Squad Leader SEGAL said that the £410,000 allotted to the medical services in these estimates was inadequate. The medical branch of the R.A.F. was inadequately represented in the House. That branch and the associated dental branch had played an integral part in the achievements of the R.A.F. Medical research made an essential contribution to both fighter and bomber efficiency in the war. The medical personnel adapted themselves to conditions of sometimes excessive difficulty and stress. A magnificent comradeship developed between the medical officer of a unit and all sections of the unit. To many he was the one remaining link with civil life. Fundamentally he remained a doctor with his first duty to his own profession. Having paid this tribute to the R.A.F. medical branch and having himself been demobilized after six years in the Air Force, he could not omit referring to the waste of medical material in the Force and presumably also in the two other Services. He recalled one instance of an R.A.F. station consisting of only 80 men under the charge of a medical officer but with a large Army general hospital 2½ miles away able to cope with any medical emergency. Doctors who joined the R.A.F. were called upon to deal only with a few of the age groups they would come across in ordinary medical practice. These age groups happened to be the healthiest. These doctors were largely concerned with treatment of only one sex and almost debarred from the treatment of children. During the war the medical officer was not fully occupied and not able to avail himself of the fullest degree of medical practice. On the other hand there was during the war a gratifyingly close association between the R.A.F. medical service and the medical services of the Navy and Army. This reciprocity should be developed in the future. No doctor should be forced to spend his active life working for one of the three Services. At some future date Parliament should evolve one wider medical service which would exchange its personnel among the three Services. The medical organization of our American allies offered a valuable lesson. It provided medical administrators for the administrative side of the service who were not fully qualified doctors. A great saving could be effected in medical personnel by separating the purely administrative side from the medical side. He believed that the R.A.F. had an essential contribution to make to British medicine.

Replying to the debate Mr. STRACHEY said Squad Leader SEGAL must remember that the R.A.F. medical services would cater in 1946-7 for a force reduced below a third of the strength he had known. The proposed expenditure, therefore, might not be inadequate.

Release of Specialists

Mr. LAWSON announced on March 19 that the most up-to-date figures for the numbers of specialists at present retained beyond the release date for their groups were: Navy 7, Army 17, R.A.F. 60. These figures excluded a very small number of specialists who were awaiting replacements due from overseas or had already been nominated for release. The Central Medical War Committee had up to the present received offers or inquiries from 20 practitioners. These were now being examined by the committee.

Allocation of Doctors to the Services

On March 19 Mr. TURTON asked what was the basis of the allocation between the three Services of doctors newly called up and whether consideration was given to the fact that R.A.F. medical officers had, at present, to serve longer than R.A.M.C. officers before obtaining their release. Mr. KEY said the basis was normally the relative strengths of the three Services in medical officers, though circumstances obtaining when the periodical quotas were fixed might necessitate some departure from it. The Government was considering the question of adjusting the provisional distribution for the current half year so as to allow an increased intake to the R.A.F.

Release of Nursing Sisters.—Mr. LAWSON told Mr. Somerville Hastings on March 19 that nursing sisters in military establishments were being released as quickly as possible. Nursing sisters who were surplus to requirements in military establishments in India were either sent to other commands to replace those due for release or returned to the United Kingdom as quickly as suitable accommodation in homeward-bound ships could be provided.

Liquid Paraffin Supplies.—Replying to Mr. Touche and others Mr. LEONARD, for the Ministry of Supply, said on March 14 that production of liquid paraffin, cotton-wool, and other surgical dressings was sufficient to meet all medical needs, but these supplies, particularly liquid paraffin, were used for other than medical purposes. Mr. Wilmot was investigating the distribution of liquid paraffin to see how the position could be improved.

Vaccination of Smallpox Contacts.—Mr. VIANI on March 19 asked why it was considered necessary to vaccinate as well as quarantine suspected smallpox contacts entering this country from overseas, in view of the fact that vaccination after exposure, however early, could be relied upon, and vaccination, even early in the incubation period, might aggravate the smallpox attack if it failed to prevent it. Mr. BEVAN replied that successful vaccination within two days of first contact would entirely protect the majority of contacts, and in any case would mitigate the severity of any attack. He certainly could not accept the last part of the question. He added that vaccination in such cases was purely voluntary.

Notes in Brief

The Board of Trade regrets that it cannot at present make a special issue of clothing coupons to doctors who must equip themselves with white coats and their dispensers with white overalls.

The Disabled Persons Employment Corporation proposes to open the first Scottish factories for severely disabled persons at Cowdenbeath, Dundee, Edinburgh, Glasgow (two), and Motherwell.

The Minister of Fuel and Power has arranged to co-operate in an investigation, recently started in Cornwall by the Medical Research Council, which will include x-ray examination of men employed in tin-mining and tests to determine the preventive and curative effects of inhaling aluminium powder.

The average number of cases attended by Service doctors now in India and Burma is: India, 79,977 daily; Burma, 30,000 daily.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* an increase was recorded in the notifications of whooping-cough 238, and measles 89; there was a decrease in scarlet fever 95, dysentery 28, and diphtheria 24.

A small rise in whooping-cough was observed in most areas of the country, the most notable being Lancashire 48. The incidence of measles in the individual counties showed little variation, with the outstanding exceptions of London with an increase of 185 and Suffolk with a decrease of 108. In the Port Health District of Southampton 54 cases of measles were notified. A small fall occurred throughout the country in the incidence of scarlet fever and no large deviations were reported. There were several relatively large fluctuations in the local incidence of diphtheria; the largest falls were Lancashire 18, Suffolk 12, Norfolk 10, and the largest rises were Hertfordshire 14, Surrey 13, Merionethshire 12. In the latter county 9 cases appeared among the pupils of the County Intermediate School at Towyn. Another 10 cases of paratyphoid were reported from the outbreak in the area of Newport M.B., Isle of Wight.

No fresh outbreak of dysentery of any size was reported during the week. The chief returns were Lancashire 50, London 6, Leicestershire 30, Warwickshire 21, Worcestershire 20, Bedfordshire 16, Northumberland 16.

In *Scotland* the chief feature of the returns was an increase of 253 in the notifications of measles; this rise was due to an epidemic in Glasgow, where 487 cases were reported during the week. Whooping-cough rose from 69 to 117 cases; the principal centres of infection were the cities of Glasgow, Greenock, and Dundee. The total cases of dysentery declined by 11, though there was a rise from 5 to 18 in Dundee.

In *Eire* the notifications of diphtheria fell from 71 to 40 cases—the lowest weekly total during recent months. The incidence of diarrhoea and enteritis in Dublin C.B. remained fairly high with 35 cases.

In *Northern Ireland* the only rise was that of diphtheria, 6; scarlet fever fell by 9 cases.

Week Ending March 16

The notifications of infectious diseases in *England and Wales* during the week included: scarlet fever 1,143, whooping-cough 2,006, diphtheria 475, measles 1,605, acute pneumonia 1,006, cerebrospinal fever 65, dysentery 375, paratyphoid 1, typhoid 6. One of the three cases of smallpox was imported. Deaths from influenza in the great towns numbered 93.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 9

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland

Figures of Births and Deaths, and of *Deaths from* *Principal Diseases*, are for: (a) The 126 great towns (London included), (b) London (administrative county), (c) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	45	3	35	2	2	77	6	35	7	
Deaths			2				1	4		
Diphtheria	477	31	116	40	17	472	15	147	87	2
Deaths	10	1	1			6			1	
Dysentery	295	36	64		1	412	67	155	1	
Deaths										
Encephalitis lethargica, acute	2		1	1		5			3	
Deaths										
Erysipelas			30	8	1			51	11	
Deaths										
Infective enteritis or diarrhoea under 2 years				43					19	
Deaths	55	7	8	13		52	6	8	13	
Measles*	1,672	557	545	60		25,049	1072	418	43	6
Deaths	2		1	1		24				
Ophthalmia neonatorum	57	2	18			47	3	12	1	
Deaths										
Paratyphoid fever	16		1(B)			5		2(B)		
Deaths						1				
Pneumonia, influenzal	849	65	27	17	8	813	38	7	8	
Deaths (from influenza)†	112	18	7	3	3	39	5	3		
Pneumonia, primary			278	23				234	24	1
Deaths		46		7	14		25		7	
Polio-encephalitis, acute	4	1								
Deaths										
Poliomyelitis, acute	7			3		7			1	
Deaths										
Puerperal fever			21				4	24		
Deaths										
Puerperal pyrexia‡	127	6	11	2	1	144	14	16	2	
Deaths										
Relapsing fever										
Deaths										
Scarlet fever	1,137	75	179	11	20	1,424	55	227	25	3
Deaths										
Smallpox										
Deaths										
Typhoid fever	5		2	4		5	1	2	6	
Deaths			1							
Typhus fever										
Deaths										
Whooping-cough*	1,843	138	117	34	8	1,502	77	137	36	1
Deaths	6	2	1			3	1	3		
Deaths (0-1 year)	420	57	66	42	13	410	44	58	35	2
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	5,770	861	725	277	149	5,118	792	603	232	13
Annual death rate (per 1,000 persons living)			16.0	17.7				13.7	15.0	
Live births	7,534	1,138	972	356	258	6,618	753	828	405	20
Annual rate per 1,000 persons living			19.6	22.8				16.6	26.1	
Stillbirths	247	20	29			171	20	30		
Rate per 1,000 total births (including stillborn)			29					35		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

Medical News

Dr Horace Evans, FRCP, has been appointed Honorary Physician to Queen Mary in succession to the late Viscount Dawson of Penn.

A general meeting of the Medical Society for the Study of Venereal Diseases will be held at 11, Chandos Street, W. to-day (Saturday, March 30) at 2.30 p.m., when a discussion on "The Current Trends in the Treatment of Venereal Disease" will be opened by Lieut-Col R. R. Willcox, R.A.M.C.

The annual meeting of the Temperance Collegiate Association, of which Dr R. Cove-Smith is president, will be held on Tuesday, April 2, at 3.30 p.m. in the Hastings Hall at B.M.A. House, Tavistock Square, when Sir Arthur MacNalty will give an address on "The Mirage of Alcohol."

A lecture on "The Realm of Values" will be given by Sir W. David Ross, Provost of Oriel College, Oxford, at B.M.A. House, Tavistock Square, W.C., on Tuesday, April 2 at 7.30 p.m. Free tickets may be obtained from the Director of Studies, British Institute of Philosophy, 14, Gordon Square, W.C.1.

A meeting of the Society of Public Analysts and Other Analytical Chemists will be held at the Chemical Society's Rooms (Burlington House, Piccadilly, W.) on Wednesday, April 3, at 6 p.m., when papers will be presented and discussed.

A clinical meeting of the Medical Society of the L.C.C. Service will be held on Thursday, April 4, at 3 p.m. at St James' Hospital, Ouseley Road, Balam S.W., when members of the staff of the hospital will demonstrate cases.

Plans for restoration and development will be presented at the 46th annual meeting of the Lebanon Hospital for Mental Diseases, Ashfurieh, near Beirut, to be held at the Caxton Hall, Westminster, S.W., on Thursday, April 4, at 3 p.m.

Dr J. Purdon Martin will deliver a lecture entitled "Sciatica and All That" before the Whipp's Cross Hospital Medical Society at the hospital on Friday, April 5, at 8.30 p.m. This lecture was postponed from Feb. 1.

The sixteenth annual general meeting of the Medical Superintendents' Society will be held at the Retreat, York, on Saturday, April 6, at 2.30 p.m. The annual dinner of the Society will be held on the same evening at 6.30 p.m. at the Royal Station Hotel, York.

The next dinner meeting of the Chelsea Clinical Society will be held at South Kensington Hotel, 41, Queen's Gate Terrace, S.W., on Tuesday, April 9, at 6.30 for 7 p.m. when Dr Charles Hill, Secretary of the British Medical Association, will deliver an address on "Medicine and the State."

The National Council for Mental Hygiene (39, Queen Anne Street, W.) has arranged a public meeting to be held at 26, Portland Place, W. on Tuesday, April 9, at 5 p.m., when Miss Gwen Chesters (UNRRA Child Welfare Specialist, Central Headquarters for Germans) will deliver an address on "The Psychological Aspects of Work with Displaced People."

A sessional meeting of the Royal Sanitary Institute will be held at 90, Buckingham Palace Road, S.W., on Wednesday, April 10, at 2.30 p.m., when a discussion on "The Compulsory Notification and Treatment of Venereal Disease" will be opened by Dr J. Greenwood Wilson (who will support the case for compulsion) and Miss Dorothy Manchey (who will oppose it).

The Royal Institute of British Architects is arranging an exhibition at 66, Portland Place, London, W., entitled "Building Now." It will be opened by the Minister of Town and Country Planning on the afternoon of April 11 and will remain open until May 11. By the use of models, drawings, and photographs, the exhibition is intended to illustrate primarily schemes that are still in the design stage, with the addition of work constructed during the war, such as factory welfare centres and wartime housing. There are four sections—housing, health and welfare, education, and municipal administration.

The Scientific and Technical Group of the Royal Photographic Society informs us that the lecture by Thorne Baker on primary colour development, announced to take place on April 16, has had to be cancelled.

The Association of Anaesthetists of Great Britain and Ireland has decided on the publication of a quarterly journal named *Anaesthesia*. Dr C. Langton Hewer has been appointed editor and Dr R. Blair Gould sub-editor. Scientific contributions should be addressed to the editorial offices, c/o George Pulman and Sons, Ltd., Thayer Street, London, W.1.

Until the position in Java is more settled, the Ministry of Health cannot release generally the stocks of quinine which are "frozen" in so many chemists' shops throughout the country. The Ministry has advised the Pharmaceutical Society that if any of its members want to use their quinine they should apply to the Ministry of Supply for a licence.

Sir Alexander Fleming, F.R.S., has been awarded the Harben gold medal for 1946 by the executive committee of the council of the Royal Institute of Public Health and Hygiene. This medal, which is international in character, was instituted in 1894 under a trust created by the late Sir Henry Harben, and is conferred every third year for "eminent services rendered to the public health." Dr J. J. Buchan, medical officer of health for Bradford, has been awarded the triennial "Smith Award" under a trust created by the late Sir William Smith for a medical officer of health who is recognized as having done noteworthy work in the discharge of his official duties.

Among contemporary water-colour painters in the great English tradition must be ranked Robert A. Worthington, F.R.C.S., of Exeter, a memorial exhibition of whose works is on view at the Fine Art Society's Galleries, 148, New Bond Street, until April 12—open from 9.30 a.m. to 5 p.m., Saturday 10 a.m. to 1 p.m. Worthington loved the landscape of England and drew everything with the brush, many of his pictures now shown to the public are of Dartmoor scenery in its changing moods, which he knew well and could portray with exceptional skill and delicacy of feeling.

Dr Jean Matter, medical director of antituberculosis services at Grenoble, is visiting this country, on behalf of French mining organizations intending to establish a rest home for miners on the Côte d'Azur, to study research on and treatment of pneumoconiosis. The British Council has arranged for him to meet British authorities on the subject, and to see miniature maps, radiography work. He is also visiting South Wales to study the subject there.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Articulate* (Western London). ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated.

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ANY QUESTIONS?

Butyl and Benzyl Alcohol

Q.—Can you tell me of any health hazards of inhaling air saturated with any or all of the following: *N*-butyl alcohol, benzyl alcohol, *S*-collidine? Is the safe limit of concentration known?

A.—(1) *N*-butyl Alcohol.—The lower volatility of butanol makes it less toxic when inhaled than the lower homologues, but in concentrations above 100 p.p.m. it may have systemic effects, in the form of narcosis, and, though information on this point is not very definite, slight fatty infiltration of the liver. It tends, however, in concentrations above 50 p.p.m. to act as an irritant of mucous membranes, especially of the eye, and recent investigations indicate that it may produce changes in the corneal epithelium—a form of keratitis.

(2) *Benzyl Alcohol*.—This is less toxic than the other alcohol because it is rapidly oxidized and excreted as hippuric acid. It is moderately toxic to animals, producing cardiac paralysis and a low blood pressure, but these effects have not been observed in man. It may produce a skin rash which is very resistant to treatment.

(3) *S*-collidine.—This is a homologue of pyridine (trimethyl pyridine) and has similar effects. These are: (a) Immediate—flushing of the face, rapid pulse and respiration, head ache, giddiness, sleepiness, and irritation of mucous membranes; excitement. (b) After one to two hours—tremor of the limbs, nausea, and vomiting. (c) Prolonged inhalation has produced a picture of "pseudo-encephalitis"—loss of sleep, paralysis of the facial nerve, periods of unconsciousness.

In a series of cases where it was given by mouth in a dosage of 30 to 40 min. (1.8 to 2.4 ml) daily, two developed hepato-renal damage, one fatal, but it has been given safely by

Hæmorrhoids after Confinement

Q.—*A frequent and distressing sequel to confinement is one hæmorrhoid. Advice as to prevention and cure would be welcomed.*

A.—Comparatively few women go through pregnancy and confinement without developing one or more hæmorrhoids. These usually appear during the pregnancy, as a result of the increased vascularity of all pelvic tissues and some interference with venous return occasioned by the tumour. Sometimes the hæmorrhoids remain internal and symptomless during pregnancy, and the effect of labour is to cause them to prolapse and become thrombosed, causing distress in the early days of the puerperium.

Prevention is difficult and often impossible. The important time for prophylaxis is during pregnancy, when the patient should avoid standing as much as possible, and should rest, lying flat or with the foot of the bed raised, for some period in the middle of each day. The bowels should be kept regular, and immediately after defæcation the woman should lie down for a time. There is much to be said for developing the habit of defæcation immediately before retiring at night rather than in the morning. If hæmorrhoids do develop, efforts should be made to prevent their prolapse by firm pressure over the anal canal during the second stage of labour. Any prolapsed hæmorrhoids should be replaced immediately after delivery. This latter, however, is often difficult because the tone of the anal sphincter and perineal muscles is so poor that the hæmorrhoids cannot be retained.

Lymphangitis after Leg Injury

Q.—*Nine years ago a patient aged 54 injured her leg. Ever since then she has had swelling of the ankle and shin, and intense pruritus, most marked at night. Antipruritics have little effect on the area, which appears to be a knot of tender, superficial, thrombosed veins. There is also some varicosity. What treatment can you advise? Is a Trendelenburg operation indicated?*

A.—The question of a Trendelenburg operation arises only in the presence of a continuous and gross varicosity of the internal saphenous vein, and this does not seem to prevail in this case. The accident of nine years ago probably caused either a lymphangitis or a thrombosis, or both, and the leg is left with the tendency to swell, with resulting pruritus in the evening when the swelling is at its height. The only treatment available is a support to the leg to keep the oedema in check, and sleeping with the bed slightly tilted to drain the leg thoroughly at night. The support can be provided by elastic stockings measured to fit the oedema-free leg, or, if the swelling is too severe for this support, elastic bandages serve very well.

Penicillin for Bronchiectasis in Children

Q.—*Have there been any recent advances in the treatment of bronchiectasis in children with penicillin powder?*

A.—Penicillin powder is of value in the treatment of laryngeal infections. In cases of bronchiectasis inhalations of the powder have not, up to the present, proved as satisfactory as inhalations of a mist produced from penicillin solution. The difference in effect is probably due to the larger size of the particle of powder.

Partial Frigidity

Q.—*A young man has come out of the Forces and finds his sexual relations with his wife are likely to lead to estrangement because the act is completed on his part long before she gets any satisfaction. Can you suggest any means of helping them?*

A.—This is a common difficulty and often rights itself in time. In most cases, however, it is necessary to instruct the young man that he should do more wooing, with "love play" and sex stimulation before intercourse. Women are far more dependent upon this than men for satisfactory sex relations. On the other hand, it may be that the wife is partially frigid, either physiologically—from deficiency of endocrine secretions, such as the pituitary—or from psychological inhibitions, or because of such reasons as previous persistent external masturbation, which keeps the centre of stimulation in the clitoris instead of within

the vagina. For the time being artificial stimulation by the husband after coitus may often produce an orgasm in the wife and give some, though not complete, satisfaction.

What is a "Carrier"?

Q.—*A swab showed diphtheria bacilli in the throat of a convalescent woman. On the same day, without notifying the medical or nursing staffs that she was going, she walked out of the isolation hospital and travelled home by train. She has been in the hospital for five weeks. The clerk and chairman of the local authority, in the temporary absence of the district M.O.H., decided to apply to a justice of the peace for a compulsory order to send her back to hospital. The M.O.H. objected on the ground that this person was not "suffering from" a notifiable disease but was a "carrier." I should like a definition of the term "suffering from" as used in the form of notification, and also of the term "carrier."*

A.—A carrier has been defined as a person who without apparent symptoms of a communicable disease harbours an is liable to disseminate the specific micro-organism. In England and Wales the medical officer of health has no power to coerce a carrier as he can a patient "suffering from" notifiable disease, except that he can prohibit the employment of an enteric carrier in any business where food or drink is handled. The point at which a patient ceases to be suffering from the infection and becomes a convalescent carrier obviously varies with different diseases; for example, a child with *Shigella* dysentery may be ill with diarrhoea for only two days but may go on excreting the specific organism for some weeks thereafter. In typhoid fever, on the other hand, the acute infection may continue for weeks, and the patient, if he is still excreting the organism, cannot be classified as a carrier until six to eight weeks after onset. In diphtheria the duration of the acute stage of the illness will vary with the age of the patient, the severity of the attack, the day of infection on which antitoxin was given and how it was given, the type of infecting organism, etc. In this particular case, as more than five weeks had elapsed since the patient was admitted to hospital, it would probably have been difficult to certify that she was still suffering from the disease unless there was evidence of late complications, like post-diphtheritic paralysis. Thus no hard-and-fast line can be drawn between the acute stage of a notifiable disease when the patient is "suffering from" the disease, and the convalescent carrier state when the infectious agent is harboured by the patient without apparent symptoms. It would be wiser to have powers to deal with carriers on the same basis as acute cases as is the law in Scotland.

Pollen and Histamine Azoprotein Injections

Q.—*For the last three years a patient with hay-fever has had a course of Timothy-grass-pollen injections up to 50,000 units. Would any harm be done if a course of histamine azoprotein injections were begun now and continued every five days until the hay-fever season arrived, and if he simultaneously has his graduated doses of Timothy-grass pollen from March until June?*

A.—There is no reason why desensitization with pollen and with histamine azoprotein should not be carried out at the same time.

Malaria Therapy for Tabo-paresis

Q.—*What is the best way to treat a case of tabo-paresis in a man of 50? The dementia is not marked, but is definite. The signs of tabes are well advanced. Apart from some deafness there is no cranial-nerve involvement; the fundi and visual fields are normal. Treatment presumably should be by malaria and trypanamide injections. What are the details of such treatment?*

A.—Certainly induced malaria therapy is advisable. This can be produced either by an intramuscular injection of blood taken from a malarial patient or by a direct bite from infected mosquitoes (from the Ministry of Health). Ten or twelve rigors are usually allowed; the frequency of the rigors (i.e., whether daily or on alternate days) depends upon the strain of malaria employed. Although benign tertian malaria is the usual agent, the rigors often appear every day. Should this prove too exhausting for the patient, 0.2 g. of thiobismol may be

administered after the fever has started. In this way one generation of parasite is killed off, leaving a regular tertian fever.

Careful watch should be kept upon the blood pressure, for premature cessation of the fever therapy may be necessary if the heart's action becomes enfeebled. Retention of urine is a common complication, which may demand catheterization. The malaria is terminated by quinine bisulphate 5 gr. (0.32 g.) t.i.d. for three days; or by an intravenous injection of quinine bihydrochloride 10 gr. (0.65 g.). Mepacrine (atebrin) in 0.1-g. tablets thrice daily is advisable for the next five days. A second course of malaria is often productive of considerable benefit, after an interval of not less than two or three months. An alternative technique (especially in debilitated subjects) is to terminate the malaria with small amounts of quinine after five rigors; and then to resume the malaria after, say, two or three weeks' interval.

In any case malaria therapy should be followed in a week or two by a course of trypanamide and bismuth. The former is given intravenously at weekly intervals, eight injections in all being made; a suitable dosage is 15 gr. (1 g.) twice, 30 gr. (2 g.) four times, and 45 gr. (3 g.) twice. Some authorities give much longer courses, for the risk of permanent damage to vision seems to diminish after the tenth or twelfth injection. The bismuth should be given by twice-weekly intramuscular injections (10 to 14 in all) of any one of the many proprietary preparations. The simultaneous oral use of potassium iodide 10 gr. (0.65 g.) t.i.d. and of liq. hydrarg. perchlor. 1 dr. (3.5 ml.) t.i.d., though out of fashion, is probably useful.

Fluorescent Lighting

Q.—*Fluorescent lighting is becoming more common. In what way does this lighting differ from ordinary electric lighting, and is there any evidence of harmful effects?*

A.—The light emitted by fluorescent lamps is produced not by heating a metal filament to incandescence but by causing an electric discharge to pass between electrodes at each end of a glass tube containing mercury vapour at low pressure. The radiation thus produced has a low luminosity value but a high value in the ultra-violet region of the spectrum, and particularly at a wave-length of 2,537 Angström units. The internal surface of the glass tube is coated with an intimate mixture of three powders, which are excited to fluorescence by the ultra-violet radiation, which is thus converted to visible light.

The powders, and the proportions in which they are mixed, are so chosen that in the case of the most widely used lamp the light emitted closely resembles daylight in its colour-rendering property, in spite of the fact that it gives a line and not a continuous spectrum. Lamps giving differently "coloured" light can be made by using a different fluorescent lining—e.g., in the "warm-white" tube now available the mixture of fluorescent materials is such that the light emitted is richer in red rays than that of the "white" lamp. Fluorescent lamps operate on alternating current, and with the usual supply frequency of 50 cycles per second the lamps are lighted and extinguished 100 times per second; but this alternation is not apparent, nor is it in the case of ordinary filament lamps similarly operated. However, in some circumstances, as in observing moving objects, a stroboscopic effect can be produced by fluorescent lighting, and where this might be objectionable the installation should be so planned that the illumination of such objects is derived from two or three lamps whose light-output cycles are out of phase.

The ultra-violet radiation at 2,537 Å.U. produced by these lamps is not transmitted through the glass of which they are made. The radiation emitted in the near-ultra-violet region is not of shorter wave-length than that found in the solar spectrum, and it is too small in amount to have any harmful effect. More than half a million of these lamps are now in use in this country, and some large-scale installations in factories and other buildings have been in use for the past five years. While some complaints of undesirable effects, usually vague and indefinite in character, have been made, in general it appears that this type of lighting is quite satisfactory and is usually preferred to ordinary electric lighting. Some speculations as to possible ill effects of fluorescent lighting have been published, but no valid evidence of harmful effects is known.

Tar Ointments and Cancer

Q.—*Since tar may cause malignant changes in the skin, is there any danger in the constant use of ung. picis carb. co. in the treatment of psoriasis?*

A.—When this question was submitted about a year ago there was no evidence on which an answer could be based. To provide the evidence ung. picis carb. co. was tested in the laboratory of the Imperial Cancer Research Fund on the most sensitive strain of mice. The results of this test were completely negative, and there is, therefore, no fear of inducing cancer with tar ointments.

Epilepsy and the Encephalogram

Q.—*In cases of idiopathic epilepsy is the electro-encephalogram always abnormal or only at intervals? Does a normal encephalogram exclude the diagnosis of idiopathic epilepsy?*

A.—A normal electro-encephalogram does not exclude the diagnosis of idiopathic epilepsy. The decision whether a record is normal or not depends upon the evaluation of many factors. This means that there is not an absolute norm, but there is now fairly general agreement upon the standards of normality. By these standards about 12% of apparently normal people have abnormal records, as opposed to between 75% and 90% of idiopathic epileptics, depending upon the epileptic population under examination. The younger the patient the more likely is the electro-encephalogram to be abnormal, and in general the more incapacitating the clinical manifestations of the condition the more likely is the electro-encephalogram to show abnormal features.

The electro-encephalogram of epileptics as a rule shows two kinds of changes. One is a continuous disturbance, which may be seen in other conditions, and the other an episodic disturbance, which represents the electrical counterpart of the fit. These episodic disturbances, which often appear without any clinical accompaniment, make the diagnosis of epilepsy certain. They are variable in their occurrence, so that the more frequently records are made in the same subject, and the longer the records, the more likely are they to be seen. With a single short record they are observed in about half of otherwise normal epileptics. If the records are repeated often enough they will be seen in every one.

INCOME TAX

Non-resident Hospital Appointment: Expenses

G. B. intends to take a full-time non-resident post at a hospital "where a car is essential for emergency calls to the hospital." Can he deduct car expenses?

***A.** The general rule is that the cost of travelling between one's residence and the place where the employment is exercised is not allowable—the most obvious case being perhaps the cost of the suburban resident's season ticket to his place of business. We doubt whether the special fact mentioned would serve to take G. B.'s case out of the general rule—the argument would probably be strengthened if the terms of engagement specifically required him to maintain a car.

Liability on India Pay

G. P. left the United Kingdom in September, 1944, and returned in August, 1945. He is told that he is liable as being resident, and ordinarily resident, to British income tax for 1944-5 and 1945-6 in respect of his India military pay. Is that correct?

***A.** On the facts the statement is correct. Tax is payable to both the Indian and British Governments on the India pay brought to or received in this country, but there is provision for some relief from the Indian tax when the British liability is calculated. The fact that British officers receive "family lodging allowances" free of income tax does not affect the liability of people in G. P.'s position.

Repairs to Car

J. R. bought a second-hand car early in 1945; major repairs became necessary involving heavy costs. What can he claim under the Income Tax Act, 1945, apart from the initial and depreciation allowances?

***A.** There seems to be no reason why J. R. should not claim the cost of repairs, except that if the work done on the car was so extensive as to justify the income-tax authorities in holding that as now repaired the car is a different car from the one purchased some portion of the cost of repairing it may have to be regarded as capital outlay.

LETTERS, NOTES, ETC.

Toxic Effects of High Octane Petrol

Dr. J. STEWART LAWRENCE (Bishop's Stortford) writes: With reference to Mrs. Jean Patey's suggestion (Feb. 16, p. 264) and Major J. H. Lankester's note (March 2, p. 342) on poisoning from tetra-ethyl lead in persons exposed to petrol fumes, this question has been very fully investigated in America, and it has been found that petrol as usually handled in commerce carries no risk of lead-poisoning. In all suspected cases so far it has been established that plumbism was not a factor in the production of the illness (Machle, W., *J. Amer. med. Ass.*, 1941, 117, 1965). Only in the cleaning of tanks in which petrol has been stored and allowed to evaporate does this hazard arise, or most commonly in the manufacture of the lead tetra-ethyl itself. That confusion should arise is understandable, for the symptoms of petrol-poisoning resemble closely those of lead tetra-ethyl, including, as they do, abdominal pains, cramps in the limbs, tremors, and hallucinations and violent maniacal symptoms. They are, however, more transient, passing off in 2 to 3 days, whereas those of lead tetra-ethyl, if not fatal, last for 6 to 10 weeks.

Morphine and Adrenaline in Bronchial Asthma

Dr. M. O'BOYLE (Killybegs, Co. Donegal) writes: With reference to the question and answer under the above heading (Jan. 5, p. 38) I have several asthmatic patients in my district, and an injection of 3 to 5 minims of adrenaline during or at the beginning of an attack has no effect on the spasm. I give an injection of from 1 ml. to 1½ ml. of adrenaline during an attack, and have to repeat this in 6 to 8 hours. I have noticed no ill effects apart from slight blanching of the skin. Probably these people have developed a tolerance to adrenaline.

First Aid for Cresol Burns

Mr. D. R. MATTHEWS, M.P.S., pharmacist, Middlesex Hospital, writes: I read with interest the reply to the query relating to the first-aid treatment of cresol burns (Feb. 2, p. 191). It has always been my practice to deal with liquid phenol splashes by immediately swabbing the area with cotton-wool soaked in industrial spirit and wiping off rapidly. This immediately allays the stinging sensation, and the skin at once recovers its normal appearance, leaving none of the usual eschar. The method was once applied to an extensive area, involving the whole of the forearm, and was commended, presumably on its effectiveness, by those who subsequently dealt with the patient. An experiment with small applications of cresol to the underside of the forearm confirms the usefulness of the method. Washing with water or sodium bicarbonate solution proves ineffective in allaying the sting or preventing erythema, while the application of spirit accomplishes both. I presume the better result obtained by the latter treatment is due partly to the readier solubility of the phenols in alcohol and partly to the lower surface tension of alcohol by comparison with water. Rapid circumscribing of a splashed area with the spirit in conjunction with the release of cotton-wool pressed on the splash itself would have the added advantage of withdrawal of most of the phenol therein, as in the technique of grease-spot removal. While some phenol might be the more readily absorbed in the alcoholic solution, it appears that its penetration might be obstructed somewhat by any slight coagulum of protein formed, such natural protection being enhanced by the hardening effect of the spirit. Meanwhile the withdrawal of the major portion of the phenol is accomplished via the porosity of the wool. For minor splashes, at least, the "spirit" removal is of undoubted value as a first measure. The antiseptic value of the spirit is also advantageous.

Phenol and Cresol Burns

Mr. L. T. RINDER (Barking) writes: As safety officer to the largest producers of phenol and cresylic acids in this country, and as a member of the Royal Society for the Prevention of Accidents, perhaps you would allow me to amplify the answer already given. After much experience of chemical cures of almost every type, I am convinced that, with the exception of metallic sodium, water and plenty of it is by far the best treatment for the first-aid to adopt. It is not, however, sufficient to give just a hasty swill under the tap. Water should be allowed to flow over the burnt area for at least ten minutes, and longer if possible. The question of extensive phenol burns is a much more serious problem and demands the earliest possible medical attention. Apart from the necessity for dealing adequately with the effects of shock, there is the grave possibility that a lethal amount of the poison may be absorbed through the damaged tissues.

A Road Accident Syndrome?

Dr. E. GRANGER (Thame, Oxon) writes: On looking through the table of vital statistics in the *Journal* one is struck by the omission of what is hardly a notifiable disease, perhaps, but is nevertheless the most potent cause of death that modern civilized man is heir to—namely "automobilism." Whether this is a disease in itself is a

matter of opinion, but it is undoubtedly a precursor of various mental and physical aberrations. When one thinks of the time, energy, brains, and money that have been expended on combating diseases far less lethal than the road locomotion syndrome, it is nothing less than staggering that so little research has been undertaken on the above scourge when the cost of it would be infinitesimal compared with the appalling loss of life and injury. The lack of interest in alleviating these distressing complications can be largely explained by an attitude of fatalism. A child chooses to dash in front of a moving car without due deliberation; the steering suddenly fails due to some mechanical failure: these two cases can perhaps be regarded as fate and there is practically no cure for them. But for every one of these there are at least 10 other cases where the lapse lies with the driver, not with the car, and only partly with any third party. It is by the intensive study of these lapses that much could be done to lessen the fatality. In the R.A.F. much good work has been done by interrogating air-crews involved in crashes. I suggest as a beginning that the R.A.C., the insurance companies, or some other interested body should employ an average driver of average physique and capable of analysing his reactions to circumstances. Over a period of years he should drive various cars over various roads: long and short distances, day and night, in both town and country. He should keep a log of all accidents, near misses, and "might-have-beens"; what he was thinking at the time; what in his opinion caused the aberration. Was he thirsty, full, or hungry? Was the car running well or ill? Was it noisy? What was the light like? Was he cold, hot, tired, or too comfortable? Was he on a straight fast road or one with many bends? Had he been driving all day or had he just started? What was the state of his health: blood pressure, pulse, alimentary activity, and any other relevant details? There should be notes on his reaction to various drugs—ephedrine, benzedrine, alcohol, and others. Surely if this investigation were carried on long enough, and the investigator travelled far and sometimes fast enough, provided always he managed to survive and kept his mind, eyes, and ears open, something would come of it, and additional light be thrown on this very pressing problem.

The Lanes Tuberculosis Scheme

Dr. F. C. S. BRADBURY writes: In your issue of March 9 you kindly reviewed Dr. Lissant Cox's annual report for the year 1944 under the above title. As successor to Dr. Cox may I draw attention to a couple of inaccuracies which appeared therein. It is stated in the first paragraph, third sentence, "... and in 1934 over 30% of pulmonary cases on the register..." This should, of course, have read "... and in 1944..." The third sentence of the second paragraph reads "... and the resultant long waiting list of over 1,000 patients." The county waiting list for 1944, averaged at monthly periods during the year, was 106 (see page 15 of Dr. Cox's annual report).

"B.M.J." for Hungary

To the growing number of appeals for British medical literature from the countries of Europe must be added one from Hungary. There is a dearth in Hungary of current literature on English medicine, and Mr. Edward Fuller, editor of *The World's Children* (20, Gordon Square, London, W.C.1), asks for copies of the B.M.J. He writes: "It occurs to me that some of your readers may be moved to pass on any copies they do not habitually file."

Correction

The thirteenth line of Prof. Grey Turner's memoir of Adolf Lorenz of Vienna (March 23, p. 453), should have read: "At the Allgemeines Krankenhaus he only had an out-patient department..."

BIRTHS, MARRIAGES, AND DEATHS

The charge for an insertion under this head is 10s. 6d. for 18 words or less. Extra words 3s. 6d. for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.

BIRTHS

BHAGEERUTTY.—On March 21, 1946, to Catherine, wife of Dr. Bhageerutty, of Norton Canes, a son—Jan Dorian.
WRIGHT.—On March 22, 1946, at the Manse, Henrietta Gardens, Bath, to Sheila Wright, M.B., Ch.B. (née Richardson), wife of Capt. Frank B. Wright, a daughter.

DEATHS

HILLMAN.—On March 16, 1946, Oscar Stanley Hillman, M.S., F.R.C.S., at his home, Cherry Copse, Hambledon, Hants.
JOHNSTON.—On March 17, Benjamin Rigby Johnston, aged 84. Practised at Grasmere since 1887 continuously.
MARSHALL.—On March 15, 1946, at Parkend Cottage, Wishaw, Lanarkshire, Thomas Burns Marshall, M.B., C.M., husband of the late Mary Swan Falconer.

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SURGICAL ASPECTS OF CONGENITAL HEART DISEASE*

BY

A. RAE GILCHRIST, M.D.Ed., F.R.C.P.Lond.

Physician, the Royal Infirmary, Edinburgh

There is a new outlook in congenital heart disease. Overburdened in the past with embryological detail and developmental complexities, the study of congenital cardiac malformations has received in recent years a fresh impetus from renewed clinical and radiological studies, and particularly from the brilliant achievements of the surgeons working in this field. To share in these advances the family doctor will take note of the contributions which surgery is now making. His is the first opportunity to establish the diagnosis and to advise regarding treatment. It is my intention to present a brief account of the congenital defects at present considered amenable to surgical correction. Of these there are two—the patent ductus arteriosus and coarctation of the aorta—both, fortunately, easy of detection by simple clinical methods.

For the most part congenital heart disease is occult. All too frequently it remains undetected throughout childhood, masquerades in adult life as an acquired lesion, or, deceptive until the end, reveals itself only at necropsy. Dismiss from consideration the weakly puny infant, cyanosed even to a deep plum colour, for whom death comes as a merciful relief. Such a conception of congenital heart disease is inadequate, for cyanosis with its attendant finger-clubbing and poor physique is more often the exception than the rule. In childhood there is usually no gross manifestation of the underlying defect. Symptoms in the usual acyanotic patient are generally minimal or absent, though admittedly they are liable to flare into prominence when serious and perhaps irremediable complications develop. Nowadays, when aetiology plays so large a part in the comprehensive diagnosis of heart disease, the probability of a congenital lesion even in the adult must be thought of more often and sought for by definite methods.

If surgery is to play its full part in the prevention of invalidism and early death, every endeavour must be made to establish the nature of the anatomical flaw during childhood, and preferably before 10 years of age. Repair of the defect in early life permits normal growth and development and safeguards the individual from the killing complications. In the child the surgeon will obtain easier access to the lesion, and, as the mortality rate for intrathoracic intervention increases with each decade (Edwards, 1939) it is a sound principle to advocate early recognition and correction of the congenital flaw.

The Patent Ductus

In foetal life the most distal part of the aortic arch beyond the origin of the three main trunks is united by the ductus arteriosus to the main stem of the pulmonary artery at the point of its bifurcation. Blood expelled by the right ventricle is conveyed via the pulmonary artery, ductus, and descending aorta to the placenta.

When the ductus fails to close blood flow through it is reversed, the work of the heart increased, and with the passage of time physical signs develop so that as a rule by the age of 1 or 5 years the diagnosis can be established with confidence. Symptoms are trivial, but a noteworthy murmur, systolic-diastolic in time, characterized by its continuous quality and

maximum in intensity at a site a little below the inner end of the left clavicle, develops as a rule by the time school age is reached. To the trained ear the recognition of the murmur is simple, and the diagnosis can be established readily by the detection of this remarkable physical sign, well entitled to the name of the Gibson murmur.

When the leak from the major circuit to the pulmonary artery is large—and it may amount to 50% or more of the left ventricular output—the heart enlarges, but the most striking changes occur in the pulmonary artery, which dilates to accommodate the increased blood-flow (Figs 1 and 2). The lung fields become more vascular and the diastolic blood pressure falls. Physical exertion aggravates these signs. The murmur then becomes louder and roaring in quality, and the diastolic pressure drops to even lower levels but returns to its former figure usually within a minute of completion of a simple exercise test. For the time being the patient may present all the outward appearances commonly associated with a free aortic regurgitation—pallor, bounding neck vessels, the Corrigan pulse and even capillary pulsation. This test, described by Bohn (1938), can be applied on occasion with advantage but unfortunately readings of diastolic pressure are difficult to obtain in a child under 5 years, when in the absence of the fully developed Gibson murmur a positive test would be of most value. In older children or younger adults an exercise test may prove helpful in the elucidation of pulmonary systolic murmurs of doubtful origin.

It has been estimated that the presence of a patent ductus reduces the expectation of life by half even among those surviving to age 17 (Keys and Shapiro, 1943). Clinical experience indicates that this defect is seldom encountered after the age of 40, the commonest complication being a bacterial endarteritis of the pulmonary artery—until recently a uniformly fatal disease. This is an infection exactly analogous to bacterial endocarditis but localized in the first instance to the damaged intima within the pulmonary artery immediately opposite the mouth of the patent ductus. A swinging temperature, patchy pulmonary signs attributable to multiple lung infarcts, and a localized Gibson murmur, then sometimes heard best towards the mid-clavicular region, are the main components in an important diagnosis which can be confirmed by positive blood cultures and by repeated radiological examinations of the chest (Gilchrist, 1945). Surgical ligation of the ductus promises a prompt recovery in at least 50%. Medical measures such as prompt transfusions, sulphonamides and penicillin have little to offer and are not in themselves to be regarded as curative.

Is it not better to attempt to forestall the killing complications of the patent ductus by ligating the channel in early life, when the child is relatively fit and capable of withstanding this intrathoracic procedure, than to wait to a later age when in the presence of a blood-stream infection and multiple lung infarcts, the operative risks are ten times as great? Early ligation permits normal growth, encourages an adequate nutrition and prevents the development of a local infection without the handicaps of an uncertain invalidism which, extending over the years, becomes quite frequently the basis of a cardiac neurosis. With ligation successfully accomplished the child can approach

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adult life with confidence and with full expectation of an unimpaired physical capacity.

Differential diagnosis seldom gives rise to difficulty. Cyanosis is not a feature. Clubbing of the fingers does not occur. The auscultatory signs are restricted to the region of the pulmonary artery, and though a systolic murmur, a prominent and over-active pulmonary artery on cardioscopy, and a positive exercise test might together suggest the diagnosis in the absence of the Gibson murmur, yet surgery would not be justified were this distinctive auscultatory sign consistently absent.

Ligation of the Ductus

The surgical procedure is less formidable than might be supposed. Children stand the operation well. The original transpleural approach devised and perfected by Gross (1939a, 1939b, 1944) has been modified by Touroff (1942). Increasing experience of the advantages of subadventitial dissection on the arch of the aorta, as advocated by Touroff, fully substantiates his claim that this procedure reduces the likelihood of injury to the flimsy-walled ductus, simplifies and shortens the operation, and facilitates the application of the ligature as close to the aorta as possible, thereby reducing the likelihood of recanalization. Ligation by this method appears preferable

haemorrhage from a torn ductus and one from mediastinal sepsis. A large measure of compensation for these two bitter disappointments has been found in the remarkable benefits already obtained in the group of 14 surviving patients. For a variety of reasons ligation has not so far been undertaken in 20 of our patients. Shapiro and Keys (1943) collected 107 non-infected cases. Ligation was completely successful in 81, and 9 patients died at or shortly after operation. After the age of 10 operative mortality increases year by year, so that over the age of 20 surgery can be justified only if symptoms are severe enough to warrant the risk. At the other end of the scale it is desirable to postpone intervention until the duct has had every opportunity to close spontaneously. The great majority of children should have the ductus ligated between 7 and 10 years of age.

Coarctation of the Aorta in Children

There are now good prospects of correcting this curious anomaly by surgical resection of the aortic stricture. Unfor-



FIG. 1.—Teleradiograph showing the characteristic heart outline of a patent ductus in a youth aged 18. The heart size is within normal limits, but the pulmonary artery, which makes a prominent bulge on the left border between the aortic knuckle above and the ventricular mass below, is enlarged. There is increased vascularity of the lung fields. The presence of a patent ductus was confirmed at operation.



FIG. 2.—Teleradiograph of an enlarged heart in a child aged 4, with greatly increased vascularity of the lungs. The branches of the pulmonary artery are enlarged, but the pulmonary arc itself is not prominent. Patent ductus arteriosus confirmed at operation.

to the risks associated with complete surgical division of the ductus.

During the past five years 40 patients with persistent patency of the ductus have been under my personal observation (Gilchrist, 1946). In four the pulmonary artery was infected. Three of these came to operation. Only one, a girl of 6 years of age, survived. She made a prompt and brilliant recovery after an illness of six months' duration. This child is in perfect health a year after surgical ligation. Two patients died as a result of massive pulmonary collapse, each on the third day after operation. The fourth patient, following an illness of thirteen months' duration, died without operation ten days after the diagnosis was first made. Of 33 cases of subacute bacterial endarteritis collected by Shapiro and Keys (1943) surgical ligation of the ductus was completely successful in 20. Tubbs (1944) has reported recovery in 6 of 9 infected patients.

Among 16 non-infected patients, submitted to surgery in reasonably good health, we have had two deaths—one from

tunately the defect, though easy of diagnosis, commonly passes undetected in childhood. Eisenberg (1938), reporting the clinical recognition of coarctation in three children, was able to find in the literature only 15 examples under the age of 14, as compared with accounts of 114 adults. It is with the object of emphasizing its clinical recognition in early life that I record four cases, seen during the past six months, in which this flaw produced characteristic physical signs (see Table).

In the adult, as is well known, the constriction commonly situated distal to the origin of the left subclavian artery is accompanied by high blood pressure in the arm, neck, and head, and low pressure in the arteries, distal to the obstruction. Dilated pulsatile scapular and other arteries frequently visible on the chest wall circumvent the aortic obstruction, empty into the intercostals, in which blood-flow is reversed, and thereby provide anastomotic channels sufficient to meet the needs of the tissues distal to the coarctation. With the passage of time hypertensive symptoms commonly develop, the heart enlarges, the proximal aorta dilates, aortic incompetence results, and death occurs from congestive heart failure, cerebral haemor-

Coarctation of the Aorta in Children

Case No.	Sex and Age (Years)	Weight (lb.)	Height (in.)	Femoral Pulsation	Scapular Pulsation	Blood Pressure		Rib Notching	Remarks
						Arm	Leg		
1 (a)	M 8½	55 (26.3 kg)	52 (132 cm)	Absent	Present	114/74	Undetectable	Present	A rheumatic child. Frank mitral stenosis now present. Active boy, plays games vigorously.
1 (b)	M 8	77 (34.9 kg)	59 (150 cm)		"	140/96	90?		
2	M 8	61 (27.7 kg)	51½ (130.8 cm)		Absent	152/86	Undetectable	Absent	Very active, climbs trees, swings wood. Prominent carotid pulse. Coexistent patent ductus. No complaints. "Unusual pulsation in the neck since a baby."
3	F 12	Thin	Tall	Very feeble	"	173/80	110/94	Very slight	Tires easily, but able for school. A lively, active boy.
4	M 5	49 (22.2 kg)	44 (112 cm)			146/94	90/70	Present	

All four children had harsh left basal systolic murmurs. An interval of 3½ years separated the two examinations in Case 1. The leg blood pressures were recorded from the right popliteal artery. The arm pressures were noted in each arm, the figures from the right side being recorded in this table.

rhage, infective endarteritis, or aortic rupture, usually before age 45 is reached. The radiological examination depicts left ventricular hypertrophy, an absent aortic knuckle, and notching of the ribs as a result of the enlarged and tortuous intercostal arteries (Fig 3). Even with the adult in the left oblique position it is seldom that radiology can demonstrate the site of the actual coarctation (Brown, 1939). Fig 4, a skiagram from a man aged 49, is therefore exceptional. In it the aortic constriction is clearly outlined as a result of degenerative changes in the vessel wall. Intravenous diodrast may prove helpful to the surgeon in the future, as by this means the nature and site of the coarctation may perhaps be determined with accuracy (Nicolson 1940).

As aortic coarctation is generally symptomless in childhood it is a condition found only by making a thorough examination

more abundant blood supply the right arm may exceed the left in size (Schwartz and Greene, 1942). If coarctation of the aorta is to be recognized at the most opportune time—that is, in childhood when the prospects of surgical help are optimal—it is worth while to cultivate the habit of palpation of the femoral arteries in the groins, just as palpation of the apex

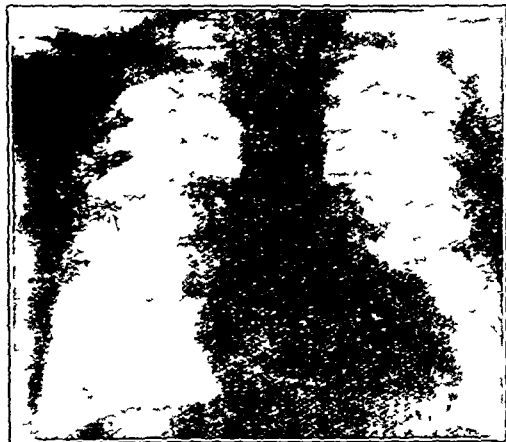


FIG 3—Teleradiograph depicting the typical features of coarctation of the aorta in an adult—a man aged 49. The noteworthy feature is the combination of absence of the aortic knuckle, left ventricular hypertrophy, and the presence of notches on the lower edges of several ribs.

Suggestive clues as to its presence are (1) a left basal systolic murmur—often called a "pulmonary systolic"—perhaps as well heard in the left interscapular region as in front of the chest, (2) bounding neck vessels; and (3) a raised brachial blood pressure. Confirmation of the presence of coarctation can readily be obtained by femoral palpation—the feeble or absent pulse in the groin, and the almost negligible pulse pressure in the popliteal artery with distant sounds when the blood-pressure cuff is applied immediately above the knee, being observations of the greatest significance. Similarly, more frequent blood-pressure readings in childhood will be the means of detecting coarctation at an earlier age. If the standard cuff is too large, overlapping at the shoulder or elbow, it is only necessary to fold it in half, so as to reduce its width, before its application to the child's arm. Reliable readings can then be obtained simply and accurately. Rarely, the coarctation is immediately proximal to the origin of the left subclavian artery. Hypertension is then confined to the right arm. As a result of the



FIG 4—Left oblique view of the heart and aorta of the same patient as Fig 3. The arrows indicate the upper and outer limits of the aortic arch and descending aorta. The arrow marked "C" indicates the site of the aortic constriction. The aorta proximal to the constriction is dense and dilated, distal to it the aorta is less dense, narrow, and tortuous. The esophagus is outlined with barium.

heart, neck, or abdomen forms part of the routine examination of the child. By this means J. W. Brown (personal communication) has recognized coarctation in a child of 2 years of age.

Of the present series all four children had harsh left basal systolic murmurs without detectable thrills. A diastolic aortic murmur was not heard, though regurgitation at the aortic valve is a common finding even in young adults (Perlman, 1944). Similarly, careful search revealed anastomotic vessels coursing over the scapulae in only one patient (Case 1)—a further contrast to a sign common in the adult. The radiological appearances are less distinctive in the child. Considerable cardiac enlargement was present in only one of my four patients (Case 4, Fig 5). Rib marking, virtually a pathognomonic sign in the adult, may be absent. The youngest child in this series showed definite "scalloping" of the lower edges of several ribs at age 5, another at age 8 had none (Case 2, Fig 6),

and the eldest of the series at age 12 had only the slightest indentations, easily overlooked had not the clinical examination already established the diagnosis. In this girl the coarctation was complicated by the presence of a patent ductus. None of the children had symptoms related to hypertension or to intermittent claudication. All were active and outwardly well, though one was a rheumatic child (Case 1) with a well-marked mitral stenosis in addition to the aortic coarctation.

Resection of the Coarctation

Crafoord and Nylin (1945) and Gross and Hufnagel (1945), working independently, now report their respective techniques for resection of the constricted segment of the aorta, which is then reconstructed by a continuous everting silk suture drawing intima to intima. This type of end-to-end anastomosis has proved eminently satisfactory. A year after the aortic repair Crafoord's two patients—aged 12 and 27 years—are in excellent health, with blood-pressure readings in normal proportions between the arms and legs. One of the two patients on whom Gross practised resection of the aortic stricture died. As soon as the clamps were removed from the aorta and the enormous

local infection the ultimate production of stenosis is as unlikely as aneurysm formation at the site of the arterial wound. Preliminary reports would indicate that the risks are worth taking—at least, when the arteries are young and resilient and the proximal aorta is unencumbered by atheroma, local calcium deposition, or diffuse degenerative changes.

The Cyanosed Child

In the presence of persisting cyanosis an exact anatomical diagnosis is more difficult than in the acyanotic group, the cardiac defects more often multiple, and the child delicate fragile, and susceptible to infection. In offering a palliative surgical procedure Blalock and Taussig (1945) have made a bold approach to the problem of treatment. By so reconstructing the circulation as to ensure the delivery of a greater volume of blood to the lungs aeration can be enhanced. Impressed by the importance of a diminution in pulmonary blood-flow as a cause of cyanosis in congenital heart disease, those authors report their results in three children, each handicapped by a high grade of Fallot's tetralogy, in whom a major artery, the innominate or subclavian, was anastomosed with the right or left branch of the pulmonary artery. In the tetralogy cyanosis is partly due

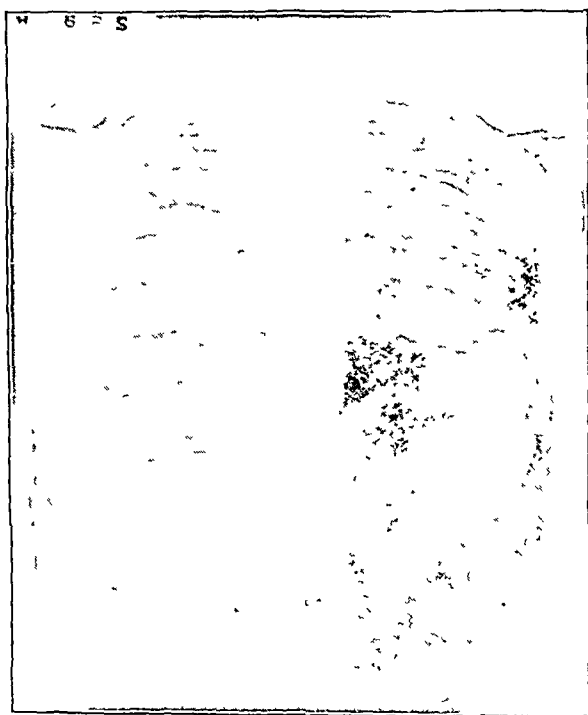


FIG 5.—Teleradiograph showing coarctation of the aorta in a boy aged 5 (Case 4). Cardiac hypertrophy and the absent aortic knuckle are striking features. Definite notches on the lower edges of several ribs—e.g., the 7th left and 7th, 8th, and 9th right.



FIG 6.—Teleradiograph showing coarctation of the aorta in a boy aged 8 (Case 2). Rib-notching is not evident in this patient; cardiac enlargement is less prominent than in Case 4 (Fig. 5). The aortic knuckle is visible but reduced in size.

vascular bed was in consequence thrown open, the child's heart "suddenly went into uncontrollable dilatation." The second patient reported by Gross—a 12-year-old girl—had the aortic clamps gradually released without incident. Before resection of the coarctation her brachial pressure lay between 215 and 190, with unobtainable readings in the legs. After repair of the aorta the systolic pressure in the arms was 140 and in the legs 145.

In the skilled hands of the thoracic surgeon this operation should not prove any more formidable than the procedure adopted for ligation of the ductus. Experimentally, a large artery such as the aorta heals firmly, intramural clotting does not give rise to difficulty, and Gross and Hufnagel (1945) point out that end-to-end reconstruction of the vessel does not lead to mechanical stenosis, indeed, in the animal the slight eversion of the walls tends to enlarge the internal diameter of the aortic tube at the point of union. Just as in the blind ends of the ligated ductus a smooth channel devoid of crypts is soon formed, so also the reconstituted aorta is lined by a continuous layer of endothelium and the walls heal firmly. In the absence of any

to the septal defect and partly to pulmonary stenosis. By the surgical production of an artificial ductus the stenosis is bypassed and the volume of blood which reaches the lungs for aeration is greatly increased. As the septal defect persists, with consequent mixture of venous and arterial blood, it is therefore impossible to bring the oxygen saturation of the arterial blood to normal, but the presence of the artificial fistula may permit of sufficient oxygenation to abolish "visible" cyanosis. Clinical improvement in the children has been striking, with distinct lessening of the cyanosis, a decrease in dyspnoea, and an increased tolerance for exercise. Blalock and Taussig emphasize the importance of a full investigation in order to determine as accurately as possible the anatomical lesion. When cyanosis arises from causes other than diminished pulmonary flow the construction of an artificial ductus will not be helpful.

As might be anticipated, the heart enlarges after this operation, the diastolic pressure falls, and the circulatory load is increased. It is therefore possible that benefit may be only temporary, congestive heart failure or bacterial endarteritis of the pulmonary artery being the main danger. As a palliative

procedure this operation has its justifications, but it is questionable if it will appreciably increase life expectancy. It is yet too early to form a final judgment. Further reports on the progress of these children will be awaited with interest.

Summary

Surgery can obliterate the patent ductus arteriosus and eradicate the congenital stenosis of the distal aortic arch known as coarctation of the aorta. The clinical diagnosis of these defects is discussed. The diagnosis of coarctation of the aorta is missed repeatedly in childhood by a failure to palpate the groins as a routine procedure. Feeble or absent femoral pulses make a characteristic finding. An account is given of four children in whom this defect was observed. Diagnosis of these congenital flaws within the first ten years of life is important if full advantage is to be taken of current surgical procedures designed for their correction.

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RESISTANT ANAEMIA

A NOTE ON THE DIFFERENTIAL DIAGNOSIS OF PER- NICIOUS ANAEMIA AND FAMILIAL ACHOLURIC JAUNDICE

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The purpose of this communication is to draw attention to the not uncommon error of confounding familial acholuric jaundice (F.A.J.) with pernicious anaemia (P.A.), and to show how that mistake may arise and how it can be avoided. Acholuric jaundice is usually regarded as a rare condition, but we are inclined to think that its supposed rarity is largely due to its being frequently overlooked. During the last fourteen months we have seen no fewer than nine previously undiagnosed cases of acholuric jaundice, each one belonging to a separate family. They were, in fact, numerically in excess of the new cases of true pernicious anaemia with severe anaemia seen during the same period. Among such cases of pernicious anaemia we do not include those suffering from a greater or lesser degree of P.A.-factor deficiency secondary to some other disease such as sprue, carcinoma of the stomach, or liver cirrhosis, nor do we include cases suffering primarily from symptoms of subacute combined degeneration of the cord with a slight or negligible degree of anaemia. Now, of our nine cases of acholuric jaundice no fewer than four had been diagnosed as pernicious anaemia and treated as such for periods up to as long as five years. In a much larger series of cases seen prior to 1940 this same mistake was noted in a somewhat similar proportion, but owing to the loss of part of the card index during the war the details of that series are not available. The present note will therefore refer only to cases seen since October, 1944. Though the series is a small one the figures we have just given clearly show that the disease acholuric jaundice and the mistake to which we refer are common enough to merit attention.

The Clinical Picture

Clinically familial acholuric jaundice, with its anaemia and icterus, bears a close resemblance to pernicious anaemia.

Jaundice.—In F.A.J. there is usually slight or moderate icterus, but it may be very marked, and occasionally it is absent. In the latter case a history of one or more previous attacks of yellowness may be obtained. In this connexion one must bear in mind the frequency with which pigment stones occur in F.A.J., giving rise to attacks of gall-stone colic or obstructive jaundice. One of our cases was admitted to hospital deeply yellow as a result of biliary obstruction, and it was only during the routine examination of the blood picture that the underlying cause of the condition was shown to be F.A.J. In another case a cholecystectomy had been performed ten years before on account of two attacks of jaundice and biliary colic, but the significance of the pigment stones which were found was not appreciated.

Splenomegaly.—Sometimes a gross splenomegaly will exclude P.A. and indicate the true diagnosis. But frequently the spleen is not palpable in F.A.J., and very often it is no more easily palpable than in many cases of P.A. In one of our cases showing all the other characteristics of F.A.J. there was no increase in the size of the organ when it was examined at operation.

Ulceration of the Legs.—When there is chronic ulceration of the legs or a history of such ulceration, in association with anaemia the diagnosis is beyond doubt, unfortunately, leg ulcers probably occur in less than 20% of the patients though in this short series it was seen in over 40%. The ulcers usually occur at a higher level than those associated with varicose veins, though sometimes they are found round the ankles over the malleoli. Often affecting the middle of the leg, they may lie anteriorly or posteriorly, and tend to spread slowly but remorselessly. They are usually intensely painful and are resistant to all local treatment, although they tend to heal during prolonged rest in bed. Splenectomy, which abolishes all the symptoms of F.A.J. results in the healing of the ulcers in about six weeks.

Family History.—A family history of anaemia, and more particularly of jaundice or of ulceration of the legs, is very suggestive. Yet often one can obtain no such history even after diligent questioning, while, on the other hand, one must avoid being misled by the not uncommon story that "anaemia runs in the family" and by the fact that occasionally patients with P.A. give a family history in which jaundice as well as anaemia plays a prominent part. One of our patients told us that her brother had died of leukaemia, and another that her mother and brother had succumbed to splenic anaemia. Investigation made it clear that in both these families the deaths had been due to F.A.J. Five out of our nine cases gave a relevant family history.

Periodicity.—Another point which may help in the clinical diagnosis is the story of the periodic nature of the attacks of anaemia and yellowness. This seldom happens in P.A. unless the patient has received intermittent treatment with liver. But so many of the cases of F.A.J. which one sees are in their first "attack" and give no history of previous ones.

Age.—It must be emphasized that the signs and symptoms of F.A.J. often remain latent till late in life. Thus five of our patients were over 50 when their first symptoms appeared, three were over 60, and one was over 70.

Alimentary and Nervous Signs.—Other aids to the clinical differential diagnosis consist in the presence or absence of the signs and symptoms referable to the alimentary and central nervous systems which are so frequently present in P.A. But whereas the history or presence of such signs and symptoms when well marked is highly suggestive of P.A., their absence by no means excludes that disease. It must be remembered that glossitis occurs in many other conditions apart from P.A., and that "pins and needles" in the hands or feet, which is perhaps the commonest early symptom of subacute combined degeneration of the cord may be found in any severe anaemia presumably as the result of peripheral anaemia. It is worth noting, in this connexion, that "pins and needles" due to an anaemia *per se* is likely to be perfectly symmetrical in distribution, while a definite asymmetry, with the tingling more pronounced on one side than another, is more suggestive of an organic and presumably neurological lesion. It cannot be too strongly emphasized how important it is in every suspected case of P.A. to have a fractional test meal examination.

If any free acid is found it is absolutely certain that the case is not P.A.—at least, not one of the primary Addisonian type. On the other hand, the absence of free acid, though strongly suggestive of P.A., does not completely exclude F.A.J. Thus in the six of our cases in which it was practicable to carry out a test-meal examination there was an absence of free acid in two.

The Blood Picture

It is not only the clinical picture which may confuse the practitioner, for the haematological picture, at least in its elementary form, may be even more misleading. The reason for this is that most cases of F.A.J. have a high colour index. It is seldom much below unity, it is often well above unity, and it is occasionally higher than in any other disease. Unfortunately, a colour index definitely above unity is popularly regarded as pathognomonic of P.A. or of one of those rare macrocytic anaemias which differ from P.A. only in their failure to respond to liver.

For perhaps the majority of clinicians the blood picture as regards the red cells is complete if a red cell count and haemoglobin estimation are done. These two figures, together with their quotient the colour index, are all the information that is considered. The remarks of the pathologist as to the degree of anisocytosis, anisochromia, poikilocytosis, etc., tend to be regarded as little more than frills to lend some semblance of complexity to an otherwise simple report. A reticulocyte count and a measurement of the mean diameter of the red cells seem to be looked upon as a luxury barely worth the extra trouble. Yet it is chiefly upon these three pieces of information—the mean cell diameter and its relation to the colour index, the appearance of the red cells in stained films, and the reticulocyte count—that the successful differential diagnosis between F.A.J. and P.A. depends.

Colour Index and Mean Cell Diameter.—Whereas the colour index is usually high in both F.A.J. and P.A., the mean cell diameter is generally much increased in P.A. and much diminished in F.A.J. This apparent discrepancy—a high colour index with a small mean cell diameter—is one of the characteristic points in the blood picture of F.A.J.

Usually the mean cell diameter is smaller than in any other condition—often less than 6μ ; yet the colour index is around unity or even above it. Less commonly, the mean cell diameter is only slightly reduced, when the colour index will be well above unity. Finally, in rare cases the mean cell diameter is actually above normal, and then the colour index may reach extraordinarily high values. The reason for this is the spheroidal shape of the cells, which results in their surface area and volume being much larger in proportion to their diameter than is the case with normal red cells, with their comparatively thin disk-like figure. This sort of discrepancy is seen only in F.A.J. In P.A. one occasionally gets a discrepancy in the opposite direction—a large cell diameter with a low colour index—due to a post-haemorrhagic anaemia being superimposed on the macrocytosis. This will happen when there is some incidental cause of blood loss such as haemorrhoids, or when the thrombocytopenia associated with P.A. is sufficiently developed to produce a haemorrhagic purpura.

The Appearance of the Red Cells in Stained Films.—Irregularities in the size, staining, and shape of the red cells tend to be well marked in the majority of severe anaemias. They are absent or but slightly noticeable only in those severe anaemias that are due to an aplasia of the bone marrow or which are associated with toxic or infective processes where there is presumably some general depression of bone-marrow function. Now, while it is fully realized that the extent to which these abnormalities of the red cells are developed gives a rough indication of the degree of marrow activity, it is not usually appreciated that a more subtle analysis of these abnormalities will often supply us with information of the greatest diagnostic value. In particular it is by close attention to the detailed appearance of the red cells in stained films that one most readily avoids the mistake of muddling F.A.J. with P.A. In the majority of anaemias where there is gross irregularity in the size of the red cells there is also great irregularity in their shape, and this is especially true in P.A. But in F.A.J. one of the most striking features is that although the cells have an enormous range in size they are extraordinarily uniform in

shape, being almost perfectly circular disks: there is, in fact, gross anisocytosis without poikilocytosis. Again, irregularity in the depth of staining of the cells, "anisochromia," is by no means uncommon in severe anaemias. Usually it is what one might call "irregular" in type—that is to say, many of the large cells are pale and many are dark—while the same is true of the small cells. In a typical case of P.A. there is usually little or no anisochromia, all the cells being fairly completely and uniformly filled with haemoglobin. In severe hypochromic anaemias there is again little or no anisochromia; but here the cells are very deficient in haemoglobin and appear uniformly pale. However, in cases of hypochromic anaemia and P.A. under treatment with iron and liver respectively, when the haemoglobin production tends to lag behind the cell formation, the anisochromia often becomes very striking. If there is any tendency towards regularity in the anisochromia of P.A. under treatment, it is that the larger cells tend to be more completely filled with haemoglobin and to appear pinker than the smaller cells. But in F.A.J. the picture is quite different: the anisocytosis and anisochromia are of striking regularity, the great majority of the small cells staining deeply and the large cells palely. *There is no other condition in which this happens;* and usually the appearance is so remarkable that one look at the stained film without any other examination, haematological or clinical, is sufficient to make one extremely suspicious of the correct diagnosis.

Reticulocytes, Stippled Cells, and Diffuse Basophilia.—Although a gross reticulocytosis is in no sense pathognomonic of F.A.J., it is nevertheless a feature which distinguishes absolutely between that disease and P.A. In a severe untreated case of P.A. the reticulocytes are usually not increased above the normal 1 to 1½% of the total red cell count, and they seldom if ever exceed 2 or 3%. In a case of F.A.J. in which the anaemia is severe there is always a gross reticulocytosis: it is usually at least 15 to 20%, and often 40 to 50% or even much higher. One must of course beware of the severe case of P.A. which has recently received an injection of liver, so often administered before the diagnosis is established. Although a high reticulocytosis may occur in any of the other haemolytic anaemias, such as lead-poisoning, and to a less extent after an acute haemorrhage, in hypochromic anaemia under treatment with iron, in certain types of leukaemia, and in leuco-erythroblastic anaemia the other haematological characteristics of F.A.J. will be missing, while features peculiar to these conditions will usually be present.

A small percentage of stippled cells are usually to be seen in P.A.; but in F.A.J., though there is a gross reticulocytosis, few if any of these cells appear as stippled cells with Romanovsky stains. Many of the reticulocytes in F.A.J. appear bluish (diffusely basophilic) in the Leishman-stained films. This supplies another feature which may help in distinguishing the disease from P.A. When diffuse basophilia is well developed in F.A.J. as many as 10 or 20% of the cells may have a bluish tint, whereas in P.A. the figure never reaches 1% of the total cell count.

Nucleated Red Cells.—Nucleated red cells are usually present in both P.A. and F.A.J., and may occasionally reach high figures; but the type of nucleated cell is very different in the two conditions. In P.A. these cells are of all degrees of immaturity; in F.A.J. the vast majority of them are late-type cells with solid-looking, structureless nuclei. Moreover, these pyknotic nuclei frequently assume bizarre shapes not often seen in other diseases, being double-lobed, triple-lobed, or even mulberry-like in appearance.

The White Cells.—In F.A.J., when the anaemia is marked, there is usually a polymorphonuclear leucocytosis with a left shift, both of which may be considerable. In P.A., on the other hand, there is nearly always some degree of leucopenia due to reduction in the polymorphonuclears; while among the granulocytes which remain there are not only immature cells, which may include myelocytes and even metamyeloblasts, but also some very large polymorphonuclears with highly complicated lobulation of their nuclei: a shift simultaneously both to left and to right.

In Table I we have summarized the main differences in the blood pictures of F.A.J. and P.A., and in Table II the clinical features of our nine cases of F.A.J.

TABLE I.—Main Differences between the Blood Picture of Acholuric Jaundice and that of Pernicious Anaemia

	F. A. J.	P. A.
Colour index	High	High
Mean cell diameter	Low	High
Anisocytosis	Marked	Marked
Poikilocytosis	Absent	Marked
Anisochromia	Marked and irregular	Slight
Stippling	Absent	Moderate
Diffuse basophilia	May be gross	Moderate
Reticulocytosis	Extreme	Absent
Nucleated red cells	Late type	All types
White cells	Leucocytes	Leucopenia

It must be realized that the above remarks apply only to cases of F.A.J. and P.A. which are in an active phase of the disease. In cases of F.A.J. with but a mild degree of anaemia, or which are discovered during the routine examination of an acholuric family, the above characteristics will naturally be less well developed; but even in such cases some or all of them are generally fairly obvious.

Fragility.—So far we have refrained from any reference to fragility of the red cells because we have been concerned only with the more elementary points in the diagnosis. We maintain that the determination of the fragility of the red cells,

ated with clinically recognizable jaundice, demands painstaking clinical and laboratory work. The ultimate justification for this labour must be the availability of successful treatment. This is presented in splenectomy. In skilled hands the operation is not hazardous, for the spleen is never bound down by adhesions as in splenic anaemia. Although it is desirable by means of blood transfusion to raise the haemoglobin to a reasonable level before operation, it is sometimes impracticable to achieve this ideal owing to the rapidity of the red cell destruction going on in the body. In such cases, rather than delay too long it is better to operate at a comparatively low haemoglobin level and to give a further transfusion of blood immediately after the operation. It is remarkable how rapidly in most cases the haemoglobin rises when once the spleen is removed. In one of our cases a two-pint (1.14 l.) transfusion of fresh blood raised the haemoglobin only from 40% to 45%; splenectomy was then performed, being followed immediately by the giving of two further pints of blood, and within 24 hours the haemoglobin had risen to 70%.

Summary

The frequency with which familial acholuric jaundice is wrongly diagnosed and treated as pernicious anaemia is emphasized.

The commonest causes of this mistake have been found to be: (1) An unfounded belief in the diagnostic value of the colour index.

TABLE II.—Chief Clinical Features of 9 Cases of Acholuric Jaundice

Case	Sex and Age	Anaemia (Hb)	Jaundice	Leg Ulcer	Splenomegaly	Pigment Stones	Family History	Previous Diagnosis
N. M.	F. 48	56%	—	—	Spleen not palpable, but large at operation	—	—	N.I.
R. B.	F. 19	62%	Obstructive J. — +	—	Slight	—	—	Obstructive jaundice
J. B.	F. 22	30%	Slight	—	Spleen not large at operation	—	—	Obstructive anaemia
M. G. B.	F. 41	74%	—	—	Slight	—	—	P.A.
E. H.	F. 63	40%	Slight	—	—	—	—	P.A.
L. D.	M. 53	56%	Slight	—	++	—	—	N.I.
H. D.	M. 52	38%	—	—	Slight	—	—	N.I.
W. G.	M. 73	42%	—	—	Slight	—	—	P.A.
E. R.	F. 68	35%	Slight	—	Slight	—	—	P.A.

unless carried out by someone who has considerable experience of the test, is often valueless and not infrequently misleading. It is not always realized that in a considerable proportion of the cases of F.A.J. the fragility of the red cells is only very slightly increased above the upper limit of normal. In one of our nine cases there was a previous report from a reputable laboratory that the fragility of the red cells was normal; while in another the departure from the normal, though recognized, was so slight that its significance was overlooked. As examples of the variability of the fragility from one case to another the following figures from two of our series are illuminating.

TABLE III.—Showing Different Degrees of Fragility of Red Cells of Fully Oxygenated Heparinized Venous Blood in 2 Cases of F.A.J. compared with the Normal

% NaCl	H. A.	R. B.	Normal
	% Haemolysis	% Haemolysis	% Haemolysis
0.30	100	100	100
0.35	100	100	100 approx.
0.40	100	100 approx	60
0.42	100 approx	—	15
0.44	100 approx	50	12
0.46	80	20	10
0.48	60	3	Trace
0.50	40	Trace	Nil
0.52	30	Trace	Nil
0.55	20	? Trace	Nil
0.60	10	Nil	Nil
0.65	5	Nil	Nil
0.70	1	Nil	Nil
0.75	—	Nil	Nil
0.80	—	Nil	Nil

In a satisfactory fragility test it is necessary (1) to make up very accurate solutions of the various saline dilutions; (2) to make certain that the blood is fully oxygenated before introducing it into the saline solutions; and (3) always to carry out a quantitative estimation of the percentage of haemolysis in each saline dilution.

Treatment

From the foregoing description it will be seen that the diagnosis of familial acholuric jaundice, a disease so often unassoci-

(2) Ignorance of the fact that free acid in the gastric juice excludes pernicious anaemia (3) Failure to appreciate the extreme importance of detailed blood examination. (4) Attribution of natural remissions to the effect of liver administration and of relapses to faulty liver preparations (5) Failure to grasp the importance of chronic ulceration of the legs and anaemia as signs of familial acholuric jaundice.

SPLenic CYSTS: WITH A REPORT OF A CASE

BY

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Splenic cysts are rare. All writers on this subject begin their articles with these words and go on to quote figures given by Fowler (1940) in analysing 137 cases of non-parasitic splenic cysts.

Andral (quoted by Fowler, 1940) in 1829 described the first splenic cyst, which was found at necropsy and proved to be a dermoid. In 1880 Pean (Fowler, 1940) performed the first splenectomy for a cyst, and in 1906 the first series of 36 cases was described by Powers (Fowler, 1940). Since Fowler's review the interest of surgeons has been aroused, for cases have been recorded in fair numbers. By 1942 McClure and Altemeier had raised the total to 149, and later in that year Gallagher and Mossberger described the 155th non-parasitic cyst. Up to the end of 1944 seven further examples had been listed, and our case would appear, therefore, to be the 163rd.

That the condition is indeed uncommon can be seen by reference to the standard textbooks of surgery and pathology, which have little or nothing to say on the subject. Like most rarities it is of course probable that many cases went unrecorded until more recent years. A search through the literature reveals a willingness on the part of the authors to compose elaborate classifications of these few cases, which discourages us from attempting anything similar.

It is certainly expedient to distinguish parasitic (hydatid) from non-parasitic cysts in the first instance. The former are said to be at least twice as common as the latter. Arce (1941) of Buenos Aires found the spleen affected by hydatid cysts in 3% of his cases, and Dew (1928) that 2% of all hydatids were in the spleen. It is, we think, reasonable to regard the non-parasitic cysts as "true" or "false" according to whether there is an endothelial (or epithelial) lining or merely a connective-tissue lining. It is on the basis of this distinction that Fowler records the ratio of true to false as 1:4; or, as those who prefer percentages would say, only 20% of non-parasitic cysts are true and 80% are false. This distinction, however, may be liable to error, for in certain cases an endothelial layer may disappear as a result of pressure from, for example, haemorrhage; while in others a lining may even be acquired by metaplasia of connective-tissue elements. How often this may happen it is impossible to say, but that it does occur is suggested by the fact that some areas of certain of the cysts described show an epithelial lining and other areas only connective tissue. In this connexion Gallagher and Mossberger (1942) point out that the terminal findings may mislead as to aetiology.

Discussion

True cysts include dermoids and epidermoids and those lined by endothelium. Although it is difficult to explain the presence of ectoderm in the spleen, this is the only source of these tumours. A possible explanation is that they are derived from a primitive totipotential cell capable of producing any of the three layers, such as is postulated to explain the ovarian and testicular dermoids.

Endothelium-lined cysts are easier of explanation and can be accounted for as haemangiomas, lymphangiomas, and serous cysts arising possibly from inclusion of peritoneal cells, together with the multiple cysts associated with polycystic disease of other organs. Lubarsch (quoted by Fowler, 1940) considers that some of the serous cysts may be neoplasms arising from anlagen of lymphatic endothelium.

False cysts are usually large and single, and contain blood or blood-stained serous fluid and often cholesterol crystals. They tend to be situated at either pole of the spleen, with normal splenic tissue elsewhere, and part of the cyst wall may be formed by thinned-out spleen, though Fowler describes cartilage and smooth muscle occurring in the walls. In places the wall may be fibrous. Gallagher and Mossberger (1942) describe a pedunculated calcified cyst attached to the lower pole of the spleen surrounded by normal tissue, and McClure and Altmeier (1942) have observed the occurrence of torsion of the pedicle as a rare event. The cause of false cysts is considered to be trauma or infection, or degeneration in an infarcted area. Malaria is mentioned as a predisposing cause, and we have recently been informed by an R.A.M.C. colleague that in West African natives, in whom malaria is almost universal, splenic cysts are not infrequently found at necropsy. Syphilis and the other causes of splenomegaly may render the spleen liable to exposure to trauma, and if this is associated also with toxæmia it will make haemorrhage all the more probable. The suggestion that splenic congestion occurs during menstruation (Denneen, 1942) and that intrasplenic haemorrhage and cyst formation are therefore more likely in women during the phase of active sexual life is dismissed by Fowler, and there is nothing to support this belief in the textbooks of gynaecological physiology. Seven per cent. of cysts occur during pregnancy (Fowler), but this has probably been a coincidental finding, the presence of the cyst being observed when the uterine fundus begins to encroach upon the upper abdomen. They occur at all ages, but particularly in young adults, and women are rather more often affected than men.

Diagnosis.—When small a cyst will give rise to no symptoms, and when larger it will cause pressure symptoms and very little else; or it will be noticed by the patient or others. Milroy Paul (1943) says "the diagnosis . . . has rarely been made," and Fowler himself uses the same phrase. It is therefore encouraging to read Sweet's (1943) opinion that "large cysts, however, present a clinical picture so characteristic that the diagnosis can be readily made," and to record that in the case to be described the diagnosis was in fact made by one of us (J. A. C.), though the co-author and a considerable number of other medical men scorned his suggestion.

Dyspepsia, a dragging pain, and inability to eat a large meal owing to compression of the stomach are the chief complaints. If inflammation exists pain will be more severe. The past history may be of help in cases of malaria, syphilis, or trauma. Trauma as a cause of splenic rupture and also as a factor in the production of pseudo-pancreatic cyst is well known. But it is easy to visualize an injury which will cause intrasplenic haemorrhage only and result later in the formation of a splenic cyst. Hydatid disease should be looked for in members of stock-breeding communities and its presence confirmed by Casoni's or other specific tests.

If the cyst occupies only a part of the spleen the rest may be palpable, and this will aid in diagnosis. But if the whole organ is involved, or nearly so, it will be necessary to differentiate cysts of the pancreas, left lobe of liver, omentum, kidney, or ovary. The last should be easy, for a spleen seldom reaches the pelvis and an ovarian cyst seldom gets completely out of it, so that if the cyst originates in the spleen one should be able to "get below it." One can usually "get above" a pancreatic cyst, which should be strictly a midline structure, whereas a splenic cyst, unless pedunculated, is never completely below the costal margin and extends across the midline only if it is of considerable size. A palpable notch would be of diagnostic importance, but this has rarely been noted.

Aspiration of the cyst with the finding of cholesterol crystals is cited by Denneen (1942) as an aid to diagnosis, but the dangers inherent in this procedure should the cyst be echinococcal or an aneurysm would seem to weigh heavily against its advantages.

Radiography.—Elkeles and James (1943) state that "in the few cases in which a correct diagnosis was made prior to operation, x-ray examination was the determining factor," and certainly it has much help to offer. Where calcification has occurred it is clearly almost diagnostic, for a calcified cystic shadow in the left upper quadrant of the abdomen is likely to be either a splenic cyst or an aneurysm of the splenic artery, and the latter can be excluded reasonably easily by auscultation. This calcification often takes place in spite of the youth of a patient and a short history. Snoke (1943) quotes cases at the ages of 18, 25, 44, 52, and 60. In the absence of calcification a soft-tissue swelling which obliterates the psoas shadow, raising of the left diaphragm, and spreading of the lower ribs are seen. Sweet (1943) draws attention to the fact that the swelling, though generally rounded, often has a pointed lowest extremity where solid splenic tissue remains.

A barium meal will show the stomach to be pushed across to the right and compressed backwards, and the splenic flexure to be displaced downwards and to the right according to the size of the tumour. Intravenous and retrograde pyelograms have shown the kidney to be pushed downwards (cases quoted by Fowler, 1940; Roberson, 1940; Elkeles and James, 1943; and Sweet, 1943) or upwards (cases quoted by Shawan, 1933, and Snoke, 1943).

Treatment.—There is no doubt that splenectomy is the proper treatment unless prevented by the presence of dense adhesions. Fowler puts the mortality at 4%. Enucleation has been practised on occasion, but there is a danger of haemorrhage from this procedure. Marsupialization and incision and drainage are apt to be followed by fistula and amyloid disease, not only in hydatid cysts but in non-parasitic ones as well (Arce, 1941). There seems little doubt that emptying the cyst makes removal easier, provided infection and hydatid are excluded.

Case History

A girl aged 24, a member of the W.A.A.F., unmarried, was found at a routine medical examination to have a huge swelling in the upper abdomen. She had always been "plump," but the swelling had been present to her knowledge for only 10 years. A vague story of injury to the lower left ribs four years previously was dismissed as probably of no importance. The swelling had gradually increased in size and had given rise to dragging abdominal pain only during the last few months, in which period she had noticed that she had had to be content with small meals, as she readily became "blown out." Questioning failed to elicit any other symptoms incriminating the digestive, urinary, or genital systems. She had not noticed any shortness of breath.

Examination was equally unhelpful except for the swelling itself. This was well defined and clearly cystic, and occupied the whole of

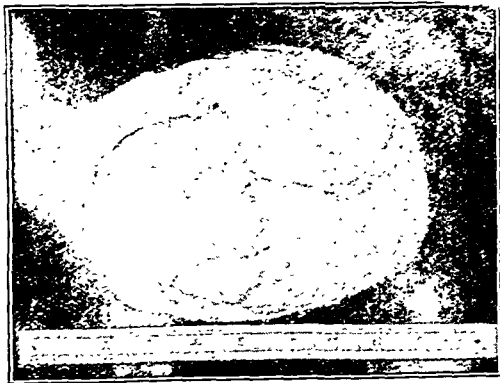
the epigastrium. It lay slightly obliquely across the abdomen, the left side being lower than the right, but the axis was horizontal rather than vertical. Below, it reached to the level of the umbilicus, but was not palpable in the loin or left renal angle. No notch was felt. Its lower edge was well defined, and it was agreed that the cyst could be moved slightly up and down but not from side to side. It was dull to percussion, silent on auscultation, and displaced the gut downwards. The liver was not enlarged and no other abnormal physical signs were detected. A plain skiagram showed the shadow of a large soft-tissue swelling, and a barium swallow demonstrated that the stomach was pushed away to the right and also compressed backwards. Blood count and urine examinations were normal.

A diagnosis of pseudo-pancreatic cyst was made with a minority report in favour of splenic cyst as previously mentioned. It was considered that a renal origin for this swelling could be safely excluded.

Operation (Aug. 10, 1945: Air Vice-Marshal Stanford Cade).—It was decided to explore through a left paramedian incision, cutting across the rectus muscle to gain extra space if necessary. On opening the peritoneum a shining rounded tumour of a beautiful duck-egg blue was seen, and it was thought that the first diagnosis was correct. But further exploration showed this to be a large round area of fibrous cyst wall, the remainder of the tumour being typically plum-coloured splenic tissue, thinned out over the cyst and forming a margin of grossly normal spleen to the right and below and including the notch. The latter had not been palpable clinically because it lay beneath the right costal margin, so far did the spleen extend across the midline.

An incision was made through this thin fibrous area and about 3½ litres of fluid removed by sucker. This fluid was brownish, opalescent, and of the consistency of dish-water. The cyst collapsed and, with the division of a few adhesions and the pedicle, was easily removed through the original incision. The peritoneal cavity was mopped dry and the wound closed without drainage. Convalescence was uneventful. Six weeks later a barium meal showed a stomach of normal size, shape, and position. The patient was symptomless and had returned to duty.

The Specimen.—The cyst, together with the fluid removed, weighed approximately 13 lb. (5.85 kg.). The wall was leathery, and it was easily distended again for the purpose of fixation, though not to its original size. The photograph indicates the present size, the cir-



cumference being 24 in. (60 cm.) in its long and 21½ in. (54 cm.) in its shorter axis. The fluid contained red blood cells and polymorphs, some degenerate but mostly recognizable. Numerous cholesterol crystals were seen and culture was sterile. In places the wall was purely fibrous and translucent; in others a layer of spleen about 1 cm. thick was stretched over it. The interior of this single cavity showed massive trabeculation and a considerable quantity of necrotic fibrous tissue adherent to the walls.

On section the "sandwich" effect of a layer of spleen enclosed between a thick fibrous capsule on the outer side and a less thick fibrous lining on the inner side was well seen. The latter was not limited by any specialized epithelial or endothelial cells. A section through "normal" splenic tissue taken from the anterior margin of the cyst showed increased fibrosis but no other abnormal change.

Summary

A case of false splenic cyst of considerable size in a young woman described.

The size of the cyst was out of all proportion to the symptoms.

A pre-operative diagnosis was made and the condition was successfully treated by splenectomy.

Skiagrams taken before operation showed compression and displacement of the stomach, which state of affairs had righted itself six weeks later.

The literature is reviewed and differential diagnosis considered.

The specimen has been accepted by the Royal College of Surgeons.

(NOTE.—Since going to press further sections have been cut and show that in places the cyst was lined by flattened endothelium. Patchy calcification was seen here and there. It is considered that these appearances are not inconsistent with the description of the cyst as "false.")

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SIGNIFICANCE OF THE PREMENSTRUAL FEVER IN PULMONARY TUBERCULOSIS

BY

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In recent years pulmonary tuberculosis has been diagnosed by radiography, to a greater extent than ever before, at a stage when no abnormal physical signs are present. Once the diagnosis is made, the next step is to determine whether the disease is active or not. In many cases admitted to sanatoria investigation shows only healed scars. Serial skiagrams, however, reveal definitely whether the lesion is active or not, but these changes take some time to declare themselves. In 1921 Sir James Kingston Fowler wrote that "the temperature is the guide to the activity of the disease." But many cases which on admission to sanatoria appear to be afebrile, in that their temperature never rises above 98.4° F., prove later to have a natural maximum temperature of only 98° F. or even 97.8° F., so that the early readings really represent a mild degree of pyrexia.

The Present Investigation

In this connexion there arises a question of great importance—namely, the significance of the premenstrual temperature in women. If the temperature increases, does the increase indicate tuberculous activity, or can it be disregarded in considering increases in patients' exercise? In an attempt to elucidate this problem 15 normal healthy young women were persuaded to take their temperature as controls, both morning and evening, for ten minutes in the mouth, as is done in recording the patients' temperatures in this sanatorium. This was done for at least one whole menstrual cycle. Van de Velde (1904, 1929) first showed that in the normal woman the body temperature is relatively low during the first and relatively high during the second half of the menstrual cycle. Barton and Wiesner (1945) have confirmed, by taking the waking temperature, that a relatively high temperature is characteristic of the premenstrual phase, and that it persists after conception. Such a biphasic change was found in 13 of the 15 normal women studied, and the temperature reached a steady maximum beginning a few days before menstruation was due. The reactions were of three types. First, a rise in both the morning and the evening temperatures; secondly, a diminution in the daily variation, usually caused by a rise in the morning temperature; and, thirdly, a combination of these two changes—i.e., a rise in temperature as well as a diminution in the daily variation. The changes fell with almost equal incidence into these three groups. The average duration of this premenstrual change in the temperature was 5 days. The highest temperature reached was in no case above 99° F., and this occurred in only one instance. In 75% of cases the premenstrual temperature showed no readings above 98.4° F.

Of 50 women of child-bearing age with pulmonary tuberculosis premenstrual changes occurred in 43. The reactions were of the same three types as occurred in the controls, and the incidence of each type was the same. The average duration of these changes, however, was 9 days instead of 5, and in 53% the temperature reached was 99° F. or over. As soon as the menstrual flow started the temperature reverted to its previous character.

In 6 of these patients the characteristic changes were absent when a temporary increase of tuberculous activity occurred. During this exacerbation, shown either by a higher temperature recording or by a bigger variation in the morning and evening temperatures, the premenstrual phase invariably disappeared. When the toxæmia decreased the phase reappeared. Table I

TABLE I.—Showing Effects of Variation of Toxaemia (indicated by Periods grouped a, b, c) on the Premenstrual Phase

Case	Daily Intermenstrual Temperature Variation (° F.)		Duration of Premenstrual Change in Days	Temperature Variation during Premenstruum (° F.)	
	a.m.	p.m.		a.m.	p.m.
I	(a) 98.4	100.0	Nil	98.4	100.0
	(b) 97.4	98.2	9	98.0	98.4
	(a) 97.6	98.8	12	98.4	100.8
II	(a) 98.0	99.8	Nil	98.0	99.8
	(c) 98.0	99.4	4	98.4	101.0
	(a) 98.0	99.0	Nil	98.0	99.0
III	(a) 98.0	98.6	10	98.4	99.0
			2	98.6	99.2
			3	98.8	101.0
IV	(a) 98.0	98.4	Nil	97.0	99.4
	(b) 97.0	99.4	Nil	97.8	99.0
	(a) 97.8	99.0	11	98.0	99.0
V	(a) 97.2	98.2	Nil	98.0	99.0
	(a) 98.0	99.0	7	98.0	98.8
	(b) 97.4	98.4			

records the daily variations in temperature and the premenstrual changes in these 6 cases, and shows how, at times when the temperature variations were greater owing to increased toxæmia, the premenstrual change disappeared. Martin (1943) has shown, by examining endometrial biopsies, that absence of a premenstrual variation in temperature is due to ovulation not having occurred. Tuberculosis is recognized as a cause of amenorrhoea, and it would appear that in the 6 tuberculous cases which did not show a premenstrual temperature change, once the toxæmia reached a certain level, there was a tendency to swamping of the endocrine changes, but without actual amenorrhoea ensuing.

Another of the 43 patients possessed charts, extending over a period of five years, showing an original premenstrual rise in temperature lasting for 14 days; now, when the degree of activity of the disease is much less, the rise lasts for only 5 days. In another patient there has been a gradual diminution in the duration of the premenstrual change and in the maximum temperature reached, until finally it has vanished completely.

Seven of the 50 patients showed no premenstrual change at any time. In one of these cases, with a temperature variation of 99 to 100.6° F., there was amenorrhoea. In the other 6 toxæmia was present but the temperature range was comparable to that of 5 patients who did show a reaction (Table II).

TABLE II.—Showing the Similarity in Temperature Range in Patients with, and without, a Premenstrual Variation

Case	Patients showing no Premenstrual Change		Patients with Similar Temperature Swing but showing Premenstrual Change				
	Daily Temperature Swing (° F.)		Daily Temperature Swing (° F.)		Duration of Change (days)	Premenstrual Temperature (° F.)	
	a.m.	p.m.	a m.	p.m.		a m.	p.m.
1	97.8	99.2	98.0	99.0	5	98.4	99.2
2	98.0	99.2	98.4	99.2	8	99.0	99.6
3	97.0	99.0	98.0	99.0	12	98.4	99.4
4	98.0	99.0	99.0	100.0	5	98.4	101.0
5	98.0	99.0	98.2	99.2	8	99.2	100.2

One woman had had amenorrhoea for five years. In spite of this a regular change in her temperature occurred every 28 days, lasting for 10 days. After spinal analgesia for an

appendicectomy she had one period lasting 2 days. This occurred on the day that her temperature was due to come down, and did so, just as it does in those women having a premenstrual change. A dilatation and curettage had been done four years previously, but unfortunately no microscopy was carried out at that time. Sharman (1944) investigated 883 cases of primary sterility and found that 5.3% had tuberculous endometritis; so it appears that subclinical tuberculosis of the female genital tract is a not uncommon cause of sterility. It would seem that in this case the endocrine changes associated with menstruation occurred, but it is surmised that the endometrium could not react to the hormonal stimulation.

The elucidation of the premenstrual change is not easy. Occasionally it is accompanied by some increase in the number of rales and crepitations which can be heard in the chest, and this would point to there being an increase in the activity of the disease. In 4 patients the day preceding menstruation was marked by a sudden extreme rise in temperature, the evening maximum being 1.6 to 2.6° higher than usual. This reaction bears a strong resemblance to a tuberculin reaction, and it would appear that in these patients there had been a sudden flooding of the blood stream with tubercle toxin.

The symptoms of which many women complain during the few days preceding menstruation are very similar to those of over-activity of the thyroid gland—e.g., irritability, sweating, tremor, and nausea. It appeared, therefore, as if the thyroid might be in some way implicated in this change. In an attempt to settle this point thiouracil was administered in 6 cases chosen from the above series as showing a reasonably constant monthly cycle. Thiouracil inhibits over-activity of the thyroid by preventing conversion of available iodine into the thyroid gland hormone (Franklin *et al.*, 1944; Rawson *et al.*, 1944). Thiouracil had been previously tried in the treatment of tuberculosis and found to have no effect. This was not unexpected, since estimations of basal metabolism in tuberculous patients generally show a normal standard figure independent of activity, extent, or type of lesion (Kayne *et al.*, 1939), but it was thought that the reduction in cardiac output brought about by thiouracil might be beneficial. The drug was given in a dosage of 0.6 g. daily, starting on the first day of temperature change. No noticeable change was produced, but it is known that in thyrotoxicosis there is a lag period before the drug exerts its action. When the administration of the drug was started two days before the expected premenstrual rise in temperature, the temperature change was eliminated and the usual concomitant symptoms were also absent. From this it appears that the premenstrual temperature change is brought about in the final stage by over-activity of the thyroid gland.

Conclusions

In the majority of women there is some modification of the temperature chart during the days immediately preceding menstruation. This change occurs in pulmonary tuberculosis in early, as well as in advanced, cases. In patients with pulmonary tuberculosis it tends to be more pronounced and of longer duration than in normal subjects. This premenstrual phase gradually diminishes in conjunction with decreasing tuberculous activity. As an indication of activity it can be regarded in the same light as a persistently raised erythrocyte sedimentation rate, and may be ignored in deciding increases of exercise. The change is probably brought about through the agency of the thyroid gland, and can be abolished by the use of thiouracil.

I wish to thank Dr. Dennison Pickering, medical superintendent, for permission to publish this paper and for his interest, advice, and criticism; also Dr. Elsie Watchorn, of the Biochemical Laboratory, Cambridge, for help in obtaining a number of the control temperature charts; and Genatosan Ltd. for a supply of thiouracil.

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BLINDNESS IN AN URBAN CENTRE IN NIGERIA

BY

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In Sept., 1944, a census of all blind persons was held in Yerwa, the chief town of Bornu Province, Northern Nigeria, in order to ascertain the percentage of blind persons in the community and so far as possible the cause of this blindness. Up to the present time it is believed that no figures have been published relating to the incidence of blindness among West African natives, and although the present series is not large it is probably representative of other urban centres in Northern Nigeria which have a similar climate and in which the same diseases are prevalent.

Yerwa is a town of approximately 35,000 persons, situated in the north-eastern corner of Nigeria and at the southern edge of the Sahara Desert. The climate is intensely dry during the greater part of the year and dust storms are very common. The average annual rainfall of 25 inches falls chiefly in three months (July to September), with slight showers between April and June and in early October. As a rule no rain falls in the remaining five months of the year.

The figures for the total number of blind persons were computed by the local Native Authority, and may be taken as fairly accurate but probably slightly below the correct figure. It was noticed during the examinations that on two occasions the ward head produced more males or females than had been declared in his ward, and also that only three children below the age of 12 years were brought for examination. It is probable that a certain number of cases of blindness in young children have been concealed, for, as will be seen from Tables II and III, 37% of all persons examined had become blind before the age of 10 years.

Owing to administrative difficulties it was not possible to examine all the blind persons in the town. Slightly more than 50%, however, were examined, including a representative number of both sexes and of all age groups except young children. The results of the census are summarized in six tables.

TABLE I.—Incidence of Blindness among the Community (Figures given by the Native Authority)

Ward	Population	Number of Blind Persons		
		Male	Female	Total
Shehurn North	—	52	42	94
Shehurn South	—	30	89	119
Zongo	—	3	7	10
Bulabulun	—	19	26	45
Hausari	—	17	17	34
Fezzan	—	11	9	20
Mafoni	—	62	101	163
Gambaru	—	6	6	12
Totals	34 425	200	297	497

The disparity of the number of blind persons among the different wards is due partly to variations in size between the wards, but chiefly to the degree of proximity between the ward and the chief market. It will be seen that the incidence of blindness among the community is approximately 1.4%, but it is certain that this is an under-estimate, and the correct figure is probably between 2 and 2.5%. In any case it is considerably

TABLE II.—Present Age of All Blind Persons Examined

Age Group	Male	Female	Total
0-5	1	0	1
6-10	21	8	29
11-20	26	24	50
21-30	38	25	63
31-40	26	18	44
41-50	24	10	34
51-60	14	9	23
61-70	6	4	10
71-80	—	—	—
All ages	156	98	254

lower than the figure (5%) given by Rosset Berdez for South African natives.

TABLE III.—Age at Onset of Blindness

Age Group	Cases	% of Total
0-5	61	24.1
6-10	34	13.3
11-20	61	24.1
21-30	27	10.6
31-40	24	9.4
41-50	14	5.5
51-60	17	6.7
61-70	13	5.2
71-80	3	1.2
All ages	254	—

In Tables II and III the ages are only approximate, for the average native has no reliable means of knowing the date of his birth. The majority, however, are able to refer the date of their birth to some contemporary historical event, and in consequence the approximations are probably not greatly in error.

TABLE IV.—Caustion of Blindness in Infancy (Age Group 0-5 Years)

Causal Disease	Cases
Conjunctivitis	29
Smallpox	31
Other causes	1

Of the group of persons who became blind before the age of 5 years (Table IV) many were not certain whether they became blind within a few weeks of birth or later, but none could ever remember seeing. If all these cases of conjunctivitis, however, are classed as ophthalmia neonatorum the proportion of cases due to this cause would be 11.4%, as compared with 6.2% in the Counties of London and Middlesex, recorded by Sorsby (1945). In view of the very septic conditions which prevail at childbirth in this part of Nigeria and the very high incidence of venereal disease, it can safely be assumed that this is not an under-estimate. With regard to the incidence of venereal disease in this area it is of interest to note that during the four years 1941 to 1944, inclusive, venereal disease accounted for between 35 and 40% of all new patients attending the Bornu Native Administration Hospital.

TABLE V.—Caustion of Blindness in All Age Groups

Causal Disease	Cases
Conjunctivitis	59
Scrofula	44
panophthalmitis	103
Smallpox	103
Penetrating wound of the globe	2
Glaucoma	10
Cataract	25
Infantile cataract	1
Cerebrospinal meningitis	3
Other causes	7
Total	254

The high proportion of cases which occur as a complication of smallpox (Table V) is in accordance with the findings during the epidemic of this disease between November, 1943, and February, 1944. During this period it was noticed that almost every severe case of smallpox developed a very severe conjunctivitis, although there were not necessarily pocks on the conjunctiva itself. With energetic treatment very few of these developed any serious after-effects. Medical facilities in Bornu are, however, in their infancy, and it is reasonable to suppose that a high proportion of these cases would have become blind in the earlier days, when treatment was not available.

Many cases of severe conjunctivitis admitted to the hospital for treatment and which respond only with difficulty to routine measures are in fact cases of keratomalacia due to a vitamin A deficiency, which is very prevalent. These cases respond rapidly when vitamin A is given.

Owing to the overwhelming number of cases in this series due to either conjunctivitis (including keratomalacia) or smallpox, it is not possible to draw any conclusions as to the relative importance of hereditary and developmental defects from the small number which remain.

TABLE VI.—Occupation or Means of Subsistence of Blind Persons

Occupation or Means of Subsistence	Male	Female
Rope-maker	37	—
Water-seller	1	—
Corn-grinder	—	3
Grass-seller	1	—
Tanner	1	—
Well-digger	1	—
Muezzin	1	—
Telephone switchboard operator	1	—
Begging	83	75
Maintained by relatives	30	20

Many of the men who stated that their occupation was rope-making (Table VI) also said that they did not earn enough money at this trade, and resorted to begging as a subsidiary means of subsistence.

Summary and Conclusions

The results of a census of blind persons in a typical urban centre in Northern Nigeria are described and classified. The series is small, but it is thought that similar results would be obtained from a census taken in other urban centres in the same area—and there are many such centres. The incidence of blindness given in this census is 1.4% of the population, but owing to concealment in young persons it is thought that the true figure may be nearer 2.5%.

It is believed that at least 80% of the cases of blindness could be prevented by widespread compulsory vaccination satisfactorily performed, education with regard to both the purpose of vaccination and a more suitable dietary vitamin A or its precursor, and by a multiplication of the existing medical facilities to ensure that all cases of conjunctivitis receive adequate treatment. The problem of venereal disease, which is almost universal in this Moslem community, is one, however, to which there is as yet no solution.

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Medical Memoranda

Severe and Long-standing Headache due to Dental and Antral Infection

The following is a case of long-standing headaches showing fairly classical symptoms of migraine, which was allergic in character. The patient's trouble seems to date back to his dental sepsis, only part of which was removed by dental extractions, residual infection persisting in the spongy bone which used to house the roots of the teeth and which formed the floor of the antra. His headaches increased in frequency and severity after edentulation. The curtain of mucosa dividing the right antrum into two compartments was probably cystic and of dental origin, and was capable of becoming very oedematous, shutting off ventilation from the normal ostium. It would suggest that the bacterial allergy had some influence on the vasomotor control of the intracranial membranes and became a strong contributory factor to the headaches.

CASE HISTORY

The patient was a gardener aged 60. Intermittent headaches began 30 years ago while serving in the Army during the war of 1914-18. He was discharged from the Service as unfit on account of these headaches, with the diagnosis of migraine. While in the Army he had several dental extractions, but without any relief from the headaches. On returning to civil life these continued, and he had all his teeth removed. They were, from his account, definitely carious.

For some years after their removal he still experienced a sensation of toothache in the gums. As time went on the headaches became more frequent and more severe, until he was having two or three each week. The attacks began during the night and continued for 24 to 36 hours. The pain usually started in the cervical and occipital regions, reaching upwards and forwards to the temporal region, where it became localized. The pain was always more severe on the right side, and he described it as a severe thumping sensation: when he put his head down on to a pillow it felt as if it were being bumped up and down, and he says he felt that if only a hole could be bored through he would get relief! His case was investigated at several of the London hospitals, with the same diagnosis—migraine—and he was advised that little could be done for him.

When I examined him in February, 1945, he felt he could not go on much longer. He appeared distressed and fatigued. On a full

clinical examination nothing was found to account for his symptoms. His sinuses and alveoli were x-rayed. There was a large shadow in the right antrum suggesting a polypus, with some thickening over the floor of the left antrum. Further x-ray films were taken, this time after displacement with lipiodol; these showed a very irregular filling of the right antrum and a moderate degree of thickening of the mucosa over the floor of the left antrum. No swelling of the mucosa was noted upon the posterior wall of the antra. Other sinuses appeared normal. The alveoli of the upper jaw showed a marked osteoporosis.

It was decided to explore both antra, and he was admitted to hospital, where a large sublabial incision was made on both sides, exposing the upper part of the alveoli and the antero-lateral wall of the antra. When the right antrum was opened a pale oedematous curtain of mucosa was seen stretching from the roof to the floor of the antrum, dividing it into two compartments. This was removed and the normal opening of the antrum was explored and found to be patent. The whole of the mucosa was stripped from the antrum and a considerable amount of the cancellous bone forming the floor of the antrum was removed. A naso-antral opening was made and the wound stitched with fine silk.

The mucosa in the left antrum was thickened, with a moderate degree of polypoid degeneration. The mucosa and the polypi along the floor were removed together with the bone forming the floor and part of the alveolus. A naso-antral opening was made and the wound stitched with fine silk.

The patient made an uninterrupted recovery and was discharged from hospital within ten days. Since he was operated upon he has been entirely free from headaches, and remarks that his head now feels much lighter.

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Bilateral Cryptorchidism in Three Brothers

I have had little opportunity of going deeply into the literature of cryptorchidism, but, so far as I can gather, there has been no recorded case of its occurrence in three brothers. The following instance may therefore prove of interest.

CASE HISTORIES

In 1944 a father brought his son, then aged 10, to see me, saying that he appeared to have something wrong with his scrotum. I examined the boy, and found no evidence of testicles in the scrotum or inguinal canals. He had never felt any pain in either inguinal region. No other abnormality was discovered, and he was otherwise healthy. He was treated with pregnyl without result. Some months later his mother brought a younger brother, aged 7, to me, as she thought he needed circumcision. While examining him I noticed that his scrotum was empty and there was no trace of testicles in the inguinal canals. No other abnormality was found, and he was quite healthy. He was subsequently circumcised, but his cryptorchidism still remains. I knew there was a third brother, aged 5, and I rather jestingly said to the mother that perhaps it would be as well if I had a look at him also. She brought him to me next day, and in his case too there was no evidence of testicles in the scrotum or inguinal canals. There was no other abnormality, and he was quite healthy. The mother and father of the boys are normal and healthy, and I cannot find that there has ever been cryptorchidism in either of their family histories. They have no other children.

At the end of January, 1945, the eldest boy was admitted to Harefield County Hospital under the care of Dr. Reginald Lightwood, where he remained until March 10. While there he was treated with injections of antuitrin S rising from 1 ml. to 3 ml., given twice weekly—a course of 12 injections in all. At the time of his discharge there was no evidence of the descent of either testicle. I very recently examined the three boys again, without finding evidence of testicles in scrotum or inguinal canals of any of them.

So far as my own experience goes, bilateral cryptorchidism is very uncommon, although I have seen a few cases of the unilateral variety. Thorek (1924) puts the incidence at 1 in 500, stating that the condition is usually unilateral. Gallagher and Brouha (1944) found the condition in 0.5% of high-school boys. Thompson and Hechel (1941) had 25 bilateral cases in a series of 62. Williams (1936a, 1936b) found 1.8% of unilateral and 1% of bilateral cases in a series of 2,104 boys. In view of the correspondence recently appearing in the *B.M.J.* under the heading "Descent of the Testis," the condition of these three brothers would seem to be of especial interest and to bear out the contention of Mr. A. W. Badenoch (1945) that "the descent, therefore, of the testis is almost entirely due to hormonal influence." I am indebted to Dr. Reginald Lightwood for having treated the eldest boy at Harefield, and to Mr. George Bonney, who furnished me with the references quoted.

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Reviews

PHYSICAL DIAGNOSIS

Physical Diagnosis. By Ralph H. Major, M.D., Professor of Medicine in the University of Kansas. Third edition. (Pp. 4-4, 457 illustrations. 25s.) London: W. B. Saunders Company, 1945.

This is probably the most attractive textbook of physical diagnosis on sale at the present time. It is not too large, is beautifully produced and is illustrated with a magnificent collection of photographs. Some of these delight us by the skill with which a typical picture has been caught, as in the photograph of Buerger's disease. Others are impressive by the clever photographic technique, as for example, the whole series of pictures of the lips, tongue and teeth. Pictures make such a lasting impression on the beginner that it is perhaps a pity that haemochromatosis is depicted in a woman when it is so much commoner in men. Another commendable feature is the reproduction of illustrations from the original accounts of disease and the numerous historical notes. If we might venture a criticism, it would be to doubt whether this and similar books adequately represent the practice of to-day. Physical diagnosis developed in the age of therapeutic nihilism, when physicians spent their time in the wards eliciting physical signs and explaining them by rather dubious principles of physics, and when these wards contained numerous cases of valvular disease of the heart, aneurysm, and advanced tuberculosis. Unless he is interested in the art purely for art's sake, we cannot imagine a modern physician looking for Litten's sign of diaphragmatic paralysis. It seems also a little unbalanced to devote so many pages to the heart and lungs, and so few to structures like the joints, the sciatic nerve, and the peripheral circulation. The student of to-day will see much more hypertension and arteriosclerosis than endocarditis and he will, we hope, learn to diagnose pulmonary tuberculosis at an earlier stage than that of Hippocratic succussion and the *bruit d'airan*. There is, in fact, a place for a textbook of physical diagnosis more suited to this neotechnic, geriatric age. But let us make no mistake about it: it would have to be very well done indeed to be as attractive a book to the student as Prof. Major's.

TUBERCULOSIS—AS A WHOLE

Tuberculosis—As a Whole. By E. Ashworth I. R. Carris, M.D. Third edition. (Pp. 154, plus 7d. postage.)

Whenever the clinician meets with a case of pulmonary tuberculosis, or even some other chest disease, he is unpleasantly reminded that the condition in the unfortunate patient has a background. Tuberculosis is a disease of chronic causes, its origin has often to be guessed, and its social environment is extremely important. Many books on "chest diseases" give confident descriptions of pathology, physical signs, and treatment. But few are capable of sketching this wide hinterland which often dwarfs the mere clinical problem. Dr. Ashworth Underwood's manual may be warmly recommended. Its description of the scientific basis of the disease is full enough for the medical student, the nurse, or the social worker, and the latter sections dealing with management are even more useful. We are taken rapidly through collapse therapy, orthopaedic manifestations, and laboratory methods, and there is a satisfactory account of the routine of the tuberculosis dispensary with all its social implications. Rehabilitation is given adequate pages, and there is a useful glossary and list of recommendations for further study.

It is much more difficult to conceive and carry out a small book like this than a large tome. Every writer knows that compression plus lucidity is a result most difficult to achieve. The author has succeeded, and this book can be welcomed both for its own virtues and as a sign of the times. The teaching to undergraduates of the whole theory and practice of tuberculosis control is much behind the necessities of to-day. The old fashioned point of view which began with the physical signs and ended with a pneumothorax refill has to be replaced by a much larger conception. While Dr. Underwood does not claim that environment is more important than the individual

patient's disease, he does make clearly evident the relation between the two. If only for its lesson that the tuberculosis physician must take total views this book is to be welcomed.

A POST-WAR TEXTBOOK OF PUBLIC HEALTH

Textbook of Public Health (formerly Hope and Sallibass). By W. M. Frazer, M.D., D.P.H., and C. O. Stallibrass, M.D., D.P.H. Eleventh edition, revised and enlarged. (Pp. 571, illustrated. 25s., plus 7d. postage.) Edinburgh: E and S Livingstone, 1946.

It is six years since the tenth edition of the standard textbook on public health, by Frazer and Stallibrass, has been issued, and it is now out of print. A new edition is therefore valuable for the new student. The eleventh edition has been revised and brought up to date in two ways. Much of the ephemeral war-time stuff has been omitted and a good deal of material has been added notably a chapter on the social services.

A book published immediately after the war cannot escape certain defects. It has difficulty in striking a just balance between the old and the new, and in assessing the relative importance of tendencies in legislation and in practice. The immense changes in political structure since the end of the war and the effects of a national health service on public health administration cannot yet be fully estimated, and perhaps it is only right that this textbook should deal with the things that are established. Speculation would have been out of place in a work of this kind. Nevertheless one feels a sense of disappointment, almost amounting to frustration, in the lack of reference to such measures as the Education Act, 1944, and the legislation on behalf of disabled persons. It will take time before the new trends in thought and action can be really incorporated in a standard work. Meanwhile we should welcome a useful and comprehensive textbook which may well mark the dividing line between the duties of the medical officer of health under forthcoming legislation and those assigned to the medical officers of the new regional authorities for medical care.

A SURVEY OF NUTRITION

Dietary Therapy. Clinical Application of Modern Nutrition. Edited by Michael G. Wohl, M.D. With foreword by Russell M. Wilder, M.D., Ph.D. (Pp. 1029, 93 illustrations. 40s.) London: W. B. Saunders Company, 1945.

This book is a symposium on nutrition by 58 different contributors, all of whom are authorities in their respective fields. It is not, as its title might suggest, a treatise on dietetics but an up-to-date and wide survey of nutrition from the biochemical, dietetic and clinical aspects. The titles of the chapters range from oxidative enzymes to the nutrition of factory workers. It is clear that with such a wide range of interest each chapter needs to be written by an expert.

The book is divided into three parts. In Part I, which deals with normal nutrition the role of various nutrients, including vitamins and trace elements, is discussed. Part II is devoted to nutrition in infants and the aged, in pregnancy, and in relation to infection. Part III deals with the dietetic treatment of disease. Deficiency diseases are included in the chapters on vitamins, which occupy about a sixth of the book. There are also chapters on amino-acid therapy, nutrition in industry, nutrition and income, and the care of the surgical patient. Useful features of the book are summaries and bibliographies at the end of the chapters and a comprehensive index of 43 pages.

Though the advice given on the dietetic treatment of disease is perfectly sound it cannot be followed at present on this side of the Atlantic, not even in the blackest of black markets, as many of the foods are not obtainable, either at all or in the quantities mentioned. However, this is not a reflection on the book but on the food situation in this country and Europe. Part III of *Dietotherapy* will be even more useful when we have a greater quantity and variety of food.

The literature on nutrition is scattered throughout many publications in several unrelated fields of knowledge, and the general reader has the greatest difficulty in keeping abreast of it. The critical and authoritative reviews in this book contain up-to-date information on those aspects of nutrition likely to be of interest to the general medical reader, particularly on the prevention and treatment of disease. The editor and the many contributors are to be commended on the production of one of the best collections of reviews on the clinical applications of nutrition so far published in book form. *Dietotherapy* should be in the hands of all who are interested in nutrition.

SPINAL INJURIES

Traumatismes de la Moelle et des Racines. Sciatique Traumatique. By R. Thurel. (Pp. 76; illustrated. 75 francs.) Paris: Masson et Cie. 1944.

Injuries to the spine may occur in peacetime as well as in war, and this complete review of their diagnosis and treatment in a brief monograph is certainly useful. Such injuries are dealt with in respect of immediate results and late effects. All such wounds require early surgical attention, and, if the cord is only partially destroyed or the lesion affects the cauda equina, care should be exercised to relieve all pressure. Late results call for laminectomy and removal of foreign bodies, but also for care in readjusting vertebral dislocations or displacements. The chief interest of the book will be found in the excellent discussion of root sciatica. The author considers that, if the root pain is chronic or recurrent, surgery is always called for. Having excluded bone, joint, or arterial disease, he uses diagnostic novocain injections, and then, since laminectomy is in his opinion indicated, he always injects lipiodol, preferably by the suboccipital route. Most cases are found to be due to displaced disks or herniated nuclei, but some are due to hypertrophy of the yellow ligament, or to adhesions following arachnoiditis, which can be divided. In severe cases the posterior root of L 5 or S 1 may be cut. The sections on diagnosis and surgical technique are admirably clear and the whole discussion will amply repay study.

Notes on Books

Bulletin No. 8 of the Department of Labour and National Service, Australia (39 pp) deals with *Factory Planning: Part I. Some Aspects affecting Working Conditions*. It contains the pooled experience and ideas of a considerable number of Australian manufacturers, engineers, and architects, and relates more especially to industrial buildings designed and erected during the war years. The first section describes natural lighting, artificial lighting, and colour of walls, chimneys, etc. The second section relates to natural and mechanical ventilation, and to heating and air-conditioning. The effect of climate, which differs so widely in various parts of Australia, is also discussed. The third section of the Bulletin considers the layout, construction, and equipment of factories, and, like the rest of the Bulletin, it is most excellently illustrated. Copies may be had from the Department of Labour and National Service, 37, Swanston Street, Melbourne.

The third edition of Dr. D. A. RHINEHART'S *Manual of Roentgenographic Technique* (Henry Kimpton; 28s.) is unchanged in its general plan, but includes some new material and illustrations. It is a pity that the author did not take the opportunity to use modern apparatus in the illustrations indicating technique. The universal Coolidge tube in a lead-glass bowl was in vogue twenty-five years ago. The book, which contains a good but elementary account of x-ray technique generally, may be found of use by student radiographers: it is not sufficiently full to be of much interest to radiologists and is too technical for clinicians, but the fact that it has reached a third edition proves that it supplied a need.

Histoire de la Science, a volume of 820 pages, is the work of a French scientist, PIERRE ROUSSEAU, who has set himself the task of collating the world history of science down the ages. Science, the daughter of sorcery, was born about the year 4000 B.C. in the region of South Mesopotamia on the Persian Gulf. Many thousands of tablets recording Sumerian observations were made of soft clay, which was then baked. Using at first simple numerals, the Egyptians and Babylonians later evolved algebra. The next step was in Ancient Greece, where mathematics and geometry appeared. M. Rousseau takes us from the time of Archimedes to the scientific revolution of the 19th century and the contemporary activities of Crookes, the Curies, and Rutherford. Einstein's relativity and also atomic energies are reviewed and explained. The author concludes his work with an appeal for the continuance of pure science and disinterested research. He decries scientists who limit their work to utilitarian ends, and in doing so recalls the early experiments of Volta and Ampère, which, though limited at the time, contained the germs of modern electrical technique. This book is an elaborate and useful work for those who are interested in science in all its aspects. It is published at 148 francs by Librairie Arthème Fayard, 18, Rue du Saint-Gothard, Paris.

The American Group Therapy Association announces the publication of a *Bibliography in Group Therapy*. The work consists of four sections: (1) bibliography in group therapy, (2) group psychotherapy in the armed services, (3) symposia, (4) books. The bibliography can be obtained by writing to the Association at 228, East 19th Street, New York 3, N.Y. The price of it is stated to be 40 cents.

Preparations and Appliances

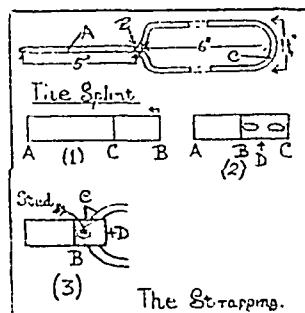
FACIAL SPLINT FOR TREATMENT OF BELL'S Palsy

Dr. J. P. PRACY writes from Barnet:

Treatment of patients with seventh-nerve paralysis by the strapping system described by Pickerill and Pickerill¹ has revealed certain disadvantages in the method. The strapping rapidly becomes dirty in the atmosphere of modern cities. It is rather unsightly and has a tendency to work loose, and male patients wearing it find shaving difficult if not impossible. The method has worked well apart from these disadvantages, and to overcome them while still employing the principle of traction on sound rather than paralysed muscles a splint has been evolved.

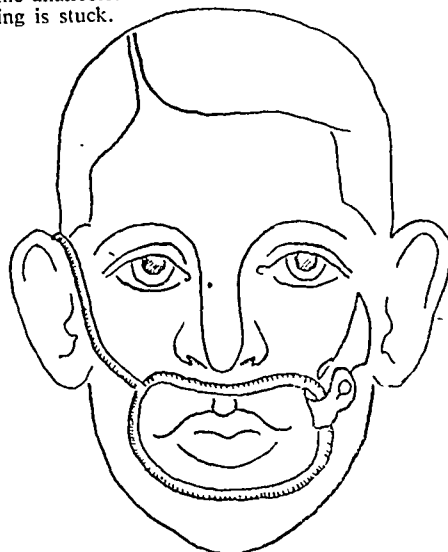
DESCRIPTION

The instrument is an elongated racket-shaped loop of copper wire (14 S.W.G.). It is covered with thin rubber tubing. The "handle" of the racket (A) is 5 in. (12.5 cm.) long and the loop (C) about 6 in. (15 cm.) long and 1½ in. (3 cm.) wide. The apparatus is easily made from a single length of copper wire about 18 in. (46 cm.) long. The joint at B is soldered, but in the first two models made it was simply twisted and apparently worked satisfactorily.



METHOD OF APPLICATION

This will be clearly seen in the drawing. The splint is bent to fit the individual patient's face as follows. The elongated sides of the loop are first bent in the centre, and applied to the upper and lower jaws. The handle is then applied to the affected side of the face, and the end hooked round the pinna of the ear. The end of the loop on the good side of the face is secured with a small piece of strapping, and the unaffected side is drawn over to the affected side before the strapping is stuck.



It has been found that by using eyelet holes and a collar stud in the strapping the splint may be readily removed for the purposes of washing, shaving, and the application of electrical stimulation. However, the splint should otherwise be worn at all times and only removed for the specific purposes mentioned above.

The strapping is prepared as follows. A 4½-in. (11.5-cm.) length of 1½-in. (1.25-cm.) strapping (AB) is cut off—see (1) on diagram—1½ in. (4 cm.) at one end (BC) is folded back on itself, stuck, and two small eyelet holes cut in it, leaving 1½ in. of adhesive to stick to the face—see (2). The end C is then taken through the loop of the splint—see (3)—and the stud passed through each of the eyelet holes in turn.

To remove the splint the stud has merely to be taken out, and the strapping remains in exactly the correct position when the splint is replaced. It is easy to take up any slack in the splint by bending rather more of the handle round the pinna on the affected side.

I would emphasize that the good side should be pushed over to the affected side when securing the small piece of strapping initially. Furthermore, considerable traction can be obtained by this method, and care should therefore be taken that too much is not applied

¹ *British Medical Journal*, 1945, 2, 457.

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NORTHERN IRELAND'S ANTITUBERCULOSIS
LEGISLATION

Northern Ireland, which in recent years has considerably enlarged its institutional provision for tuberculosis, is setting about the combating of this scourge by preventive and protective measures. A Government Bill has been introduced into the Northern Ireland House of Commons which is modestly described—modestly in view of its far-reaching character—as a Bill to make better provision for the prevention and treatment of tuberculosis. It goes much further than the tuberculosis schemes which have been operative in Great Britain since the Astor departmental committee of thirty or more years ago. In the first place a tuberculosis authority, a body corporate, is to be set up for the whole country. This body will have the duty of making provision for the accommodation and treatment of tuberculous persons, for the detection of cases, and for the prevention of the disease by educational and other methods, including courses of instruction for medical students, doctors, and nurses. The authority will be able to purchase or lease land and acquire or construct buildings to be used as hospitals, sanatoria, dispensaries, clinics, health centres, occupational colonies—as may be necessary. It will maintain and educate tuberculous children or children who have recovered from tuberculosis, or children who have been in contact with infectious cases in their homes. Another of its duties will be to train people in methods of detecting, preventing, and treating tuberculosis, and to that end testing apparatus and equipment and maintaining laboratories for research. Again, the authority may contribute to the support of any association for training nurses or to any benevolent association in line with its purpose. The authority to which such wide powers are to be given will consist, as to the majority of its members, of nominees of the local authorities—four from the Belfast and one from the Londonderry county borough councils, two from each of the county councils of Antrim and Down, and one from each of the four other county councils. In addition there will be four other members nominated by the Minister of Health and Local Government, and it will be possible to co-opt one or two further members. The members are not to be paid any salary or fees, but only reimbursed their expenses. There are provisions in the Bill for the transfer of people engaged at present in tuberculosis work in the local authorities.

Whenever a medical practitioner intimates to the authority that a person exhibits symptoms indicating any significant tuberculous condition that person may be called upon to be examined medically for the purpose of diagnosis. If a practitioner becomes aware that a patient

whom he is attending is suffering from tuberculosis he must send a certificate to the authority (for which there is to be a prescribed fee) within 48 hours; similarly, if he signs a death certificate in the case of a death from tuberculosis, and if the deceased had not previously been certified, he must again notify the authority. Failure to make these notifications will mean a fine up to £5 for the first offence and up to £25 for a second or subsequent one.

The authority will have power to require any person living in habitual contact with a person suffering from tuberculosis to be examined by a medical officer. It can also apply to a court of summary jurisdiction for an order to detain any person suffering from tuberculosis of the respiratory tract should he be in an infectious state and should his home circumstances be such that proper precautions are not or cannot be taken. If the court is satisfied it may order the person to be kept in a hospital or institution for not more than three months, and the period may be renewed if the same conditions still obtain. The medical examination which the court may require before proceeding to exercise its powers of detention may be by any medical practitioner, not necessarily the nominee or employee of the authority. The authority is responsible for the cost of the removal and maintenance of the person and, if necessary, for the maintenance of his dependants. If during the period of detention his condition improves, so that there is no longer serious risk of infection, or if his home circumstances become such as to permit the necessary precautions to be taken, he may be at once released from institutional control.

The Act is to be called the Public Health (Tuberculosis) Act (Northern Ireland), 1946. It will repeal the Tuberculosis Prevention Act, 1913, and most of the earlier Act of 1908, as well as parts of the National Health Insurance Acts. In the title of the Bill "other chest conditions and other orthopaedic conditions" are mentioned, but there is no reference to them in the clauses; all the provision is against tuberculosis. It will certainly be an interesting experiment to watch as applied to a community of something over one and a quarter million people who were once described by a British Prime Minister as "without exception the toughest, most dominant, most irresistible race that exists in the universe at this moment."

FOLIC ACID FOR BLOOD DISORDERS

For over two years folic acid has been the subject of investigations which looked as if at any moment they might result in a major therapeutic advance. In October, 1943, Daft and Sebrell¹ described the successful treatment of granulocytopenia and leucopenia in rats with crystalline folic acid. They produced agranulocytosis by feeding the rats on a diet containing 1% sulphaguanidine or sulphasuxidine. This constituent reduced bacterial activity in the intestine and therefore reduced the formation of substances essential for nutrition. As a result, after a variable length of time (30–122 days) there was a reduction in the leucocyte and particularly in the granulocyte count. It may be noted that the diet contained thiamin (B₁), pyridoxine, riboflavin,

¹ *Publ. Hlth. Rep. Wash.*, 1943, 58, 1542.

calcium pantothenate, nicotinic acid, choline chloride, and biotin. When the leucopenia was established, four days' administration of folic acid raised the white count from a mean figure of 2,700 to 14,400 per c.mm., and the percentage of granulocytes from 1 to 39. This was the first discovery. It was a result of observations that leucopenia was cured in the rat by concentrated extracts from liver, the preparation of which suggested that the substance stimulating leucocyte production might be the growth factor for *Lactobacillus casei*²; this was later named folic acid.³ When folic acid was crystallized,⁴ therefore, it became possible to test and establish the suggestion.

There has been, however, another direction in which folic acid has become a substance of great interest. Its crystallization led to its identification with vitamin B₁₂—an anti-anaemia factor for the chick.⁴ The outcome of the indication that folic acid was concerned not only with the production of the white cell in the bone-marrow but also with the production of the red cell is that Spies⁵ has recently described the successful treatment of macrocytic anaemia with folic acid. Spies has been working in the southern part of the United States at a centre he established in Alabama, where severe malnutrition is still relatively common. As far back as 1930 he observed that many with pellagra suffered from a macrocytic anaemia exactly like a pernicious anaemia, except that there was no achlorhydria. This nutritional macrocytic anaemia was not due to lack of Castle's intrinsic factor, for the gastric juice of these patients, when incubated with meat, caused a reticulocytosis in patients with pernicious anaemia. Spies therefore began, at Birmingham in Alabama, to hunt for the missing nutritional factor. His centre derived financial support "particularly through large grants from the Research Corporation of New York and the Eli Lilly Company of Indianapolis." After the identification of folic acid with the anti-anaemia factor in the chick, Spies must obviously have had a keen interest in supplies of folic acid. But its extraction from liver, yeast, and other sources results in a poor yield, and only its synthesis could make possible sufficient supplies for testing. Spies's paper begins: "In August, 1945, the synthesis of folic acid (*L. casei* factor) was announced by sixteen investigators (Angier *et al.*).⁶ The following month Spies, Vilter, Koch, and Caldwell⁷ reported the results of the first clinical use of synthetic folic acid in the treatment of macrocytic anaemia." Was ever such perfectly timed co-operation between the chemists of the manufacturing firm and the clinical team? This represents a very high degree of research organization. The results are that out of 42 cases of macrocytic anaemia 26 responded to administration of folic acid, and of these five were patients with Addisonian pernicious anaemia. This effect of folic acid in pernicious anaemia is of the greatest interest, and suggests that the position of Castle's intrinsic and extrinsic factors will require reconsideration. Among the other patients successfully treated were 8 with sprue, in whom not only did the anaemia disappear but the liquid fatty stools turned to solid brown faeces.

Since the investigation is going on in the United States, we may expect that future developments will not be long delayed. The pace there is very hot. In the meantime we may ask, "What supplies of folic acid are likely to be available in this country?" They may not be urgently required for treating pernicious anaemia or for nutritional macrocytic anaemia, since we have remedies for the former and the latter does not occur in a population which eats meat. Sprue is, however, not uncommon among returned soldiers, and undoubtedly if folic acid is a remedy for agranulocytosis that alone provides a demand for it. Actually the relation of folic acid to agranulocytosis is not so clear to-day as it seemed in 1943, for Daft, Kornberg, Ashburn, and Sebrell⁸ have described anaemia and agranulocytopenia in rats deprived of pantothenic acid. While they say that "the granulocytopenia, when unaccompanied by anaemia, probably was a sign simply of an *L. casei* factor (folic acid) deficiency," some doubt remains in the reader's mind whether a fall in granulocyte count will always be due to lack of folic acid alone.

It is to be hoped that British manufacturers are paying full attention to the production of folic acid, despite this uncertainty. Their task is not made easier by the strange fact that those announcing the synthesis in the pages of a scientific journal do not describe how they have achieved it.

PROLONGING PENICILLIN ACTION

In a patient with functionless kidneys a few hundred units of penicillin would suffice to produce an ample therapeutic concentration in the blood. That it is necessary to give doses enormously greater than this is due to the fact that the normal kidney excretes it far too rapidly for therapeutic convenience or economy; the average time spent by each molecule of penicillin in the circulation has not been calculated, but it is probably less than fifteen minutes. There are three reasons for trying to prolong the effect of each dose, and three principal methods of doing it. The reasons are economy, which is a rather less pressing motive than it once was; convenience, particularly in treating the ambulant patient with gonorrhoea or syphilis; and the patient's comfort, particularly if he is severely ill and in need of prolonged sleep. One method of securing a prolonged effect which is far from serving the needs of economy is to give an enormous dose, as practised by Lourie and others⁹ in the treatment of syphilis. A second is to obstruct renal excretion. Nephritis or other severe renal damage has this effect, and abnormally high concentrations of penicillin have been observed in the blood of such patients receiving ordinary doses. Delayed excretion can be secured by the simultaneous administration of diodrast or paraaminohippuric acid. Although the use of the latter has been studied extensively, it does not appear to have achieved therapeutic popularity. The third possible method is to secure slow absorption from the site of injection. A special example of this is to inject the whole of the daily dose into a large abscess cavity, thus producing both a local and a systemic effect. M. E. Florey and N. G. Heatley¹⁰ found that after injection of 120,000 units into an empyema a bacteriostatic concentration persisted in the blood for 24 hours. When injections are given in the usual way, some degree of prolongation of effect has been claimed for subcutaneous as compared with intra-

² *J. Bact.*, 1940, 39, 173.

³ *J. Amer. chem. Soc.*, 1941, 63, 2284.

⁴ *Science*, 1943, 97, 404.

⁵ *Sth. med. J.*, 1945, 38, 781; *Lancet*, 1946, 1, 225.

⁶ *Science*, 1945, 102, 227.

⁷ *Sth. med. J.*, 1945, 38, 707.

⁸ *Publ. Hlth. Rep. Wash.*, 1945, 60, 1201.

⁹ *Lancet*, 1945, 2, 696.

¹⁰ *Ibid.*, 1945, 1, 748.

muscular injection¹¹ the addition of vasoconstrictors to the solution,¹ using 5% glucose instead of saline as the vehicle¹¹ and applying an ice bag to the site of injection.¹⁴

More popular and promising than any of these proceedings is the incorporation of penicillin in solid form in a beeswax-peanut oil mixture, as first advocated by Romansky and Rittman.¹⁵ From a considerable number of subsequent papers it has not been altogether clear how effective this proceeding is, but the latest information appears conclusive. When calcium penicillin of a high degree of purity is employed 300,000 units can be suspended in only 1 ml of peanut oil containing 48% of beeswax; this greater concentration apparently makes for slower absorption. A single 1 ml dose of this material injected intramuscularly was found by W. M. M. Kirby *et al.*¹⁶ to produce an assailable blood level for from 8 to 24 hours, but the results were somewhat erratic, and slower and more regular absorption followed subcutaneous injection. 14 out of 25 patients so treated had an assailable blood level continuously for 20 hours or more. There is a minor practical disadvantage: this material is exceedingly viscous and even after warming can be forced through a needle only with difficulty. For the simplified treatment of venereal disease this is evidently the best method yet evolved, but it calls for a relatively large dose—even 600,000 units per injection has been used in the USA in order to produce a full 24-hour effect—of highly purified penicillin. It would be interesting to know how soon the supply position in this country will justify extravagance for the sake of convenience.

TOXICITY OF THIOURACIL

The Americans show great enterprise in organizing the collection of evidence on particular points. The latest example of this concerns the toxicity of thiouracil, and the evidence has been compiled by F. D. Moore.¹⁷ He has succeeded in getting details of toxic symptoms from ten distinguished medical centres in America and also from University College Hospital in London. The total number of patients treated with thiouracil in these centres has been 1,091, among whom there were 19 cases of agranulocytosis, 5 being fatal. These were in high probability deaths due to thiouracil. The term "agranulocytosis" was used to mean a conjunction of depressed granulocyte count with infection, usually around the neck, throat, and floor of the mouth. The majority of these cases occurred between the fourth and eighth weeks of treatment. While the death rate from agranulocytosis in the whole series was thus 0.5%, there was leucopenia without concomitant infection in 3%, counting as leucopenia a fall in the white cell count to less than 3,000 per cmm. Himsforth says that experience at University College Hospital shows there is indeed some fall in the leucocyte count in nearly every patient if care is taken to determine the count before treatment begins. Treatment with thiouracil was continued in some of the patients with leucopenia, but in the majority it was stopped, the white count then recovered. In 5% of patients there was drug fever, and in 5% enlargement of lymph nodes or of the parotid glands.

Information on this subject is not confined to the compilation just described, for, oddly enough, in the same journal

van Winkle and his colleagues¹⁸ have been working in the same direction. They offer a survey of 5,745 cases treated by 328 clinicians. While it can be said that this investigation has not been confined to such established centres as the first, the conclusions are similar and more detailed information is given. Thus there were 21 deaths from agranulocytosis due to thiouracil, indicating a death rate of 0.4%. These investigators were able to examine the incidence of granulocytopenia in relation to the dose of thiouracil, and found that the percentage of patients showing granulocytopenia was independent of the dose. When 0.1–0.4 g per day was given 28% developed granulocytopenia, when 1.0 g or more was given 2% developed granulocytopenia. A good many patients showed leucopenia without a fall in the granulocyte count; others showed the reverse. This might suggest that leucopenia and granulocytopenia are unrelated, but actually the incidence of both in one patient was 65 times as great as it should have been if the conjunction was due to chance. Drug fever occurred in 2.7% of patients and skin reactions in 3.3%. Urticaria was the commonest. A poll was taken on the question, 'Is the incidence of toxic reactions to thiouracil greater or less than complications of present methods of treating hyperthyroidism?' The result is interesting: 78.6% said "less," and only 4.2% said "greater," the others had no opinion. Evidently four out of five American doctors think thiouracil is a good remedy. The authors state that granulocytopenia should be treated by massive doses of penicillin (500,000 units per day).

Another aspect of this second report deserves mention. The survey was the result of co-operation between six drug manufacturers and the Food and Drug Administration, and the report was sent to the Council on Pharmacy and Chemistry of the American Medical Association. The secretary of the council, in a note, urges manufacturers to show a similar spirit in other therapeutic problems of common interest.

INDUCTION OF OVULATION IN WOMEN

It was clearly demonstrated about twenty years ago that extracts and implants of the anterior pituitary could bring about follicle ripening, ovulation, and corpus luteum formation in the smaller laboratory animals. It seemed then that the application of these discoveries to the human being would be comparatively simple and needed only a gonadotrophic preparation of high potency. This early optimism faded as it was realized that the pituitary-gonad relationship is both complicated and delicately balanced. Even now it is difficult, and often impossible, to induce the human ovary to ovulate. The earlier efforts to do so were made with chorionic gonadotrophin, and were unsuccessful. It is now fairly well established that the effect of this substance by itself on the human and monkey ovary is to depress follicular activity. For anovular menstruation some workers have tried "oestrogen shock" therapy, giving a large dose about the twelfth to the fourteenth day of a 28-day cycle, in the hope of precipitating ovulation—a treatment not without some theoretical basis. When a potent preparation of a follicle stimulating gonadotrophin (from pregnant mare's serum) became available, the hopes of the clinicians were raised again. However, it seems doubtful whether ovulation can be produced by this hormone acting alone, unless it is administered intravenously. Hoffman¹⁹ concludes that ovulation in the lower animals, in primates, and in human beings depends on (a) follicle-stimulating hormone applied in correct amounts for an

¹¹ Schneider Green, J. E. and Houston, J. M. *J. R. A. M. C.* 1945 85 234.

¹² Parkins, W. M., Wiley, Marjorie, Chandy, J. and Zintel, H. A., *Science* 1945 Feb 23 p. 203. Fish, R. T., Foord, A. G., and Alles, G., *ibid.* 1945 Feb 2 p. 124.

¹³ Armstrong, C. D., H. Ipern, R. M., and Cutting, W. C., *Proc. Soc. exp. Biol.*, N. Y. 1945 58 74.

¹⁴ Trummer, M., and Hutter, A. M., *Science* 1944 Nov. 10 p. 432.

¹⁵ Bull. U.S. Army med. Dept. 1944 Oct p. 43.

¹⁶ *J. Amer. med. Ass.* 1945 129, 940.

¹⁷ *Ibid.*, 1946 130 315.

¹⁸ *J. Amer. med. Ass.* 19-6, 130 343.

¹⁹ *Female Endocrinology* 1944 W. B. Saunders Company Philadelphia and London.

adequate time to promote full ripening of the follicle; (b) the addition of luteinizing gonadotrophin at the moment when the follicle is ripe, the liberation of the ovum being dependent on a synergic action between the two gonadotrophins present in a proper proportion; and (c) the presence in the ovary of follicular systems capable of responding to these stimuli. This latter is important in practice. In many cases of ovarian underactivity associated with amenorrhoea the supply of pituitary hormones is not deficient; it is the ovaries which are refractory, and in such cases gonadotrophic hormone therapy can hardly be expected to be effective.

Most workers now use a combination of gonadotrophic principles when trying to induce ovulation in women. Some employ a mixture of chorionic gonadotrophin and a pituitary extract containing what is described as "synergic factor" (although this may be only follicle-stimulating hormone which acts synergically). Others prefer to copy what appears to be the natural cycle, injecting follicle-stimulating hormone during the first phase of treatment and chorionic gonadotrophin during the second. Among the advocates of this latter technique is Prof. E. C. Hamblen, who began this type of treatment in 1939, and together with C. D. Davis has now reviewed²⁰ the results obtained during a five-years trial of what he calls the "one-two cyclic gonadotrophic therapy." After full preliminary investigations, including hormone assays and endometrial biopsy, 116 patients with "hypofunctioning ovaries" were given ten daily injections of 400 i.u. serum gonadotrophin followed by ten daily injections of 500 i.u. chorionic gonadotrophin. To minimize the possibility of the development of an antagonistic factor or "antihormone" an interval of at least one month was allowed between two courses of treatment. The effect was judged by clinical response and by biopsy. Of 7 cases of delayed puberty, only 1 showed evidence of having ovulated after treatment, but 5 responded by uterine haemorrhage; none continued to menstruate when treatment was withheld. The menstrual irregularity continued in 14 patients suffering from infrequent and scanty periods, but 4 of them ovulated during the course of treatment. A positive response was obtained in 15 out of 31 women who had prolonged and excessive anovular haemorrhage. Half of the 14 patients who had regular but anovular menses associated with sterility ovulated, and 4 of them became pregnant, during treatment. The last group of 50 patients were apparently ovulating but showed evidence of defective progesterone stimulation of the endometrium; 9 of them became pregnant during treatment. Hamblen and Davis conclude that patients who suffer from "hypoestrinism" show a poor response, but patients having anovular ovarian cycles without "hypoestrinism" respond well; 44.8% of these showed evidence of corpus luteum formation after treatment. When pregnancy occurred the time of conception seemed to indicate that ovulation took place within 24 to 48 hours of starting injections of chorionic gonadotrophin. These results are encouraging. Nevertheless, failure to ovulate is not necessarily a permanent state, and spontaneous cure is always possible. A secretory reaction in the endometrium, or the occurrence of pregnancy, may not be related to the treatment. Finding signs of ovulation at laparotomy shortly after the administration of gonadotrophin does not permit a definite conclusion that one is the effect of the other. Hamblen's work will have to be repeated on a larger scale and by many independent workers before it can be claimed that a reliable method for inducing ovulation has been found. A good deal of evidence will be required to offset the sobering reports of, for example, Geist, Gaines, and Salmon,²¹ who

carefully investigated 91 cases in which the ovaries were available for study after treatment with hypophysial, equine, and chorionic gonadotrophins, in various combinations; in every case they failed to find evidence of ovulation which could be unquestionably attributed to the treatment.

THE BLACK HOLE OF CALCUTTA

In June, 1756, the army of Siraj-ud-daula besieged the city of Calcutta. A small band of the defenders, including civilians, with women and children, remained in Fort William, where on June 20 they were overpowered and made prisoner. That night they were shut in a small guardhouse from 8 p.m. When the guardhouse was opened at 6 o'clock next morning only a few survivors emerged. About 146 persons were incarcerated in the "Black Hole," and of these 123 perished. One contemporary writer refers to the victims as being "suffocated"; another says they were "miserably smother'd by the Heat occasioned by so many being shut up in so small a Place as to be oblig'd to Stand upon one another"; while yet another writes of the prisoners as dying "overheated and for want of water." Forty or fifty years ago standard works on hygiene ascribed the deaths to the "very impure air," but the view of Sir Leonard Hill that the cause of death was heat-stroke is now generally accepted. Macdonald Critchley has recently delved into the available records, and has made a close study of climatological and architectural data, as well as of the symptoms of the sufferers given in the original accounts. His observations form a most interesting paper.¹ The Black Hole was 18 ft. by 14 ft. 10 in. (5.5 by 4.5 m.) in plan and 18 ft. (5.5 m.) high, so that the floor space was about 2 sq. ft. (1,858 sq. cm.) and the air space 33 cub. ft. (0.9 cub. m.) per person. The walls were thick, and there were only two windows, each about 15 in. (38 cm.) square. The windows opened on to a piazza 12 ft. (3.65 m.) wide, so they were much sheltered from any breeze there might have been. The "incident" occurred on the night before the monsoon broke, and from the records of recent years it can be assumed that the maximum day temperature was about 90° F. and the minimum night temperature about 79° F.; the relative humidity would approach 90%.

Dehydration and heat exhaustion are each dismissed as unlikely to have been the cause of death. Discussing asphyxia as a possible cause, Critchley recalls the disaster of the Bethnal Green tube shelter in 1943, when 171 persons lost their lives. The coroner's verdict was "asphyxia due to suffocation by compression," and in the original records of the Black Hole there is much evidence of compression of the bodies of many of the victims, and especially of the thorax. With only 2 sq. ft. (1,858 sq. cm.) of floor space per person any agitation, panic, or struggle to reach windows must have been highly dangerous. The weaker victims, as the records show, collapsed and were trampled on, as they were in the fire at Coconut Grove, Boston, in 1942. But asphyxia due to compression does not explain the physical and mental agitation and delirium which were striking features in the Black Hole episode. It may be that there was also asphyxia due to deprivation of oxygen or poisoning with CO₂, and consideration of a survivor's narrative suggests that of these anoxia is the more likely.

Mr. C. N. Davies, who contributes a physical analysis of the conditions within the Black Hole, supports the view that heat-stroke, from heat generated by the victims themselves, was the most likely cause of death. Excess of carbon dioxide may have been a contributory factor, but the calculations suggest that oxygen lack was not severe.

²⁰ *Amer. J. Obstet. Gynec.*, 1945, 50, 137.

²¹ *Ibid.*, 1941, 42, 619.

¹ *J. roy. nav. med. Serv.*, 1945, 31, 158.

REHABILITATION OF FORCES NEUROSIS PATIENTS TO CIVILIAN LIFE

BY

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In May, 1945, a unit was formed at Mill Hill Emergency Hospital* and sent to the Southern Hospital, Dartford, to prepare for the admission of neurotic ex-P.O.W.s requiring hospital treatment. In the four months June to October, 1945, we admitted 750 such patients. Treatment measures developed at Mill Hill during the five years of war were continued, and several trends were developed further. The unit here consists of 7 separate blocks each containing 50 beds. The staff comprises 9 doctors, 1 vocational psychologist, 1 full-time disablement rehabilitation officer (D.R.O.) of the Ministry of Labour, 1 psychiatric social worker, 1 occupational therapist, and 45 female nurses. The average stay in hospital is six weeks, and only a very small percentage of patients stay a longer or shorter period than this. To date approximately 85% of our patients have been discharged from the Army Category E. Most of the cases were referred to us by the Army psychiatrists of the 45th Division, who handled the psychiatric problems of the 100,000 British repatriates from the European theatre.

Work Therapy

On arriving here our plan was to carry out psychiatric treatment along orthodox lines, but modified to meet the special needs of P.O.W.s. It seemed to us that men who had been segregated in prison camps for up to 5 years would, above all, need help to overcome lack of confidence in their ability to succeed in some job in civilian life. It was decided to try to enlist the help of the working community of Dartford, a town with a peacetime population of 35,000. The manager of the local office of the Ministry of Labour gave every possible help, and by addressing the local Rotary Club and making personal contact with employers, etc., we have built up 41 different outside employments (offering work to a total of 251 men) from which patients may choose. The Ministry of Transport provides three buses, which carry the men to and from work. The emphasis is always on treatment, and the employers show a high sense of social responsibility, trying in every way to help the men to recover their confidence, and not concerning themselves with the actual work output. The men, who are not paid, work for one or two periods of two hours; they are never used in any skilled capacity, but are given an understanding of the whole working of the factory or shop, and simply help where needed or in some department which interests them. If the work does not interest them, or the vocational psychologist recommends a change and their doctor is satisfied that this is desirable, changes may be made once a week. A card index of all the patients and their employment, with the numbers in the various occupations, is kept up to date daily to facilitate changes. The range of choice includes farming, dairy farming, market gardening, building, garage work, various big engineering firms, foundry work, agricultural engineering, shipyard, paper mills, chemical factory, printers, clerical work, and numerous small shops. The big factories offer many specialized jobs—e.g., electrical maintenance, heating, progress, print-room, shipping office, etc.—and the whole programme gives a well-proportioned choice of occupation, representing a fair cross-section of any small community. The patients are visited at their various employments by the vocational psychologist. One nurse is employed full time, going round the places of occupation, straightening out any difficulties with the employers, reporting to the doctor in charge, and noting any absentees. This nurse is one of the most important cogs in the whole machine.

Selection

On the day of admission each patient is interviewed by the doctor in charge and a rough assessment made of his state of health, previous work record, and suitability for occupation. Intelligence tests (progressive matrices and vocabulary) are carried out in every case. If the patient is too ill to work out-

side the hospital he is recommended for handicrafts, carpentry, or gardening within the hospital, selection in such cases being postponed till such time as he is well enough to begin work therapy; the great majority, however, start at once. If the patient has a trade or occupation to which he intends to return after release from the Army, then, so far as is possible, he is placed in an occupation similar to his own. If he does not wish to continue his pre-war occupation, or has no definite trade or occupation to return to, he is referred to the vocational psychologist; he is given appropriate tests, and work therapy is recommended on the basis of the man's own preference, aptitude, and intelligence. This early assessment is to some extent modified by the availability of certain jobs on the labour market—e.g., a man with no particular mechanical ability as judged by aptitude tests, who has done only vehicle maintenance work in the Army, and who expresses a wish to work as a fitter in a garage in civilian life, is made to realize that as demobilization proceeds there will be an inevitable flooding of the market with men much more highly qualified than he; if he still persists in this particular aim he may be advised to try, say, agricultural engineering; if willing he can be placed in such a firm, and the idea put to practical test, while still in hospital. The psychologist takes a close interest in the various employments available to our patients, visiting them frequently, and the limited use of vocational tests is greatly enhanced by this opportunity of seeing the men actually at work; he does not hesitate to recommend frequent change of employment if this seems to be indicated.

Of the 750 patients interviewed so far, 381 intended to return to their former occupation on release from the Army, 173 had a job to return to but intended to seek other employment, 191 had no job waiting for them (56 of these were in the Regular Army before the war), 3 had never been employed, and two were still studying when called up.

Placement

We have been very fortunate in having the full-time services of a disablement rehabilitation officer of the Ministry of Labour. Patients who are likely to be recommended for discharge from the Army see him during their first two weeks in hospital. At the "assessment interview" the D.R.O. investigates fully the man's past work record and discusses his future plans; if necessary he will write to the local office of the Ministry of Labour in the man's home town for information regarding local conditions, etc.—e.g., the local brewery may have been bombed, and what are the prospects for the firm's old employees? There is a second interview ("placement interview") during the patient's last week in hospital; at this all relevant information is made available for the D.R.O. He has replies to his own inquiries from local offices of the Ministry of Labour, and may have obtained aid from other Ministry of Labour sources by using the Resettlement Advice Service (in our case the local resettlement advisory officer helped in many ways on general questions outside the scope of the D.R.O.'s work) or referring patients to the Advisory Careers Section of Appointments Offices, where higher education or training was sought. At the "placement interview" the D.R.O. also has available the psychiatrist's opinion of the man's value on the open labour market expressed in non-medical terms, the information obtained by the vocational psychologist, and the report on the patient's progress at his occupation. So far as is possible the patient's future occupation is made secure before he leaves the hospital.

General Procedures

Routine psychiatric treatment by individual interviews, physical methods of treatment, and social work need not be discussed, as they have followed orthodox lines. Occupation has been dealt with above. Group treatment similar to that carried out at Mill Hill (Jones, 1944) has been continued, with small individual differences, in each of the 7 blocks of 50 patients. One hour is set aside each morning for a meeting with all 50 patients, the nurses, and the doctor. At one meeting a play written and produced by the patients with the help of the nurses, and dealing with some social problem of interest to the group as a whole, is presented; the play may last anything from 5 to 30 minutes, and is followed by a discussion, with as many patients as possible contributing. The doctor acts as chairman,

* Since Mill Hill Emergency Hospital closed this unit is seconded from the Maudsley Hospital.

and withholds any personal contribution until some group solution of the problem appears to be emerging; he then tries to integrate all constructive trends into a viewpoint acceptable to the whole group. We believe that this technique has educational value, and even therapeutic value in some cases. Another day is used for showing documentary films dealing with social problems such as delinquency in children, etc., and these again are followed by a discussion. Two other days are used for explanatory talks on the nervous symptoms which the patients complain of; an attempt is made to give them sufficient knowledge of this subject to enable them to understand adequately their own symptoms. The remaining day is devoted to a general meeting, at which all problems bearing on the running of the block are discussed and dealt with on the spot, so far as is possible, thus eliminating the all too familiar "red tape." In these daily group meetings the patients have every chance of overcoming their isolation and developing a heightened group consciousness. The whole subject has been discussed in detail in previous papers (Jones, 1942, 1944).

All this helps in social rehabilitation, as does the work therapy, where the men come into contact with members of the normal working community. In line with this are the nurses' dancing classes, held at least once a week in each block, and reserved exclusively for patients who are unable to dance and wish to learn. Each block acts as a host to a party of 20 girls from a near-by factory once a fortnight; the men plan this dance or social, and the fact that they are themselves responsible for all arrangements is most beneficial. Approximately once a fortnight the patients stage for the whole hospital a programme of one-act plays or variety, thus maintaining a dramatic tradition which grew up in their prison camps. They produce their own weekly newspaper, now in its 15th number. It comprises 10 foolscap pages, with coloured illustrations, using stencils and an art-silk screen, and is a valuable medium for expression, not only from the literary point of view but also to point out real or supposed defects in the hospital organization. The staff of the *Grapevine*, as it is called (in prison camps the word was used to describe the method by which news was disseminated among the P.O.W.s), also concern themselves with posters popularizing the various occupations, printing programmes for variety shows, etc. The Entertainment Committee meets weekly, and has one patient and one nurse representing each block. The general aim is to give the patients as much freedom as possible in running the unit, to enable them to organize their own leisure activities, and, besides this, to give them ample opportunity to air their grievances, to expect them to provide a solution, which is acted on with the minimum of delay. Any spontaneous self-expression is welcomed, and a patient, if interested enough, may choose to write or paint, etc., rather than follow the organized work therapy. At a less exalted level some patients are allowed to spend their day painting and decorating the wards. Within this loose framework, however, discipline is rigorously enforced. We believe it is essential to show the patients that we are in earnest, and it matters to us that they attend occupation or P.T., etc., 100%. The rule is to give one explanatory warning, and if a second offence occurs the patient is considered to have failed to co-operate fully in treatment, and he is recommended to be posted or treated at a military hospital, where he would come under stricter military discipline.

Discussion

The foregoing account describes some of the activities of this P.O.W. neurosis unit. The procedure would be equally applicable to any group of neurosis patients. Huge numbers of neurotics have been, and are being, discharged from the Forces, and facilities for their treatment in civilian life are quite inadequate. Very few out-patient clinics exist, and the number of beds available for the in-patient treatment of civilian neurotics in the whole of England is almost certainly less than 500. Conditions on the labour market at present are relatively favourable to the neurotic, and, further, he is in most instances protected by the Reinstatement in Civil Employment Act of 1944, which obliges employers to re-engage a former employee on terms not less favourable to him than he would have had in that occupation if he had not joined the Forces. If the employee was in employment continuously for a period of not less than 52 weeks before joining the Army, then the employer is obliged

to re-employ him for at least 52 weeks. As demobilization proceeds, however, we may assume that the lot of the neurotic on the labour market will become progressively harder. Many of these men have potentialities which, if used, would enable them to succeed in some employment: such potentialities cannot be measured adequately by psychological tests alone, although useful information can certainly be obtained; what is needed is the practical test of actual employment under supervised conditions. If certain zones were set up throughout the country and a representative group of employers within such zones given a Government subsidy, the framework necessary for placements would be established. Such firms could then afford to employ a skilled man to supervise, teach, and report on the aptitude, interest, persistence, etc., of men under his charge. Alternatively, the Ministry of Labour might have a training centre in such zones, with the various courses of training available, and the instructors might be used in much the same way as the subsidized firms.

Given such a framework the immediate problem of the rehabilitation of the neurotic to useful civilian employment might be worked out as follows. Existing psychiatric treatment facilities should be maintained so far as is possible. Existing E.M.S. neurosis centres will presumably disappear in the near future, along with the other E.M.S. hospitals. Plans should be afoot either to replace such neurosis centres or to retain such as will be urgently needed. The weakness of replacement is that it may take months or years to organize a really efficient treatment centre, and a tradition which is so important in such a centre does not grow up overnight; a general hospital may be set up on very short notice—it is much more difficult to set up an efficient neurosis centre.

Even more important is the question of nurses: work in a neurosis centre is a highly specialized form of nursing, and neither the general hospital nor the mental hospital training prepares girls for it. In consequence, when neurosis centres were formed during the war they had to start training their nurses in this type of work; if existing centres close and the nurses are disbanded, it will take years to train an efficient team again. In my opinion a neurosis centre without suitably trained nurses is a doubtful asset to the community. If such centres existed for the treatment, selection, and placement of neurotic civilians the most difficult problems could be sent to them; these centres would be in the best possible position to handle such problems, as their therapeutic programme and supervision of the patient's employment could be carried out much more thoroughly than on an out-patient basis. A patient considered unable to succeed on the open labour market could be recommended for sheltered employment after such hospital supervision—few psychiatrists would be prepared to make such recommendation on the basis of out-patient interviews only. Alternatively, complete change of employment might not be recommended, although considered desirable by the psychiatrist or vocational psychologist, because the risk appeared to be too great: at the type of centre outlined such a step could be tried tentatively without jeopardizing the patient's whole future. Briefly, a neurosis centre might be used to separate out the most difficult cases and place them either in sheltered employment (if facilities were made available) or in an employment chosen on the basis of the fullest possible inquiry from psychological, psychiatric, and industrial angles.

Out-patient treatment facilities would have to be considerably increased: existing clinics, if adequately staffed, could be used in the first place, but there would seem to be a strong case for appointing full-time psychiatrists who would be prepared to study the particular problems presented by cases referred from the employment exchanges, and would familiarize themselves with the local industries, factory doctors, welfare officers, works managers, etc.; they would also have to be familiar with vocational selection methods and work in close collaboration with the industrial psychologist. They would use the subsidized firms in their zone for selection and placement in much the same way as would be done from the neurosis centres. Cases needing in-patient treatment would of course be referred to the neurosis centre, which should be fed entirely from these specialized out-patient departments.

It is as yet too early to discuss results from this centre, but a follow-up study is being made by the psychiatric social

worker. One really pleasant aspect of the community here is the popularity of the D.R.O., at group meetings, if his opinion is sought on a technical point his appearance is greeted by cheers gone are the memories of the dole and the Labour Exchange.

I wish to express my indebtedness to Dr. A. B. Stokes, medical superintendent of the Maudsley Hospital who has been father to many of the ideas put into practice here and has helped us in every possible way, also to the people of Dartford who have responded so generously to help the P.O.W.s and to Sgt. Capt. R. G. Henderson, medical superintendent of the Southern Hospital, who has extended to us the fullest possible co-operation.

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THE PROFESSION AND THE BILL

MEETING OF BOURNEMOUTH PRACTITIONERS

ADDRESS BY CHAIRMAN OF COUNCIL

A meeting of practitioners members and non members of the Association in the Bournemouth area was held on March 28 when an address was given by the Chairman of Council Dr. H. Guy Dain. The meeting was announced to be held at the Royal Victoria and West Hants Hospital, but the numbers turning up were so large that an adjournment was made to St. John's Parish Hall, Boscombe. Dr. Douglas Granger, chairman of the Division, presided, and was supported on the platform by Sir Kaye Le Fleming, Dr. O. C. Carter, and Dr. Doris Odium. The honorary secretary of the Division, Mr. Ross Smith, mentioned that a public meeting had been convened by the Division in Bournemouth Town Hall on April 10 and that a panel of some 16 or 18 speakers had been arranged to give addresses to rotary clubs, political party organizations, and women's institutes.

A Disappointing Bill

Dr. Dain began his address by saying that present events justified any size of meeting that could be arranged. It was of the utmost importance that the profession and the public should be made familiar with the situation as it developed. They now had before them the Bill of which they had heard so much and thought about for so long. For three years at least they had been considering what form such a service should take, and it was fortunate that there had been time to clarify their ideas on this subject before the Bill was actually introduced. Had the Bill been brought forward two years ago the profession would not have been so well able to deal with it. In the conversations with Mr. Willink they did arrive at a large measure of agreement concerning essential factors, but the present Minister said at first that he was too busy on housing to talk on the medical problem, and when, in the early part of this year, having learned that a Bill was being drafted, the Negotiating Committee asked him to meet them, which he did, he announced that he was not prepared to negotiate with anybody. He was ready to hear comments, not to enter into discussions. Certainly the Bill showed boldness. The Minister had had courage to take a strong line—particularly on the taking over of hospitals—without regard to expected opposition, and now the L.C.C. and other Socialist authorities were parting with their hospitals like lambs. The Minister was to be commended for having seen the wisdom of centring hospital regions on universities, and, in another part of the Bill, for giving doctors some share in administration. He had said that he would expect the miners to have a say in their industry, and he could not deny the same right to doctors.

Nevertheless, Dr. Dain continued, the Bill was most disappointing. It did not co-ordinate the services run by the various Ministries. It did not produce a single health service, but three health services, differently administered and under different management. On being challenged about this, Mr. Bevan said that it was those who worked in the respective services who would co-ordinate them—not a very good answer.

The Future of the Hospitals

The new hospital service, including the voluntary hospitals, would be entirely in the hands of the Minister. Although the

Minister had said that there would be private beds it might well happen that in some areas, under pressure for public beds, the private accommodation would be taken over, and consulting physicians who did private practice would find great difficulty in continuing it owing to lack of private bed provision. It was not difficult to see that before long certain physicians and surgeons would be whole time salaried servants of the State. The Minister had not laid down the constitution of the Regional Boards who were to administer the hospitals, though he had laid down the constitution of the Executive Councils. His explanation was that the constitution of the boards might vary with the region, some regions being predominantly voluntary and others predominantly local authority. But it would be easy under the Bill for the boards to become almost entirely local authority. One interesting word in the White Paper was "initially" ("each board will be composed of people... including, initially, those with experience of the voluntary hospital system") (para. 20)—suggesting that presently the initiative and character of the voluntary hospitals would be destroyed. The appointments to hospitals would be made by Regional Boards. It was true that the terms of service of specialists as well as consultants would be arranged centrally, but there would be an alteration in the relationship between the staff and the hospitals: the staff would be appointed to the regional service and not to the actual hospital.

Public health provisions in the Bill left the situation very much as it was now, except that compulsory vaccination was abolished.

"Direction"

The proposal to abolish goodwill in practices involved serious considerations. The attitude of the B.M.A. had been that there was no need whatever compulsorily to distribute doctors. In so far as there was inequality of distribution between areas it was largely because some areas could better afford to pay for doctoring than others, when provision was made in a State service for everybody then doctors would rearrange themselves more naturally in places where their living could be earned. When National Health Insurance came in there were great alterations in the number of doctors willing to work in closely populated town areas. The Central Medical War Committee had elicited that it was very misleading to say of a particular area like Bournemouth that on the basis of total number of doctors to population it was over-doctored because such an area contained a large proportion of elderly doctors: doctors retired or on the point of retirement and undertaking only a relatively small amount of work. The profession was prepared to see, without resorting to compulsion, that there was a proper distribution to fill the gaps.

Mr. Bevan had realized that the measure of direction imposed in the Bill would upset the value of practices, and therefore, in return for the abolition of goodwill, the compensation proposals were put forward. The Minister had been informed by the Association that it had no power to enter into an agreement with him on this subject, that the Representative Body had declared itself opposed to the abolition of sale and purchase. Without compromise on the principle, however, there had been consultations between the actuarial and statistical experts of the Association and the Government actuaries, as a result of which the global sum of £66,000,000 was reached. It was a lot of money for the country to find in return for nothing whatever of value to the State, and it represented no gain to members of the profession who would receive a corresponding sum in the ordinary course of events.

One point to bear in mind was that the compensation would be received on death or on retirement or in exceptional cases where a practitioner was seriously in debt for the purchase of his practice. He also referred to the penalties which attended any attempt to sell supposed goodwill after compensation. If a practitioner attempted to sell his house to his successor in the practice at more than its proper market value after compensation had been received it would be an offence for which there was a prescribed penalty. One point about compensation was the effect it would have on partnerships. They were all agreed that it would be a great advantage for practices to be conducted in groups and partnerships, but

with monetary considerations taken out of the partnership agreement it was questionable what was going to hold partnerships together. These proposals would break up partnership practice rather than encourage it.

Objections to Basic Salary Payment

No statement was made in the Bill as to the method by which doctors were to be paid. The White Paper (para. 46) spoke of a combination of salary and capitation fee.

"We have said much in the past about free choice, but perhaps have never properly appreciated its full significance. It was one of the cardinal principles of our predecessors in 1911. There are people who say, 'Yes, but there is not much free choice anyhow. In lots of areas there is only one doctor. So why bother?' But free choice involves a great deal more than that. Now that the whole population are in the scheme it is of the utmost importance as affecting this principle how doctors are to be paid. If paid by salary they become the servants of the people who employ them. If paid by capitation fee or per case they are in an entirely different position; they are not paid servants, they are contractors contracting with the Government to do a certain job."

If all doctors were paid by salary and those of about the same age got the same sort of salary the Government would naturally want to see that they did approximately the same amount of work, and the result would be that doctors less acceptable to patients would have patients allocated to them. The progress of the doctor in his profession should depend on the patient's choice and not on the good will of senior officers. The moment they accepted a part-time salary they were on the slope. If the profession was to escape the thralldom of a civil service the general practitioner must in no circumstances be paid a salary. "We may have an enormous fight for this, but it is an essential freedom of the doctor for which I hope we are prepared to stand." (Applause.)

The disciplinary machinery under National Health Insurance had on the whole proved satisfactory, thanks to the safeguards on which the profession had insisted, but Dr. Dain was convinced that that machinery would not be sufficient when the whole profession was included in the service. There should be some sort of appeal beyond the Minister. Another matter of insistence should be that every registered doctor had the opportunity to earn his living. A practitioner might find himself refused permission in area after area. Again, in the Bill there was nothing to protect the civil rights of the practitioner, it might be held that a doctor, because he received money from State funds, must not sit on the local council or in Parliament. No such restriction could be tolerated.

Future Action

In concluding his address Dr. Dain said that if the Bill as it stood should go through unaltered he hoped and expected that the profession would say that it would not accept service. The utmost endeavour should be made during the ensuing weeks to arrange for public support to be enlisted on behalf of those cardinal principles which the profession had laid down. In this way it was possible to influence the Government notwithstanding its Parliamentary majority.

"I have great hopes that we may secure the modification of the Bill very materially. After all, it is up to the Minister to provide a service for the country, and he cannot provide a service for 100% of the people unless he has 100% of the doctors. That fact alone may lead to the consideration of the sort of modifications which the profession would accept.

"When the final shape of the Bill is known it will be the responsibility of the profession to say whether it accepts service."

Various Points of Criticism

When the meeting was thrown open for questions one member pointed out the contradiction in terms whereby it was stated in the Financial Memorandum that the service would cost £152 million, and yet the remuneration of doctors had not yet been decided. Was it an unfair inference that the Ministry had worked out the figures and was prepared to get a cheaper service if it could? Dr. Dain said that something of the estimated amount for general practitioner service could be gathered from the figure of £45 million for that service,

together with pharmaceutical, dental, and ophthalmic services, this for a population of more than 40,000,000. Until the Spens Committee report was published it was not known what the general practitioner service was going to cost. One thing about the remuneration under the new service was that there must be an end of those continual representations to the Ministry which had marked the thirty years of the National Insurance Act. There must be some equivalent to the Wages Boards in industry.

One questioner asked about compensation for specialists. Dr. Dain said that in certain areas eye specialists and in some cases ear-nose-and-throat specialists had been in the habit of buying and selling their practices, and this point had been put to the Ministry. "It struck the Ministry with great horror that this question should arise in another place, but they said that they were not interfering with that aspect and that these specialists could go on buying and selling their practices as they pleased."

He explained in answer to other questions how the £66 million compensation figure was arrived at—on the basis of two years' purchase on 1939 values plus a betterment factor of 16%, or of 1.9 years' purchase plus a betterment factor of 22%. The amount was held to apply to 17,900 practices. Asked what was the position of those not in practice in 1939, Dr. Dain said that they would have to furnish evidence of their present practice. Obviously it would be necessary to set up local tribunals.

A member wanted to know whether there was anything in the Bill to protect clinical freedom. Dr. Dain replied that there was nothing which impaired it except in so far as loss of practice goodwill, institution of a certain amount of direction, and a part-salary basis might be held to do so as pointing to complete employment by the State. Another asked about the future position of the B.M.A. as the body speaking for the profession. Dr. Dain said that the Association had such a variety of interests and occupations that when this service was started, in whatever form, the importance of the Association in upholding the interests of men and women serving would be greater than ever. One young practitioner said that large numbers of recently demobilized doctors would be tempted to go into the Government scheme for economic and security reasons. Dr. Dain said he realized that there was a large group of people in that position, but he hoped they would not be tempted towards taking the easy way. The Association was constantly being asked for advice on this subject, and it urged that no practitioner should cheerfully consider the prospect of taking on a job at a salary which would make him the servant of the State for life.

Part-time Service

On the question of part-time work in a national service, which was a difficulty to more than one speaker, Dr. Dain said that doctors would be free to take private work except that they must not take on as private patients persons for whom they had accepted responsibility as public patients. It was no exaggeration to say that at present no two doctors in private practice were doing the same amount of work for exactly the same number of people, and while there was variety in the number of people to whom a doctor gave service and in the amount of service he was required to give, there would be no such thing as a whole-time job. Of course, his list must have a ceiling, but that would not act to any extent in cutting out private practice, except for a very few people.

In reply to other questions Dr. Dain said that he hoped members of the Association appreciated how fully and promptly Headquarters had acted, both in putting over the Association's case to the public and in informing the members of the profession themselves. (Applause.) This had been a feat of great magnitude for which Dr. Hill was largely responsible. He also referred to the setting up of the Guarantee Fund. There was nothing "phoney" about it, and while it might never have to be used, beyond a certain part of it for expenses, it might, on the other hand, prove of the most vital importance. He mentioned that a number of subscriptions had been received from the laity. The patient of one doctor, having ascertained from him that he proposed to subscribe his £25, said that she would add £25 to his and make it £50.

Back to 1911

Sir Kaye Le Fleming said that that evening he was strongly reminded of the time when he was chairman of that Division and the National Health Insurance Bill was under debate. There were crowded meetings of the profession in that town, and 95% of the profession pledged themselves to refuse service unless certain terms were conceded. In the end the terms offered were not satisfactory in the view of 95% of the profession and yet the remaining 5% were able to split the profession and enable the Government to get what it wanted. The present Bill was brought forward by a Labour Government sustained by a large Parliamentary majority and was the first fruits of a pledge to introduce a whole time salaried State service. The small amount of direction in the present Bill would lead eventually to every doctor in the country being under direction. He described the forces they had to meet including groups in their own profession who favoured such a service. The character and extent of those forces must not be underrated. He deprecated a false optimism. He wanted to see the profession united on the things on which it could be united in a dignified way and putting aside those issues it could not successfully further because of its own disunion.

We can all agree on the principle of voluntarism, we can all agree in opposition to direction and I should like to see the profession take the stand that this Bill is bad for the public for this that, and the other reason but that we are likely to be steam-rollered by political and economic factors which we are unable to resist and that it is the public who must save themselves and our profession they must not look to us to save them. I hope that at the Representative Meeting we shall abstain from bickering over small points and concentrate on the big principles on which we can all stand united." (Applause)

Dr Dain said that he hoped they would not be too depressed by what Sir Kaye Le Fleming had just said. It was true that in 1911 many people said they would not accept the terms, but the issue then was only a question of how much money was to be available for the remuneration of practitioners. The Association at the time of the passing of the National Health Insurance Act had already gained the cardinal principles for which it had stood—that the profession should not be employed by local authorities or by friendly societies, that every practitioner should have the right to take part in the service, that the patient should have free choice of doctor. All those things had to be fought for and secured. It was only on the money that they seemed to founder at the end. The *Westminster Gazette* of that day, at the end of the fight, said that the ordinary Englishman by tradition did not know when he was beaten, but the B.M.A. did not know when it had won. "We have to stand now for public freedom and for our own freedom, and I think we shall be brave enough to do both" (Applause)

He added that he hoped at the forthcoming Representative Meeting they would not attempt to tinker with the report already placed before them by the Council, but would support the Council by an overwhelming vote in the maintenance of the principles set out. It was hoped that there would be a good "second reading" debate in the Representative Body, and that the volume of support in reaffirmation of what had already been decided would impress alike the public and the Government.

Dr O. C. Carter, in proposing a vote of thanks to Dr Dain, said that the Chairman of Council had shown a masterly grip of the whole subject. He was a pillar of strength to the Association, and if at the periphery they did their job as well as he did it at the centre they would not only save themselves but save the future of medicine.

The Ministry of Health has published as a pamphlet, with specimens of printed material, particulars about immunization against diphtheria, giving guidance to local authorities for planning and carrying out campaigns for the protection of children. The main emphasis of the campaign is now on immunization of children before the age of 1 year. Publicity material available to local authorities includes press advertisements, posters, cinema slides, and leaflets for use in conjunction with personal persuasion by doctors, health visitors, teachers, and voluntary workers. The Minister hopes for a planned campaign in the coming spring and summer months.

PUBLIC OPINION

THE PRESS AND THE BILL

Press comment on the National Health Service Bill is inevitably divided, and division is most marked along the lines of political cleavage. Reading from left to right the *Daily Herald* (March 22) appeared to be thinking wisely.

"It is true that the medical profession becomes partly a public service. That proposal, we believe will not meet with the opposition from the profession which the Tory Central Office might desire."

"It is not true that patients and doctors are to be robbed of their rights. These bogies find no place in the Bill, and after a few weeks of discussions we prophesy that the diehard campaigners will be hard put to find an argument."

The Contemporary Pattern

The *News Chronicle* (March 22) welcomed the Bill as a bold and enlightened measure, and commented:

"The new Bill fits into the contemporary pattern of social legislation, and to oppose it would be like trying to halve the tide."

"The doctors too will have a great measure of freedom under the new scheme if they care to exercise it. The close personal relationship between doctor and patient will be maintained. Indeed, the transition from private to public treatment of patients is to be made as painless for the doctors as possible, and the advantages which they will enjoy under the Bill will be obvious at least to the younger and more progressive members of the profession."

The *Daily Express* (March 22) described the Bill as "a vast extension of the panel system supplemented by a State-run hospital and specialist service, and added:

"It squeezes and reduces the private practice of medicine and surgery with its confidential and unique relationship between doctor and patient."

And it will turn most doctors into full time or part time State servants dependent for their livelihoods on the satisfaction the State, not to their patients, but to the State.

The power of the citizen to see that his local hospital is efficiently run is taken from him.

Finally the doctors themselves. They bitterly resent the attempt to manoeuvre them into becoming civil servants. They ask, "What have we done to deserve this?" They sense a reflection on their calling, a suggestion that they have failed in their duty to the public.

Injustice and Regimentation

The *Evening Standard* (March 21) took, if anything, an even stronger line, viewing the Bill as "a heavy blow to the age-long tradition of personal relationships between doctor and patient."

"Theoretically all are free to choose their own doctor at the Health Centres, but in effect practitioners are to be encouraged to pool their remuneration with the aim of 'eliminating competition for patients.' Where fees are pooled, how long will it be before patients become subject to the same inhuman system?"

"As a fact, the Bill is a first step towards the full time employment of doctors as State servants. Doctors returning from the Services or newly qualified cannot found new practices; they are to be directed. The doctors, moreover, threatened by compulsory State service, liable to direction and allowed neither to buy nor sell their practices—for some reason this does not apply to dentists—do not even know what rate of remuneration they will receive. It is not hard to imagine what answer would be given to such treatment by the miners, for instance."

"Soon the Bill will come before the House. It will be fought by the doctors. It should be fought by all who detect injustice and regimentation."

According to the *Daily Sketch* (March 22) "this Bill is the apotheosis of red tape. It threatens the independence of the general practitioner. The doctors have a justifiable dread of becoming salaried Government servants."

"The doctors object to being directed to districts where they do not want to go. They rightly demand freedom of choice. The varying salaries offered in 'under-doctored' areas constitute an attempt by the Minister to induce doctors rather than to direct them. The goodwill of a practice will in future no longer be owned by a doctor. One more wedge in their independence."

"It is not a good thing for doctors' fees to be pooled, it is not a good thing for the sale of practices to be forbidden. It is a bad thing that hospitals established for the special benefit of religious denominations and other bodies should be deprived of their specific and original intentions."

"The net cost to the State of this scheme will be an annual one of some £95,000,000. The compensation payable to doctors under

the scheme will cost at least £66,000,000. In the face of all our commitments, is not this equivalent to sheer lunacy?"

Circumscribing Independence

The *Scotsman* (March 22) made two most important points: that "in the long run doctors will become full-time salaried servants of the State"; and that professional freedom and responsibility for patients will be impaired."

"Although the Bill seems to offer a certain amount of flexibility and freedom of choice to the public and to doctors, it is not likely that a vast State scheme will be long in operation without bringing about radical changes in the personal relationship between doctors and patients or without circumscribing the independence of practitioners in professional matters. A national health scheme of a less revolutionary nature and more widely acceptable might have been formed by the extension of present services, such as bringing the dependants of insured persons within the scope of National Health Insurance, and by more co-ordination of hospital facilities."

"Such financial estimates as are given make it clear that the scheme will be a heavy burden for the State. That might be borne if there were more assurance that it would result in better medical treatment and improved public health services, but the scheme involves such far-reaching departures from traditional methods that it inspires more uncertainty and doubts than confidence."

Serious and Seductive

The *Daily Telegraph* (March 22 and 23) in successive leading articles pointed out that the Bill "sweeps away many admirable things."

"The selfless devotion of doctors in giving their services to hospitals will apparently become superfluous. The appeal to the charitable public—the response to which used to be a fine feature of our national life—must be lessened."

"Though it is undoubtedly right that access to the means of the prevention and cure of disease should be the same for rich and poor alike, it remains to be seen what will be the effect on the national character and spirit of having everything for nothing—or at least for nothing except the persistence of a crushing rate of taxation. Nevertheless, the weight of argument is on the side of the new order which the Bill seeks to create."

"Ostensibly the principle of freedom of doctor and patient is . . . honoured. In fact, it seems almost certain that private practice in the existing sense will gradually die out; but it will not be arbitrarily exterminated."

"The broad conclusion is that within the limits of the agreed principle that there is to be a national health service, Mr. Bevan has deduced a serious and in some respects seductive scheme. On many details judgment must be reserved for full consideration, but it does not raise party issues, and it must therefore be hoped that I consider objectively amendments when they are presented in due course. What we all want is a service which will lessen both the prevalence and the ravages of disease; and the onus is on Mr. Bevan to show that his proposals will secure it."

"But it is difficult to believe that the objection of the medical profession to a scheme which will in due course turn its members into State-employed civil servants will be softened within the next few weeks, and equally difficult to believe that Mr. Bevan eased the way when, as Dr. Dain states, he refused in any sense to negotiate with the doctors."

This Splendid Venture

The *Manchester Guardian* (March 22), warning of reefs ahead, said that "... the principles of democratic responsibility and professional guidance are confused. The Central Health Services Council remains, but the inclusion of *ex-officio* members who can only regard themselves as delegates of sectional interests will detract from its influence and authority," and went on:

"Not only will doctors be free to stay out and practise privately (as, indeed, they should be); they would also be allowed to take private fees from patients who have already paid in taxes and insurance contributions for treatment by them as participants in the public service. The dangers of this provision were recognized in the Coalition White Paper—which could suggest no means of guarding against them—as well as in the Labour Party's critical commentary. The plain fact is that no safeguard is possible."

"Poor patients will claim their rights and be convinced that they are getting an inferior service; rich patients—and many others who cannot really afford it—will insist on paying fees in the expectation of preferential treatment, and will go elsewhere if they do not get what they are paying for. This, in short, is a false freedom that can only survive to the extent that it is abused. It must inevitably poison the doctor-patient relationship. It is the reef on which this splendid venture, with all its prospects for development, might founder at the outset."

Bitter Medicine

The *Times* (March 22) commented: "The Government have wisely decided not to force a salaried service upon general practitioners, but to combine a basic salary with capitation fees in variable but as yet unknown proportions. They have also had the courage to put an end to the sale of publicly remunerated practices, a reform now probably supported by at least half of the medical profession." And on the proposed hospital services:

"If it is right to-day to transfer the municipal hospitals to regional authorities, as the Coalition White Paper advocated with some vigour, it cannot be wrong to transfer the voluntary hospitals too, even though, in the absence of permanent authorities intermediate between local and central government, this transfer in both cases involves vesting the legal ownership of hospital buildings in the Minister of Health. It cannot be wrong, yet it may be unwise. The dangers are obvious enough—rigidity of central control, stifling of initiative among doctors, weakening of contact between patient and hospital management, discouragement of voluntary personal service. But Mr. Bevan's solution of the hospital problem is at least as good as any alternative yet propounded, and his system could be kept free of these obvious evils. It could in fact be so administered as to permit the rapid development of a well-knit yet flexible hospital service throughout the country, with a spirit of healthy competition between the regions."

"Mr. Bevan is aware of the dangers of excessive centralization and of the need to draw all branches of the medical and allied professions into the work of planning and administration. His solution is far from ideal, and for many it will be bitter medicine. Some doctors will be attracted to it because it offers them freedom from control by local authorities and gives them wide opportunities for team work and participation in operating the service, though others will argue that these ends can be attained by other means. In spite of its drastic administrative simplifications, the Bill leaves many problems of co-ordination to be tackled. But the question to be answered is how the teams of skilled men and women who are the hospitals can best serve the community."

Not Civil Servants?

The Sunday press showed just as great a variety of opinion. *Reynolds News* (March 24) claimed that the Bill "meets the doctors more than half way, offers them compensation beyond their dreams, visualizes a condition of things in which medical service would really be the highest form of service, and answers every canon the B.M.A. has ever issued."

"It is indeed too soft in its handling of the professional propagandists who put out the B.M.A. case and overlooks the well-known fact that the B.M.A. ballot of the doctors showed them to be already in favour of such a service as this. The public will do well to understand what they are being offered, and individually and collectively must make it clear to the doctors that this service cannot be sabotaged by any section, however influential."

The *Sunday Graphic* (March 24) wrote: "You cannot make men humane by Act of Parliament; and every step in State regimentation makes less possible the private and personal relationship which should exist between doctor and patient." The *Empire News* (March 24) suggested: "Surely it would be wise to concentrate first on providing greatly improved housing conditions, for squalid, overcrowded, and unhygienic homes will undo the advantages of the most utopian health centre." The *Sunday Chronicle* (March 24) wanted to know: "Is one man entitled to antagonize the majority of a medical profession which firmly believes that so complete an autocracy must lower the standards of our present health services? Can one man—however well-intentioned—avoid the mediocrity that must follow the regimentation of our doctors into the ranks of our Civil Service?"

According to the Political Correspondent of the *Observer* (March 24): "Mr. Bevan has his answers ready, and believes they will be found convincing. . . ."

"Those who enter [the Service] will not rank as civil servants, in spite of some loose talk on the subject by Right wing critics of the Bill. Their contracts of employment will be . . . not directly with local authorities or the State. Hence they will retain all their ordinary rights of citizens, including the right to stand for Parliament."

Doctors "will be 'State-salaried' only in a limited sense, for the larger part of their remuneration will often come from capitation fees, dependent on the number of patients they attract."

"The basic salary for a young doctor may not be more than £400 a year, with local variations, but capitation fees may be high enough

to enable them to turn up to £1,000 a year at a quite early stage in his career.

The *Strait Times* (March 22) resented four freedoms—Freedom for patient and doctor to come into the new service, or stay out; freedom for people to choose their own medical advisers; professional and scientific freedom for the doctor; and the free relationship of confidence and intimacy between doctor and patient under the State system or a private practice.

The question is not whether we could have a comprehensive national health scheme or no such scheme. It is rather the logic of Socialist doctrine given the opportunity of a common effort to raise the standard of public health service and its bitter conclusion of a completely reorganised and national State service, or whether the four essential freedoms for doctor and patients are to be preserved within and alongside a comprehensive national health system.

History and Sentiment

Of the weekly papers the *Spectator* (March 29) in a careful review of the Bill observed:

The new Bill does much too far towards meeting the doctors' objections for any such hostility. One reasonable fear, at a time when the Coalition Government's proposals were under discussion, was that the doctor would find himself the paid employee of some local authority, responsible ultimately to a bureaucracy in Whitehall and with neither the knowledge nor the sympathy to make its administration tolerable. The outstanding feature of the present Bill is the extent of the share of administration accorded to the profession at every stage.

The Bill, of course, is susceptible of improvement perhaps of substantial improvement. The relation of private practice to public service, and the method of a doctor's remuneration, partly in the form of basic salary, partly of capitation fees are matters which must be fully discussed inside and outside Parliament. So much more must the vitally important section of the Bill which deals with the hospitals. Here sentiment, so far as the voluntary hospitals are concerned, points one way and practical considerations the other. There is nothing more admirable in national history than the voluntary hospitals record of service, but the voluntary hospitals have become hopelessly inadequate to the needs of to-day and most of them are in financial difficulties. Hospital accommodation as a whole falls deplorably short of the need, the waiting lists of sick and suffering are a blot.

If nothing but mere efficiency were in question this plan would stand approved, but history and sentiment have their place, and it is by no means certain that the nationalization of the voluntary hospitals is essential, effective co-ordination and satisfactory financial arrangements may well be attainable without that. If the Government is wise it will give ample time for the discussion of this, as of many other arguable provisions of the Bill. If the doctors on their side are wise they will set themselves to secure by reasoned amendment what they could never achieve by flamboyant opposition. They will get full public support in that.

According to the *Economist* (March 23) "No doubt the B.M.A. may find provisions which are incompatible with the 'freedom of the medical profession,' but it is difficult to see how, if a national health service is to be established at all, more professional representation could be given and greater deference be paid to the doctors' objections. The chief losers under the new Bill seem, at first glance, to be the local authorities. All of them will lose their hospitals, and the minor authorities will lose their present health functions, such as maternity and child welfare, to the counties and county boroughs. Even if Mr. Bevan succeeds in disarming the doctors, the progress of the Bill may not be easy."

The *New Statesman and Nation* (March 30) asked:

"What do the doctors want? That nobody yet knows, though we shall probably know a good deal better before Mr. Bevan's Health Bill gets into operation. Substitute, then, a less unanswerable question: What does the articulate minority that has taken charge, so far, of the doctors' case want and hope to achieve, by the line it is taking up in relation to the Bill? It cannot be simply more money for the profession as a whole, there is every sign that the Government means to leave the B.M.A. with no plausible ground for complaint on that account. Money, of course, does enter into the question."

To state this is enough to make it clear that money plays only a small part in the present case of the doctors against the Government—though it may have played a larger part at an earlier stage, before the generosity of the Government's financial intentions had been made known. These other grounds are usually stated in terms of vigorous objection to bureaucratic control and especially to control by local authorities, and they are often summed up in an

objection to salaried, as opposed to fee-getting, practice. To many doctors—even to a good many panel doctors—a salary free, like a professional come-down in comparison with a fee, or even a capitation fee. It seems somehow to be less 'professional'."

"Now this, when one comes to think about it, is rather a range. In the higher ranges of the teaching profession it is just the other way round."

"It is not, of course, entirely a matter of salaries *versus* fees. If it were, the prejudices of the traditionalists would hardly make headway against the desire of many of the younger doctors for a chance of a good secure income without any need to put down (probably borrowed) capital in order to buy a practice. The fear of bureaucracy is also real, and would be worthy of respect if there were in fact any danger of it—or, at any rate, of more of it than is reasonably involved in any plan to provide a comprehensive medical service for the people. But, as the Government's Bill stands the danger of bureaucracy, national or local, has surely been reduced to a minimum."

"Many young doctors are Socialists, and start out from a quite different set of assumptions about what is right, but most doctors of senior standing are not Socialists—far from it—and will take the class system for granted as the basis of their thinking."

Not Far Enough for Him

Three individual views, received prominently in the *Observer* (March 24) Lord Horder concluded a balanced survey of the position in these words:

"The doctor can, and must, make this seemingly rigid structure flexible, he must make these dry bones live. But he must control the machine, he must not let the machine control him. For a doctor's work is as he does it, not as a system dictates it should be done. The glory of any free man's work is that it is an expression of himself rather than of a system. The doctor has changed much in things that are immaterial since he earned R. L. Stevenson's fine encomium. He must, and I believe he will, continue to deserve that it be said of him that he 'most notably exhibits the virtues of the race.'"

Dr. H. Guy Dain writing in the *News of the World*, asked: "Will you be satisfied with a health service which places you and your doctor under State control? The best and most complete health service does not require this; indeed, it would not be best if it interfered with the real doctor-patient relationship."

And last but by no means least, Prof. Laski (quoted in the *Daily Telegraph* of March 25) said: "Mr. Bevan's National Health Service scheme did not go far enough for him. He would have abolished private practice. He described as pre-Adamite the economics of the British Medical Association."

SALARIES OF NURSES AND HOSPITAL DOMESTIC STAFF IN NORTHERN IRELAND

Three committees and a co-ordinating council have been set up in Northern Ireland to review and report on the salaries and conditions of service of nurses and hospital domestic staffs. Their duties will be similar to those of the Rushcliffe and Taylor Committees in England and Scotland and the Joint Council for Hospital Domestic Staffs in England. The first committee will be concerned with general nurses, under the chairmanship of Mr. C. J. A. Woodside, the second with mental nurses, with Dr. T. Carnwath as chairman, and the third with hospital domestic staffs. Dr. N. B. Graham will act as special medical adviser to the mental nurses committee. The members of each committee form two panels—one representing employing authorities and the other employees. The co-ordinating council will include the chairmen of the three committees and two members nominated by each panel. The action of the Minister in establishing these committees has been generally welcomed and it is hoped that preliminary reports on urgent matters will be presented to him before the summer.

Local authorities are asked, in a recent circular, to submit to the Minister of Health proposals for improving hospital accommodation generally, but especially for nurses and domestic staff, and for providing domestic facilities which would make their work easier. Proposals, which should cover the needs of the next five years when it will be impossible to build new hospitals, should be listed in order of priority, first place being given to those which help hospitals to recruit and retain nursing and domestic staff. Schemes already, before the Ministry should be included, and the estimated cost given where this has already been arrived at. It is thought that there are probably a number of alterations not requiring much building labour which could well be attended to now and which would add considerably to the efficiency of the hospital.

Reports of Societies

VASCULAR INJURIES IN WAR

At a meeting of the Section of Surgery of the Royal Society of Medicine on March 6, with Mr. E. F. FINCH in the chair, the subject for discussion was "Vascular Injuries in War."

Mr. MASON BROWN based his remarks on an analysis of a number of cases, British and Italian, dealt with at a surgical centre in Italy in 1944-5. Arterial wounds, he said, should be divided into two main classes: (1) those associated with great soft-tissue damage requiring urgent surgical treatment (in many such cases amputation should not be regarded as a confession of failure, but as the price paid by the patient for life-saving surgery), and (2) those associated with trivial wounds of entry and little or no external haemorrhage, but with haemorrhage into the tissues. The treatment adopted in the cases admitted to the centre, which included 78 cases of traumatic aneurysm, was influenced by the results of primary ligation. In early cases sutures were carried out if this was at all possible. The ischaemic limb was kept at rest in a cool environment, using antiseptics during the summer months, and in a position which gave the maximum circulation—slightly elevated if there was oedema, but otherwise slightly dependent. Penicillin was employed liberally in the control of infections in the associated wound and in any wound distal to the lesion. Except for certain indications, such as external haemorrhage and secondary haemorrhage, no operation was carried out before the collateral circulation had been developed.

The operations—62 in all—were as follows:

Emergency operations (23): direct ligation 16; arterial suture 3; proximal ligation 4.

Operations on minor vessels (14): excision 9; quadruple ligation; arterial suture 1; aneurysmorrhaphy 1.

Operations on main vessels (25): arterial suture 11; aneurysmorrhaphy 1; direct ligation 11; ligation of fistula 1; ligation of neck of sac 1.

There was one death from ligation of the common iliac artery; in only two other cases were there complications. He added that a military surgeon could give only immediate results, and there must be a long-term follow-up. He hoped that this might be possible, in the British cases at least. Among the conclusions which seemed justifiable were: that the treatment of arterial wounds with minor soft-tissue injuries should be

conservative; that the nature of the operation to be carried out should be decided only when the exact pathology had been disclosed at operation; that, in the absence of emergency indications, operation should be delayed until the collateral circulation was established; and that the care of the ischaemic limb was of the greatest importance.

Effects of Sympathectomy

Mr. A. M. BOYD recounted his experience at the 63rd General Hospital, Cairo, 1942-5. For one reason or another he ligated 41 main arteries. In the war of 1914-18 Makins had shown that in a high percentage of cases gangrene followed ligation of the main vessels, but, apart from the presence of gangrene, there were other distressing complications—ischæmic necrosis followed by fibrosis, nerve palsies from poor blood supply, wasting muscles, and, last but not least, intermittent claudication. Makins had stated that ligating the associated vein was of assistance in maintaining the collateral circulation, but one could not help feeling that ligation of the vein could produce no more effect than the damming back of the venous flow, and that could be done equally well by posture. Moreover, ligation of the vein could produce a syndrome which was extremely disabling. The site of the ligation of the artery was important. But the main point he wanted to bring forward was the question of sympathectomy. With arterial lesions this was the quickest method of dealing with collateral circulation, though there was a certain amount of prejudice against sympathectomy, largely on account of physiological teaching. There was powerful evidence that sympathetic block did dilate the arterial tree. In 41 ligations of the main vessels he had carried out the appropriate sympathectomy in all but one case. In this series there was one case

of gangrene, which he thought was due to operative error and the sympathectomy could not be blamed. Cases of arteriovenous aneurysm numbered 15; their location was extremely difficult.

Prof. J. R. LEARMONTH mentioned the work of the vascular centre established under the E.M.S. in Scotland. In one case in which a large aneurysm of the first part of the subclavian artery extended into the superior mediastinum a very mutilating operation was necessary before it was found, and it was a matter for gratification to find that there remained little or no impairment. Many patients with arteriovenous fistula had blood changes not completely recognized. In addition to an increased blood volume they had a relative polycythaemia and an increased load of haemoglobin in each corpuscle. Several cases had come their way in which a vascular tumour had followed injury. In some of these, but not in all, there had been a small cutaneous haemangioma, and that lent support to the view that haemangiomas as a whole were not true tumours, but merely aberrations from the primitive arrangements of the vessels.

Dr. F. ALBERT, professor of surgery at Liège, said that his own experience dated from the last war, since when he had been continuously interested in all aspects of the surgery and pathology of vascular lesions. One of the points he emphasized was that simple obliteration of the main blood supply of the limb, whether by localized compression or ligature, did not produce any vasoconstriction, but did produce an important degree of vasodilatation and entailed a fall in blood pressure, which became more and more marked as the experiment proceeded.

A preliminary follow-up of 34 patients at Park Prewett Hospital, Basingstoke, was presented by Mr. MAYER. The cases included 17 varicose aneurysms, 11 false aneurysms and arterial haematomas, and 6 aneurysmal varices. There were no deaths, no cases of gangrene, and only one case of ischaemic myositis. Cure by operation was effected in all cases except one, which was improved. Ligation was performed on 26, and suture on 6; of these 6 suture cases, 3 were completely successful, 1 partially successful, and 2 failed.

Mr. F. A. D'ABREU said that Makins drew attention to a condition which he called arterial shock, due to injury which, without actually tearing the artery, resulted in intense spasm of the artery and its collaterals. A man in Burma had a penetrating wound in the upper arm, followed by absence of pulse and quite cold hands. Arterial injury was diagnosed, but on arriving at the neuromuscular bundle no sign of the brachial artery could be found. After careful exploration he discovered a vessel no larger than a quill which had no pulsation in it. On dissecting this tiny vessel he was able to see pulsation return into it; the wound was closed, there was no haematoma, and the condition of arterial spasm completely disappeared. The man was evacuated in good condition.

Mr. A. W. BADENOCH stated that he had had the opportunity of seeing a number of cases of vascular injury, including injuries of the carotid. He himself saw several cases of ligation of the common or internal carotid, and in none of them was there any hemiplegia or other ill effect from the ligation: none of these cases had had a sympathectomy. Another speaker had had the same experience, and said that a series of over 100 cases of traumatic aneurysm had been dealt with at one centre without a single instance of gangrene, and in no case was sympathectomy done.

A clinical meeting of the Medical Society of the L.C.C. Service was held at Bethnal Green Hospital on March 6, when cases were demonstrated by the staffs of Bethnal Green and Hackney Hospitals. There were 90 members present. After the demonstration there was discussion upon some of the cases, including the use of silver filigree for operation upon herniae.

The Microbiological Panel of the Food Group of the Society of Chemical Industry held five meetings during the past year. The subjects of the eight papers included fungicidal action of copper; heat-resistance of micro-organisms; problems in the bacteriology of rivers; some aspects of disinfection; and amino-acids and the metabolism of the cell. The annual general meeting of the Panel will be held on April 12 at 2.15 p.m. at the London School of Hygiene and Tropical Medicine.

Correspondence

The Health Service Bill

SIR.—There is an aspect of this Bill which so far has received little attention but which, to me, appears to be of supreme importance to every citizen. I have examined the Bill and it looks to me uncommonly like the first step, and a big one, towards National Socialism as practised in Germany. The medical service there was early put under the dictatorship of a "Medical Fuehrer." This Bill will establish the Minister of Health in that capacity. I mention only a few of the signs that this is the intention. Camouflaged by the existence of the Central Health Services Council, ostensibly intended to help the Minister to co-operate with the medical profession, he can suppress its report if he disagrees with it instead of presenting it to Parliament. He is to be responsible for all our hospital and all the medical and nursing services. He is to control by Regulations all appointments made by the Regional Hospital Boards. Through the Medical Practice Committees he can include, or exclude, any new applicant for practice in any area. If he is not satisfied with the conduct of any board or committee he may transfer their functions to himself.

More detailed control is left to Regulations which must be presented to Parliament, but I have good reason to remember that this apparent safeguard was of little use in the similar situation which arose when the National Health Insurance Bill was being discussed. Literally hundreds of regulations and amendments were rushed through a House which hardly even pretended to examine them, for it was not physically possible to do so. The situation in this respect is not likely to be more favourable in the hands of a Government which prides itself "on getting things done." If I am right in my belief that the provisions of this Bill indicate that the medical profession is in future to be under what amounts to a dictatorship, what is to prevent other professions and trades being similarly dealt with?

I call it a dictatorship because the reading of the Bill convinces me that the Minister, unless this Bill is radically altered, can, in future, do anything he likes with the doctors (and through them with their patients) except leave them alone. Did the electorate really think that this is what we fought for?—I am, etc.,

ALFRED COX.

PS.—The above letter was submitted to the *Times*, whose Editor regretted that he was unable to use it.—A.C.

SIR.—All are agreed that the best possible health services should be available to all members of the community, and the fundamental problem is to decide the best method by which this goal can be reached. The imperfections of the present system depend upon financial stringency, for the working classes have always been reluctant to reserve funds for emergency ill-health, and since the First World War the voluntary hospitals have been unable to supply sufficient beds and services to meet the needs of the country. Moreover, patients of the working classes cannot now obtain hospital treatment free of charge, as was the case before the First World War, and many resent having to pay even for part of these services. Another complaint has been that the rich can obtain better treatment than the poor, and it is believed that if doctors become whole-time salaried servants of the State they will be unable to discriminate between the different social classes. It is excellent political propaganda to nationalize the health services, for it is clear that some form of State aid is necessary on financial grounds, the money coming ultimately from the pockets of the working classes. The question is not whether a State service should be opposed, but whether the proposals are the best possible. Fundamentally, the conflict between the Government and the profession will depend upon the extent to which bureaucracy intrudes into the administration of an expert service.

The new Health Service Bill has a better administrative framework than that of the Coalition White Paper. I think it would have been better to place the teaching hospitals and medical schools under a department of medical education and research at the Ministry, for I am not convinced that the universities

always display a lively interest in late pre-clinical and clinical subjects. There must be a close association between the universities and the medical schools, but medical education and research are of such vital importance to the future of the Empire that they are worthy of special consideration, even to the extent of overriding the interests of the universities.

The pooling of the resources of the voluntary hospitals will cause great concern, and is probably based upon the Socialist idea of eliminating all "taint" of charity from the service. The Central Health Services Council is retained and will buffer complaints from all interested bodies. But who will be the mystical figures in the cloud-capped towers at the Ministry who have executive control? I cannot believe that the administration will succeed unless they are acknowledged experts in their particular branch. Apart from prophylaxis, what matters most in medicine are diagnosis and treatment, and I find it difficult to believe that a civil servant without medical training is the best person to have executive control.

For great achievement three essentials are required: (1) Experts at the top with executive control. (2) The best possible equipment. (3) A spirit of service and vigour among the executives. This rule holds in all walks of life, from the battles of Trafalgar, of Britain, and of El Alamein to any successful play or business. I am sceptical about No. 1 for the proposed health service. No. 2 has possibilities, and now we come to No. 3. I doubt whether a whole-time salaried medical officer will be content unless he has good working conditions, a reasonable salary, and hours of work corresponding to those of other salaried officials. In time he may ask for a forty-hour week as others do. He should have something more—what the Russians accept as "greater reward for greater service."

Whether the service will succeed or fail depends upon the members of our profession. If they join the service they must know what their commitments will be and for what reasons they can be dismissed, fined, suspended, or reprimanded. I think that doctors should have the power to refuse particular individuals as patients, for we all know how difficult some people can be. Many people will want to get something to show for their weekly contributions, which are substantial, and much more will be expected of practitioners and consultants than in the past; it may be impossible to contend with this extra pressure of work. At the moment, with the meagre information available, it seems to me that the profession cannot commit themselves to the service.

If we are allowed at any future date to negotiate with the Minister the responsibility of the profession in the service should be defined. It would be a great mistake in strategy if we allowed ourselves to be blamed for any failings of the service for which we were not responsible.—I am, etc.,

London, W.1.

WILFRED SHAW.

SIR.—In addition to the National Health Service Bill (Bill 94) the Ministry of Health has also published a "Summary of the Proposed New Service" (Cmd. 6761). The latter document is misleading in many points. For those who will prefer the summary to the Bill—the majority by reason of the greater intelligibility of the summary and the doctors from pressure of clinical engagements—a word of warning is necessary. Some of these points are:

1. Summary, Sec. 20. "... the Minister is to consult... bodies representative of..." The Bill, 1st Schedule, commits the Minister to consultation only with "... such organizations as he may recognize as representative..."

2. Summary, Sec. 24. There is no hint in the Bill of the intention that "Regional Boards, with their local Management Committees, shall enjoy a high degree of independence and autonomy within their own fields." Since it is not in the Bill the Minister cannot be held to the fulfilment of this "object."

3. Summary, Sec. 33. "Before making regulations he [the Minister] will consult..." This is nowhere mentioned in the Bill.

4. Summary, Sec. 41: "Professional" members of the [Executive] Council. These members are not "appointed by the local doctors, dentists, and chemists through their own representative committees," but are appointed by a committee which the Minister "may recognize" where he is "satisfied" that such committee "is representative" (Bill, Sec. 32 (1), and

thoracic XII, ilio-hypogastric, and ilio-inguinal nerves on four unpreserved subjects within 24 hours of death. In every instance the nerves had a different pattern and position, even on the two sides of the same subject.

From these observations and from practical experience I conclude that to be certain of blocking the ilio-hypogastric and ilio-inguinal nerves it is necessary to infiltrate the internal oblique muscle from 3 to 4 cm. cephalad to 2 cm. caudad to the anterior superior iliac spine in a line 2 cm. medial to the spine, and that the infiltration must be continued laterally and cephalad through the internal oblique and transversalis muscle to a distance of 3 to 4 cm. from 3 to 4 cm. cephalad to 2 to 3 cm. caudad to the iliac crest. Such an infiltration requires 20 c.cm. 1 in 200 novocain (procaine), 1 in 2000 nupercaine, or 1 in 3000 amethocaine in 0.9% saline solution.

When the correct technique has been acquired the results will be found satisfactory. Speed comes with practice.—I am, etc.,

F. R. W. KINKEAD ALLEN.

A Coincidence?

SIR.—The following two cases should be of interest, as I can find no reference in the literature to a relationship between history of twins and dextrocardia, and these two cases suggest a genetic relationship between the two. The cases were seen within two weeks of each other and were in no way related.

Case 1.—Male aged 44. On examination the apex beat was situated on the right side of the chest in the fifth interspace, $3\frac{1}{2}$ in. from the mid-line. The lungs appeared normal and liver dullness was on the left side. Clinical diagnosis of dextrocardia with reversal of viscera was made and confirmed by x-ray examination of the chest and barium meal. The patient gave a history that his mother and father were each one of twins.

Case 2.—Female, aged 48, with practically similar findings also confirmed by x-ray examination and barium meal. She gave a history that: (1) grandmother and grandfather were each one of twins; (2) sister had twins; (3) uncle had three sets of twins.

These two cases were seen during routine examinations in general practice, and on account of the rarity of the condition the possibility of further cases is remote. It is interesting to note that the man had been left-handed from birth, while the woman was normal in this respect. The relationship here between dextrocardia and twins may be purely coincidental, but it is possible that some genetic factor may be involved.—I am, etc.,

Leamington Spa.

JOSEPH C. JOYCE.

Bitterness

SIR.—I strongly suspect that the "bitterness" felt between Service and non-Service medical men is by no means one-sided. It will take all the calm reasoning of many Major Stallards to eliminate the feeling which undoubtedly exists on the side of the E.M.S. It is for us, therefore, to be tolerant and sympathetic to the resentment of those who did not go to war. The man who wanted to go and for one reason or another was not allowed to do so feels envious of his more fortunate colleagues, while the man who "dodged the column" cannot easily forgive those who come back after years of precious experience of mankind and stirring events, with the horizon of their minds widened in a way that should fortify them against any and every adversity that they may encounter in the future.

To the disgruntled Service man I would say: "Knowing what has happened (and your father would have told you exactly the same story after the last war) and if you were put back to 1939 would you have done any differently? Of course you wouldn't; because you are you and not the man next door. Well, then, don't grumble about it. Just be sorry for the man who has been deprived of these rich experiences, either by misfortune or by the narrow ambitions of his own mind."

Dr J. M. G. Wilson (Oct. 6, p. 477) seems to be suffering from a rather pathetic inferiority complex. Any man who is not the better for his life in one of the Services must have been blind to the world in which he moved. The worst if not the only defect that one notices at the end of a Service doctor's career is a slightly reduced capacity to suffer fools gladly. No doubt even this cardinal virtue will be restored to him after

a month or two of the less pressing conditions and more evolved self-discipline imposed by civilian life.

I must protest also against what Squad. Ldr. J. L. Brown has to say about "time-wasting sanitation." Most of my time has been spent in doing surgery in the forward areas of North Africa and Italy, but for three months I had to battle with the problem of keeping a meagre force of French *maquis* "in the field" (literally) and free from epidemics. This force was totally untrained in the elements of hygiene, and as short of paper as it was of soap and even water. The inculcation of a few ideas on "time-wasting sanitation" served a more useful purpose in the war effort than the exhibition of technical surgical skill on a few individuals. Moreover the emphasis in medical practice of the future is more and more in this direction.—I am, etc.,

GEOFFREY E. PARKER,
Major, R.A.M.C.

Millbank S.W.

An Institute of Medical Photography

SIR.—Almost twenty years of hospital clinical portrait photography of the highest quality and usefulness, carried out by my colleague Dr A. H. Turton in the skin department of the Royal Victoria and West Hants Hospital, has taught us several lessons that the patient should be photographed promptly, when first seen, before treatment has altered appearances; that this should be done by the practitioner himself who can reach the patient wherever he is, or by the member of the hospital staff who picks out patient and posture, rather than by any layman. Delay in taking the photograph only means that likely cases will slip away, or will not be seen again in the same interesting phase of the illness. It seems unlikely that a hospital authority would interest itself, whether in the matter of money or photographer or dark-room accommodation, in what is purely a professional concern, a diagnostic refinement, well-intentioned though it might be.

Mr. H. Mandiwall suggests (Oct. 6, p. 479) that the first thing needed is a competent photographer, and he is right: this is the crux of the whole matter. The clinical photographer must be self-trained; no snapshot is good or near enough; a suitable camera with portrait lens is a necessity, and a good light with screening for background desirable. To go along with each negative and print there must be a full caption; without this the value of the picture is vastly lessened.

In time coloured photography may come into vogue; but in skin patients particularly the coloured portrait of a well-executed tinted wax cast, though taking much art and time in production, can present a life-like image. Coloured prints of static moments, or kinetograph reproductions of movements in disease, require specialized knowledge and apparatus, and cost much in time and money; in any case they have a limited use only. For demonstration purposes, though colourless, the ordinary well-taken photograph and the lantern slide prepared from the negative are of the most use to the practitioner, and the photomicrograph to the pathologist; but only if captioned amply enough.

The best service to be rendered by an institute would be as a centre for London meetings and demonstrations in clinical photography, for storage of pooled negatives and prints that over-fill shelves and cupboards; but, most important of all, to issue a monthly or quarterly photographic journal to serve a similar purpose in medical journalism as the illustrated daily does in the newspaper world; run on business lines and for members of the profession and medical libraries, exclusively. Such a journal published under the aegis of the British Medical Association—to control policy, printing, and separate sale—would serve the purpose admirably.

In the past the pictorial art has been made too little use of in medical literature and practice; nor has the profession been well served in the matter by its journals. "The pictures for the page alone"; not to take and print a good photograph is to cast a pearl away. There is a saying which has truth in it: "Better a picture than a thousand words." A photograph is the next best thing to contemplating the patient in person; besides, seeing is believing, and might spare one a little the laborious reading of wordy books and papers.—I am, etc.,

Bournemouth.

S. WATSON SMITH

"Reasons" for Scientific Research

SIR.—I was delighted to read the leading article on Pasteur *apt.* 29, p. 429), but two remarks need further elucidation on ascribe the famous retort, "What is the use of a newborn baby?" to Benjamin Franklin. I have always understood it have been uttered by Faraday when asked to the use his discovery of the relation between electricity and magnetism.

Your remark that there are "present-day scientists who would restrict scientific research to subjects of 'social value'" is also need of some explaining. Who are these scientists and what meant by "social value"? Surely all research is of value human society, with the exception of certain researches conducted at Belsen and Buchenwald. When one discusses the value of research it is important to remember that research justifies many values and needs and that it is conducted for many purposes and reasons. I know of only two theories on the reasons for scientific research. One theory states that it is done solely to satisfy the curiosity of research workers and presumably those who finance them. The other states that research is of two kinds: practical and theoretical. The former applied to problems arising out of the current practice of society; the latter kind of research is applied to the theoretical problems arising out of the practical problems and out of previous theoretical problems. Since the latter theory explains only "why" research is done but also "what" research is one, it should be possible to decide between these theories by practical investigation. After all, human curiosity being innate, always the same.

I would be delighted to hear an explanation of the fact that we can spend £5,000,000,000 on the atomic bomb, while there is not even £1,000,000 a year for medical research—in terms of human curiosity and a disinterested passion for truth.—I am, etc.,

M. HAMILTON, Fl. Lieut.

Press Publicity

SIR.—It is rather a fortunate coincidence that concurrent with the letters from Sir Adolphe Abrahams and Mr. John Langdon-Davies on press publicity (*Sept.* 29, p. 444) appears a suggestion in the *World's Press News* by Mr. W. E. Dick, the editor of *Discovery*, that there should be formed a Guild of Science Writers. He suggests that membership of the guild would require the writer to hold some scientific qualification, a token on both the newspaper and the scientific worlds of the individual writer's competence to handle scientific subjects.

As a writer for many years on medical subjects I welcome both the suggestion of Mr. Dick and the letters of Sir Adolphe Abrahams and Mr. Langdon-Davies, especially the knowledgeable remarks of the latter. The trouble is that the average journalist is practically entirely ignorant of medical knowledge; indeed he often knows less than the young first-aider. He knows nothing of medical history; Harvey to him is probably a boxing exponent; he cannot distinguish between the sulphonamides and sulphanilamide and lumps them all under M & B. The result is that when he has to cover a medical story he cannot meet the doctor or surgeon on his own ground or talk the same language, and so chooses the sensational angle from scraps that he can understand to hide his lack of knowledge. Obviously the cure for this is not the responsibility of the medical profession; it is for editors and newspaper proprietors to see that a medical or scientific journalist is on their staff or at call to cover such stories.

Mr. Langdon-Davies's remark about the voluntary hospitals and publicity is much to the point. Where voluntary hospitals issue news items it is usually done by an appeals secretary, who is very seldom a trained journalist, with the result that many a genuine story of wide appeal is overlooked or badly handled—the loss being that of the hospital concerned and the voluntary system. The solution here is for every voluntary hospital to have a journalist as its press officer, not necessarily in a paid capacity, though any hospital that paid a good journalist a small retaining fee would repay itself many times over in the course of a year.—I am, etc.,

NORMAN K. HARRISON.

Humanitarianism and the European Situation

SIR.—I have read with interest the letter from Lieut.-Col. Eric Townsend (*Sept.* 29, p. 446) regarding the present position in Europe, and I think that his suggestion about the care of European children is an excellent one, and one in which I, for my part, would be glad to assist, both as regards taking such a child and in any other way possible—I am, etc.,

D. F. MCCARTHY,
County Medical Officer of Health.

SIR.—May I thank Lieut. Col. Townsend for writing, and you for publishing, his letter? I hope it will be the means of stimulating into action many who share his concern. It has had that effect on me, and I write to say that I will gladly take two children under the age of, say 10, as he suggests, for the period of one year, and I should prefer two German or Austrian children. I will also gladly take part in any committee or administrative work that might be necessary to give practical effect to the scheme.

I appreciate the difficulties in the way and quite see in advance arguments which may be used about the shortage of transport, the dangers from a psychological point of view of taking children away from their parents, etc. I would only suggest that there are unfortunately numberless children who have already lost their parents and their homes in Germany and elsewhere, and that it is to these children and others that we must look to safeguard the future peace of the world. Apart from the opportunity of saving them from the threat of death this coming winter, there would be the constructive opportunity of ensuring that they will be able to make the best possible contribution in the future.

As to transport, when it was a question of saving our own folk from Dunkirk we laughed at difficulties and they ceased to exist. We have only to care equally in this present desperate situation for the equivalent of the little ships and the individual homes to overcome the difficulties once more. Since Col. Townsend said that he was leaving for the Continent and had to leave the follow-up of his idea to someone else, so great is my own concern that if no one else takes the matter up may I ask that any others of your readers who are prepared to help should get into touch with me?—I am, etc.,

12 York Road, Harnage

KATHLEEN RUTHERFORD

Alien Doctors

SIR.—There is little doubt that most of your readers have been distressed by the recent letters vilifying alien doctors. It is, I hope, not griggishness that prompts me to put in a word on the other side. Certainly it seems only fair play that this should occasionally be done. Further, repetition in print does have an effect on the reader, and the effect in this case is one that promises release of nastiness.

If we are a profession of gentlemen (otherwise we are surely not a profession) then we are ashamed of these lapses into bad manners. If we still have any British courage then we fear no competition, and even look forward to a test that may be as stimulating as it should be valuable to us and the community. If we are a nation of calculating shopkeepers then we recall the profit to British medicine from the work done here by those with foreign names.

It was Rome's proud boast to be a city where no man is an alien save the barbarian and the slave. Some 800 years before Sidonius made this claim, Hippocrates said the physician "must be a gentleman in character, and being this he must be grave and kind to all."—I am, etc.,

A. C. LENDRUM.

SIR.—Capt. John Nesfield (*Oct.* 6, p. 478), is afraid he will be out of a job when he gets back. The natural reaction is to find an outlet for this, and the most convenient scapegoat is the Jew, the favourite one in all countries, unfortunately, and in all ages (What a wonderful role the Jews have, and why is this correspondence about alien doctors when what is meant is Jewish refugees, as most of them are Jewish?) This fear exists in spite of there being an acute shortage of doctors here, and even if all were released there would still not be enough

to man the new health scheme. As to numbers, Capt. Nesfield knows as much as I do, which isn't much. But I still believe in the kindness of the average Briton. If the numbers prove to be small (and there is at least as much reason to suppose this as to accept the wildly exaggerated statements of Capt. Nesfield), then I hope that Christian conscience and innate British decency will allow them to remain. And in spite of the fact that Irishmen volunteered during the war it still remains true that Eire was neutral throughout and that Jews as a people lost more proportionately than anyone else in the war, not excluding Russia.—I am, etc.,

Loxwood, Sussex.

J. VINE.

SIR,—In spite of the many letters which have appeared in the *Journal* during the past year or so on the subject of alien doctors, I have failed to find a single remark with regard to the attitude of the British public towards these foreigners. Surely the people whose health has been entrusted to the alien doctors should have a say in the matter. The fact, as stated by Capt. Nesfield, that a very large number of them "are entrenched in and around Harley Street" seems to prove that they are more liked by their British patients than by their British colleagues, or shall I say they are disliked by their colleagues for this very reason?

I wonder whether Capt. Nesfield has taken the trouble to find out for himself the exact number of alien doctors serving in the Forces to call it disproportionate. I am one of those who volunteered early in the war and was enlisted in the Pioneer Corps. Building Nissen huts, guarding petrol dumps, and the like was our service until, in 1941, we were given an opportunity of medical employment as civilians and released from the Army. If the Government had wanted to use us as medical officers they could have directed us accordingly. Let us be quite frank. Is the "great anxiety felt by members of the profession over-seas about our presence in the U.K." solely due to our professional inefficiency, and is the demand for us to leave this country essential for the well-being of the population which we tried to serve best during the war? If not, what then is the reason for the great anxiety?

I am quite aware, together with some of the "strange importations" as we were once referred to, that we shall be made superfluous when most of the British Service doctors will have been released. But I should have expected at least a more academic approach to the problem by some of our British colleagues, even though we are only temporary members of this noble profession.—I am, etc.,

Macclesfield.

M. TANNENBAUM, M.D.Graz.

SIR,—Capt. Nesfield has complained of alien doctors "entrenched in and around Harley Street and all over London." He says that of these a disproportionately small number have attuned in the Services during the war. Capt. Nesfield overlooks the fact that only a small number of these doctors could have joined up, as only a small number of the applications for naturalization had been granted. The naturalized doctors who were fit and of military age have joined the Services. Capt. Nesfield wants the alien doctors to be turned out. I wonder if he has ever spent a thought on the question as to where they would go. He will know that most of them are of Jewish extraction and that their parents, relatives, or friends have been slaughtered in Germany. How can they live or practise here? Palestine, the land promised to them by the Balfour Declaration as a National Home, is now more closely and jealously guarded than ever against their entry.

After obtaining a British qualification these doctors have built up their practice, facing difficulties and handicaps quite unknown to their British colleagues. A large percentage of their patients are refugees, who have been attended by them before they were driven out by the Nazis. The rights of those who have fought for this country must be recognized. These rights are not endangered by the presence of a few alien doctors in the Harley Street district. These Jewish doctors are not "entrenched" here like a hostile battalion, but long to become British and to work together with their British colleagues.—I am, etc.,

Fulham, W.S.

H. LYTTON.

Nutritional Macrocytic Anaemia

SIR,—In the leading article in which the pathogenesis of nutritional macrocytic anaemia is discussed (Oct. 13, p. 501), you refer to the work of Moore and his colleagues showing that the macrocytic anaemia of pellagrins is apparently due to lack of an extrinsic factor normally supplied by dietary protein. It may therefore be of interest to your readers to know that recently we have found that rats on a diet of methionine develop a macrocytic anaemia characterized by changes in the peripheral blood and in the bone marrow similar to those in human nutritional macrocytic anaemia (Glynn, Himsworth, and Neuberger, *Brit. J. exp. Path.*; in press). The development of this anaemia is not prevented by large supplements of cystine or of iron.—We are, etc.,

L. E. GLYNN,

H. P. HIMSWORTH,

University College Hospital Medical School, W.C.1.

A. NEUBERGER,

National Institute for Medical Research, N.W.3.

Obituary

R. CUNYNGHAM BROWN, C.B.E., M.D.

We regret to announce that Dr. R. Cunyngnam Brown, late Commissioner of the Board of Control for England and Wales, died on Oct. 7 in retirement at Lymington, Hants.

Robert Cunyngnam Brown was born in 1867, second son of the Rev. Robert Brown, of Paisley. He was educated at the Universities of Glasgow, Durham, and Frankfurt, graduating M.B., B.S. of Durham in 1890, and M.D. in 1898. After holding several resident hospital posts and three years in general practice, he worked under Carl Weigert in his neuropathological laboratory at Frankfurt a.M. This was followed by a year and a half at the National Hospital for the Paralysed and Epileptic, London, and a period as pathologist to the County Asylum, Chester. In 1899 Cunyngnam Brown entered the Prison Service as deputy medical officer, and twelve years later was transferred to Scotland as Deputy Commissioner in Lunacy. In 1915 he was seconded to the R.A.M.C. with the temporary rank of major, and held the post of officer-in-charge of Strongburn-Woodside Military Hospital, Glasgow; he then went over-seas for service in Macedonia with the 37th British Hospital attached to the Serbian Army and as mental specialist to the Salonika Command. He was recalled to England and lent to the Ministry of National Service, and in 1919 was officially transferred to the Ministry of Pensions as Deputy Director-General of Medical Services, retiring in 1925. For the next six years he was a Commissioner at the Board of Control. His services in the war of 1914-18 were recognized by decorations from the Portuguese and Serbian Governments, and he was mentioned in dispatches.

Cunyngnam Brown was an able and fluent writer, and everything he wrote or said or did bore the mark of enthusiasm and good will. He was joint author of a paper on diffuse encephalitis in *Brain* in 1892, wrote two clinical papers for the *Lancet*, and an article on the boarding-out of the insane in private dwellings for the *Journal of Mental Science*; he also prepared a report on the family care of the insane poor for the Royal Commission on the Care and Control of the Feeble-minded. He was a valued contributor to these columns for some years, and his occasional visits to the editorial office made one feel that a breath of genial sea air had come to London.

DR. ALFRED COX writes:

Cunyngnam Brown has been a friend of mine for nearly 60 years, though we met rarely. He was fellow student of mine at Newcastle-upon-Tyne and one of the most popular men in college. He had many advantages—he was a son of the manse, he had a good brain, a handsome and imposing presence, and a sweetness and generosity of disposition which characterized him all his life. In spite of the important official positions he held, always with credit and distinction, Brown was never much in the limelight. He went about the world a good deal on official missions and generally turned up at B.M.A. headquarters to report himself to me and the Editor. He was a favourite with everybody who knew him, and he had the happy family life he deserved until two of his sons failed to get away from Malaya when the Japs invaded it. I had heard nothing

of him since I was told that he and his wife were going East to look for them. I hope he was successful. His heart was as big as his body, and that is saving truth.

K. W. M. writes:

Robert Cunningham Brown numbered Dr. John Brown of *Rob and his Friends* among his forebears, and on his mother's side was a Highlander. After a medical course in the Universities of Durham and Glasgow he went to Frankfurt to study neurology, and on returning to Great Britain was appointed a clinical assistant at the Queen's Square Hospital, where he made a special study of tabes dorsalis. He went then into the Prison Medical Service, and in more than one institution was responsible for improvements in the treatment of inmates, more particularly in the provision of reasonable occupation and opportunities for education. His work in this respect left its mark on the whole prison service. He left HM Prison, Birmingham, in 1912 to become Deputy Commissioner of Lunacy for Scotland.

On the outbreak of war in 1914 he applied for military service, and was put in charge of Woodside and Sprinburn Military Hospitals, Glasgow. Thence he went in May, 1916, as captain, R.A.M.C., to Macedonia with the 37th General Hospital attached to the 1st Serbian Army; and after acting later as consultant in mental disease to the Salonika Command was recalled in 1918 to join the staff of the Ministry of National Service. He was transferred in this year to the Ministry of Pensions, where he filled the office of Deputy Director-General of Medical Services. His experience as a civil servant stood him in good stead in this important post, and it was due to his advice on policy that the system of Pensions Boards and other complicated machinery for dealing fairly with the returned soldier were set up. Ill-health traceable to severe dysentery in Macedonia compelled his retirement from the Ministry of Pensions in 1925, but he surprised his friends by a complete recovery, and was appointed a Commissioner on the Board of Control for England and Wales in 1927. He served in this office until his final retirement in 1933.

During the earlier part of his professional career he published several papers of recognized importance on neurological subjects; later he did much reviewing and article-writing for medical journals, particularly for the *British Medical Journal*, with whose late Editor, Sir Dawson Williams, he enjoyed a close friendship. In the various services to which he was attached—the Prison Medical Service, the Ministry of Pensions, and on the Board of Control—his influence was great and abiding, owing first to a far-reaching intelligence which enabled him to see the implications of problems, and particularly their implications for persons—for the prisoner, the pensioner, and the mentally afflicted—but above all to the complete integrity of his character. As to the latter, it is difficult to speak plainly. The more intimate his friends, the more they came to grasp his complete selflessness in every relationship into which he was brought by his work and by the other occupations of every day. He was repaid by the deep affection of many, the only coin which he valued, though it is certain that he never counted what was given him. During the last year he had to bear the affliction of almost total blindness from glaucoma, and a few days before his death he heard of that of his second son on the Bankok-Moulmein railway in 1943; but almost at the same time he also heard of the safety of his third son in Singapore, whose fate had been unknown since February, 1942. His wife, a daughter, and his third son survive him. A distinguished public servant, a great doctor, and a splendid friend.

A. S. writes:

The words "a great gentleman" are not lightly to be used, but none who knew "C. B." would question his possession of all that they imply. Tall, handsome, debonair, his physical presence impressed, whilst his voice and greeting showed an immediate personal interest, whoever you might be. This initial charm did not fade as one came to know him better; it was a true expression of the man. He could indeed be sharp and peremptory if need be, he could be unreasonable or inconsequential, but he was never small-minded or self-seeking. He believed the best of his fellow-men, and evoked the best from them.

As Deputy to the Director-General of Medical Services of the Ministry of Pensions, Sir Lisle Webb (whose death has strangely occurred on the same day), he was a loyal, strong support through the difficulties of the early post-war years, and his wide experience of mental and allied diseases was invaluable in solving many clinical and administrative problems. By his colleagues, medical and lay, he was beloved. An endearing trait was an absent-mindedness which lost him countless umbrellas, and once, it is said, while visiting an office at Northampton he suddenly remembered it was Southampton to which he had set out.

For health reasons, fortunately temporary, he retired from the Ministry after only six years' service; but, though the loss was great, his influence remained. During the late war he returned as a specialist on medical boards; as keen, as energetic, as courteous as ever, bearing heavy domestic anxieties and sorrows with a smiling fortitude.

JOHN WOOD, M.B., Ch.B., D.T.M.

The sudden, unexpected death of Dr. John Wood of Bournemouth has brought much sorrow to all who knew him as physician and friend. Born in Aberdeen in 1890, he was educated at Gordon's College there, afterwards at the University, where in 1912 he graduated in medicine. From the first his intention had been to educate himself for work in the foreign mission field. With this end in view, immediately on qualifying he became house-surgeon at the Worcester Royal Infirmary; later he proceeded to take the D.T.M. at Liverpool (1915) in preparation for medical missionary work under the aegis of the Church of Scotland. After ordination he was directed to Calabar, Southern Nigeria, West Africa, for duty and in charge of the Mary Slessor Hospital at Zitu on the Cross River and of eleven widely-scattered mission stations based on the hospital. After some time there he was transferred to a newly built hospital and mission station at Uburu, where he continued to do valuable pioneer work. Being young, keen, active, and conscientious, John Wood speedily mastered the local dialects and made his work indispensable; he was held in high esteem by the natives among whom he ministered. In the end his health and his wife's health suffered so severely by reason of the death-dealing environment in which they lived and worked, and by the poor sustenance that the country afforded, that both were ordered home for good.

John Wood, on his return, settled in practice at Wigan, being appointed assistant surgeon to Wigan Royal Infirmary and medical officer and vaccinator to Wigan Union. After five strenuous years, for health reasons, he relinquished practice there and settled in Gournemouth, where he continued to live and work for his remaining years, by his gentleness, his sympathetic kindness, and his conscientiousness endearing himself to all who came into contact with him. It was the divine side in John Wood that brought him of his own free will to sacrifice himself for others by accepting missionary work, and in the parasite-infested wilds of West Africa. In all he did he seemed to be guided by an abiding faith to support in him a matchless fortitude and determination in a nature both kind and gentle. Constantly, in all manner of ways, he strove to do good and to help and encourage others, with never a thought of self. There were in him all the fine qualities of the stock from which he came: all the virtues went to build in him that nobility of character we knew to be his. Near the surface, often breaking out unexpectedly, lay a pawk, dry humour that was characteristic of Scottish. He possessed the quiet, tranquil mind along with a becoming humility, owning all the attractive attributes with which Nature endowed the true gentleman. Of all men, John Wood could claim to say, "I have fought the good fight, I have finished the course, I have kept the faith." Much sympathy will be felt for a man and five children in their grievous loss. S. W. S.

We regret to announce that DR. ROBERT EDWARD BURNETT formerly of Moreton-in-Marsh, Gloucestershire, died in hospital at Chichester on Sept. 25. Born at Moreton on May 12, 1866, the son of a medical man, he was educated at Chipping Campden Grammar School and the University of Edinburgh, where he graduated M.B., Ch.B., in 1888. Dr. Yelf was for many years surgeon to the Moreton Cottage Hospital and district M.O. for the Shipston-on-Stour Union, and M.O.H. for Stow-on-the-Wold Rural District Council. During part of the war of 1914-18 he served as temporary lieutenant, R.A.M.C. He joined the B.M.A. immediately after graduation, was chairman of the Oxford Division and president of the Oxford and Reading Branch in 1908, and was made an Associate Member of the Oxford Division in 1931 when he left Moreton-in-Marsh to live at Selsey. In Moreton and for a wide radius around he had identified himself with every aspect of local life. On his departure a presentation, subscribed to by 730 people, was made to Dr. and Mrs. Yelf to mark the affection and esteem in which they were held. His father, whom he joined in practice in 1888 and succeeded in 1895, was one of the founders of the cottage hospital. In his younger days Dr. R. E. B. Yelf was a keen sportsman and captain of the local cricket and football teams. He had been for many years honorary secretary of the Moreton Working men's club, chairman of the parish council, and at one time captain of the fire brigade. After leaving the Cotswolds for Selsey he became an active member of the bowling and tennis club, and did much to maintain the greens and courts when the regular staff were away. During the war, though retired from active practice, Dr. Yelf took on a great deal of medical work once more in order to replace the younger medical men who had joined the Forces, and up to the time of the short illness which preceded his death he was working in the village among his numerous patients, with a cheery smile and a word for everyone he passed on the road.

The Services

Surg. Capt. F. L. Cassidi, V.D., R.N.V.R., has been appointed an Honorary Surgeon to the King.

Surg. Cmdrs. E. C. Johnson, A. L. Gunn, and G. P. McCullagh have been awarded the R.N.V.R. Officers' Decoration.

Acting Group Capt. Sir Louis L. Greig, K.B.E., C.V.O., R.A.F., has been appointed an Officer of the Legion of Merit by the President of the U.S.A.

Acting Surg. Lieut.-Cmdr. J. S. Guest, R.A.N.R., has been appointed O.B.E. (Military Division) for great skill and devotion to duty as Principal Medical Officer of H.M.A.S. *Westralia* during the landing on Tarakan Island on May 1.

Surg. Lieut.-Cmdr. W. H. Milroy, R.A.N.R., has been mentioned in dispatches for skilful organization and for courage and devotion to duty in the operations covering the assault landing of 2/48th Assault Battalion, 9th Australian Division, at Tarakan on May 1, while serving in one of H.M. Australian ships.

The following appointments, awards, and mentions in dispatches have been announced in recognition of gallant and distinguished services in the field:

M.B.E. (Military Division).—Lieut.-Col. (Acting) W. E. A. Buchanan, T.D., Lieut.-Col. (Temp.) J. C. Mackay, M.C., T.D., Major W. L. Kinnear, and Major (Acting) J. D. Finlayson, R.A.M.C. M.C.—Capt. J. Burns and Lieuts. R. Mackay, D. J. Macrae, F. W. M. Plant, and G. E. Stoker, R.A.M.C.

Mentioned in Dispatches.—Major (Temp.) C. H. Imrie, Capt. J. Morrissey (killed in action), Capt. (Temp.) A. Taylor-Smith, and Lieut. G. H. Darke, R.A.M.C.

Freed in the Far East.—Lieut.-Cols. H. C. Benson and C. W. Maisey, Major P. B. Hanbury, Capts. A. Barber, G. Blair, A. W. Frankland, D. W. F. Gotla, and V. W. J. Hetreed, R.A.M.C.; Major S. C. Colbeck, I.M.S.; Surg. Lieut. D. R. Syred, R.N.V.R.; Fl. Lieut. R. F. Braithwaite, R.A.F.V.R.

Repatriated.—Col. Julian Taylor, A.M.S.

CASUALTIES IN THE MEDICAL SERVICES

Killed.—Capt. Jacob Hyman Joseph, R.A.M.C.

Died.—Major Campbell William Kidson and War Subs. Capt. Denis John Burgess, R.A.M.C.

Died at sea while on active service.—Major Vivian Roy Clifton, R.A.M.C.

Wounded.—War Subs. Capts. J. G. A. Gilruth and J. A. Perpoli, M.C., and Temp. Lieut.-Col. J. M. Scott, R.A.M.C.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The *Cambridge University Reporter* dated Oct. 9 contains a copy of the letter from the Home Office informing the Vice-Chancellor that the King by Letters Patent under the Great Seal bearing date Sept. 1 appointed Sir Lionel E. H. Whitby, C.V.O., M.D., F.R.C.P., to be Regius Professor of Physic in the University. The *Reporter* also prints the full text of the address to the Senate given in Congregation on Oct. 1 by Dr T. S. Hele, Master of Emmanuel College, on resigning the office of Vice-Chancellor. Speaking of medical events the past year Dr Hele recalled that through the kind offices of the Medical Research Council a Chair of Experimental Medicine had been established for Dr R. A. McCance, whose department is receiving further assistance from the same source. Addenbrooke's Hospital and the University were collaborating closely in the development of the School of Clinical Research. In the Shire Hall under Dr Robert Ellis, chairman of the Cambridgeshire County Council, the future of the medical services of the area had been discussed by representatives of local authorities and hospitals, with representatives of the University present on these occasions. For the next five years the difficulties arising out of the enforced use of temporary and inadequate accommodation for the hospital services of the area would delay the full development of the School and of the ancillary services which the University would help to provide for the maintenance of health and for the diagnosis and treatment of disease. "Our guests—should I say paying guests?—from other Universities with one exception have departed, taking with them our very best wishes for the re-establishment of their work at home, and with grateful acknowledgment of the mutual help and inspiration which their presence in Cambridge during six critical years has engendered. St Bartholomew's Hospital Medical School will return to their premises in Charterhouse Square when sufficient repairs have been completed."

Titles of the degrees of M.B., B.Chir. were conferred by diploma during the months of July, August, and September, 1945, on J. S. Keillin and C. N. Smith, of Girton College, and on I. M. S. Chappel, P. J. Coope, M. E. P. Hele, L. A. Norris, H. M. Russell, J. Whitham, and G. B. Wrong, of Newnham College.

Names of candidates for the M.Chir. examination should be sent to the Registry by Jan. 1, 1946; the examination begins on Feb. 19.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a meeting of the Council, held on Oct. 6 in the College House, with the President, Mr. Eardley Holland, in the chair, the following were admitted to the Membership: T. S. M. Barnett, A. Buchan, Daphne W. C. Chun, Aileen M. Dickens, E. D. Y. Grasby, M. W. Hemans, Ursula M. Lister, Agnes M. D. Milne, Abd El-S. M. El-Minabbawy, K. Mitra, Joan P. Moignard, P. Raj, W. B. Shute, Beatrice M. Smyth, J. M. Thomson.

Medical Notes in Parliament

Industrial Injuries Insurance

Mr. JAMES GRIFFITHS moved the Second Reading of the National Insurance (Industrial Injuries) Bill. He said that of the four measures needed to give effect to the White Paper scheme for a comprehensive system of social insurance two had passed into law. The first set up the Ministry of National Insurance. The second was the Family Allowances Act. This Bill was far more involved than either. The fourth would be even more complicated than the third, the present Bill. The broad principles on which the scheme of industrial injuries insurance was based had been outlined in the White Paper on Social Insurance. In accordance with this the Bill was to make compensation for industrial injuries a part of the country's social services and to make these injuries a matter for settlement on the basis of fixed benefits to be paid for a fixed premium. The Bill would be the end of "compounding." All persons employed in Great Britain under any contract of service or apprenticeship would be insurable without any income limit. Certain other people were being brought in—for example, members of lifeboat crews, employees of any local or public authority, taxi drivers, and members of rescue and fire parties in mines and works. Seamen and other persons employed for the purpose of the vessel or of the cargo or of passengers on British and British-owned ships, and civilian airmen employed on British aircraft were covered. Criticisms of the present Acts on the ground that the onus of proof always rested on the worker had been met by addition of a proviso that, for the purposes of this Act, an accident arising in the course of an insured person's employment should be deemed, in the absence of evidence to the contrary, also to have arisen out of that employment.

Expounding the details of the Bill, Mr. Griffiths said that, where at the end of an injury benefit period an injured man still suffered from disablement which was likely to be permanent or was substantial, he would be assessed for pension. This would be awarded in proportion to his loss of health, strength and power to enjoy life. It would be awarded irrespective of his earnings. The disabilities which were to be regarded as attracting a pension of 100% were to be prescribed later. If a pensioner had to enter hospital for further treatment or account of his injury he would, so long as he was in hospital, receive pension at the full 100% rate irrespective of his normal assessment, but subject to a reduction of 10s. a week in respect of home savings. To-day a man could not draw sickness benefit and workman's compensation for the same injury. The Government had decided to modify that. Under its scheme a pensioner who was unfit for work would be entitled to sickness benefit even when his unfitness was due to his injury, subject to the provision that, if his pension was at the 100% rate, sickness benefit would be at half rate until he had paid ten contributions since the date of his accident. All benefit rates were on an equality for both men and women. As this was a State system of insurance, claims would be decided by officers appointed by the Minister to be insurance officers. Independent local appeal tribunals would hear and decide appeals from the insurance officers' decisions. There would be a final appeal to a Commissioner who would be a legal expert appointed by the Crown. The Bill contained a provision for financial aid to be given to persons engaged on research into the causes and prevention of industrial accidents and disease and for the Minister himself to employ persons to carry out such research. There was also a provision enabling the Minister to provide artificial limbs and other appliances to pensioners either free or at

reduced rates. There was to be appointed an Industrial Injuries Advisory Council to which he would ask employers' and workers' organizations to nominate members. To the injured man the cash payments were not the most important thing. The most important thing was that he should be fitted for a new life. That was where the old system failed completely.

DEBATE ON THE BILL

Mr. OSBERT PEAKE said one of the great merits of the new scheme was that by a new method of assessing disability it provided a firm basis of supplementary schemes. There must be a close link with the new health and hospital services of the Ministry of Health and with the rehabilitating and retraining services of the Ministry of Labour. Miss BYRON hoped the equipment provided would include invalid chairs and spinal carriages. The cost of these was beyond the capacity of injured workmen to pay. Mr. CLEMENT DAVIES spoke of the conditions in the quarrying industry of North Wales in galleries where the candle would not remain alight when it was standing up. The men worked in such conditions of dust that they could not be seen by men within two yards of them. Yet that type of workman was outside the scope of the Workmen's Compensation Acts. He asked why the small employer who had only one employee was outside the scope of the Act. With a broader measure there would be no legal question but only a medical question, with the medical man saying that a person was fit or unfit and what assistance he would require to rehabilitate himself.

Mr. CLITHEROW said that he himself was a final-year medical student. He asked the Minister to insert words so that the Bill should include health workers who contracted tuberculosis through being directly in contact with tuberculous patients in the course of their normal duties, or within a reasonable time afterwards. He suggested this because of his own observations both as a medical student and as a member of the Liverpool City Council sitting on the Hospitals' Committee. Nurses and health workers and the medical profession themselves had a thorough medical examination before they started. At their first start they were far healthier than the average. He gave instances of medical students who had fallen ill with tuberculosis. His observations were that one in every fifty medical students went down with tuberculosis during the three years of clinical work. It was distressing to the Liverpool number of nurses whose names appeared before the Liverpool Corporation Hospitals' Committee as having gone down with colds, and eventually with tuberculosis. The committee paid them a full salary for about three months, half salary for a further three months, and then cast them off like an old glove. Counsel's opinion had been that tuberculosis was not an industrial disease. Even if a girl could prove that a patient with an active lesion coughed in her face, and that pulmonary tuberculosis could be attributed to it, that was deemed to be an accident. He hoped that in the Committee stage an amendment would be made to include these girls.

Dr. STEPHEN TAYLOR said the Bill got rid of the endless legal and medical wrangles which had wasted so much money, but it perpetuated the distinction between industrial injury and non-industrial injury and disease. He hoped the Minister would assure the House that all nurses would be covered in the Bill, particularly those working on private nursing. With every safeguard the nurse was liable to septic fingers, kidney infections, and septicæmia. Regular x-ray tests, Mantoux tests, and blood counts were not done. Admittedly, in good sanatoria the nurses were not more liable to tuberculosis than the rest of the community, but he was pretty sure that taking the nursing profession as a whole they were more liable. The ill of the nursing were not in the Schedule of Industrial Diseases. In the past, trade unions had to waste their energy getting diseases scheduled when that energy should have been used in getting rid of the diseases. Research workers spent their time proving a connexion between the disease and the occupation instead of trying to get rid of the disease. The Bill gave the Minister power to promote and assist research into the causes, incidence, and methods of prevention of industrial disease. He hoped that to this the Minister would add research into the treatment of industrial accidents and diseases, because this treatment was still far from perfect. Good work had been done in this field by the Industrial Health Research Board. He trusted the Minister would use the Board and the Medical Research Council, and would strike out on his own in the research field. He must provide his research workers generously with field workers, clerical staff, and laboratory technicians. Mental disability made up a large part of industrial disability. He hoped the Minister would also generously promote research into industrial psychiatry and on the measurement of fatigue, of accident-proneness and so on, and that he would encourage the work of those psychiatrists who had been busy in the Army. They should help the industrial neurotics over their stiles.

Mr. DAVID WILLIAMS spoke on silicosis and pneumoconiosis. This existed on a staggering scale in West Wales, where one colliery from Jan. 1 to Sept. 29, 1945, had lost 200 men—more than one in eight. Once a man was certified to be partially or totally disabled with these diseases he did not return to the mining industry, so that 20% disability in such cases caused greater hardship than 20% physical disability resulting from accident.

Dr. H. B. MORGAN said that in some workshops new organic solvents were being used upon which practically no research had been made. In some of the finest factories in Great Britain solvents were in use which the workman was forced to inhale, and which in three months would give him anæmia from which he would never recover. He asked whether it was true that in Wales and the North-West the number of cases awaiting decision by the Silicosis Boards were two years in arrears. Was it true that the Government was doing practically nothing to train doctors for those positions?

REPLY FOR THE GOVERNMENT

Mr. LINDGREN, replying for the Government, said the Minister desired that the provision of artificial limbs and surgical appliances should include wheeled chairs, spinal carriages, and equipment necessary for sick-rooms and for the treatment of a patient whilst bed-ridden at home. Referring to the plea of Mr. Clitherow for the inclusion of nurses and health workers in regard to consumption and other diseases arising from their work in hospitals, Mr. Lindgren said there were great difficulties in making provision for health workers within workmen's compensation measures because of the incidence of the diseases with which these workers dealt and because of lack of proof that diseases arose out of or in the course of their employment. The Minister would desire, if possible, to provide for the workers and would like to have discussions between the Ministry of Health, the Ministry of National Insurance, and those who could speak on behalf of persons engaged on such work to see whether it was possible to bring them in.

The debate was adjourned until Oct. 11, when after further discussion the Bill was read a second time and was sent to a Standing Committee.

Medical Officers in the B.L.A.

In a reply to Sir John Mellor Mr. BEVAN agreed that in August the B.L.A. had one medical officer for 409 officers and other ranks compared with one general practitioner for 2,576 civilians in the United Kingdom. He added that the civilian position could be remedied only by acceleration in the rate at which doctors were released from the Services. The Government was urgently considering to what extent this was practicable.

Compensation for Medical Practices

Mr. YORR on Oct. 11 asked the Minister of Health to state the intentions of the Government in regard to compensation for medical practices if taken over under the National Health Service. He also pressed for a general statement in regard to medical practices, in order that demobilized doctors may decide whether to purchase practices.

Mr. BEVAN said that he had this matter under immediate review. He was not yet ready to make any statement, but knew the urgency and would do so as soon as he could.

Experimental Health Centres

Mr. DUMPLETON suggested on Oct. 11 that the Minister of Health pending the establishment of a National Health Service, should initiate experimental health centres in suitable places.

Mr. BEVAN did not think it would be practicable to make this provision in advance of the new legislation. He added he was pressing on rapidly with the preparation of the Health Services Bill, which would deal fully with the subject.

Working Conditions for Nurses

Mr. DUMPLETON asked on Oct. 11 what steps the Minister of Health proposed to take to improve the bad working conditions and hours of nurses in hospitals and institutions.

Mr. BEVAN did not accept the implication that bad working conditions for nurses in hospitals and institutions were general. Where they existed they were in large part due to the effects of the war. He was giving this matter most earnest consideration in consultation with Mr. Isaacs and with the bodies principally concerned. He hoped to make a full statement within the next few weeks.

Release of N. Ireland Doctors—Dr. LITTLE on Oct. 11 urged the Minister of Health, in view of the shortage of doctors in Northern Ireland, to release at the earliest moment doctors who volunteered their services for the duration of the war. Mr. BEVAN replied that the question of the acceleration of the release of doctors from the Services is at present under urgent consideration.

Medical News

A meeting of the Medico-Legal Society will be held at 26, Portland Place, W., on Thursday, Oct. 25, at 8.15 p.m., when Dr. W. Norwood East will deliver his presidential address on "Society and the Criminal."

The programme for the annual meeting of the British Orthopaedic Association to be held at the Royal College of Surgeons, Lincoln's Inn Fields, on Oct. 26 and 27, includes the presidential address by Mr. St. J. D. Buxton on prevention of accident and limitation of injury, a symposium on some methods of treatment of simple extra-articular fractures of the femur, and a lecture and demonstration on clinical photography. The papers are as follows: Prof. T. P. McMurray, Thomas and his splint; Mr. C. H. Cullen, infection of gunshot wounds with actinomycetes; Prof. H. J. Seddon, another island epidemic of poliomyelitis; Prof. J. Leveuf, primitive congenital subluxation of the hip; Mr. J. S. Batchelor, congenital dislocation of the hip; Mr. E. W. Bintliffe, pollicization of the index finger for traumatic amputation of the thumb; Squad. Ldr. E. Somerville, air arthrography of the knee-joint; and Prof. H. Platt, the place of orthopaedics in medical education and in the regional hospital service. The Association will hold its annual dinner in the Hall of Lincoln's Inn on Friday, Oct. 26, at 7 p.m.

The annual general meeting of the London Association of the Medical Women's Federation will be held at B.M.A. House, Tavistock Square, W.C., on Friday, Oct. 26, at 8.30 p.m., when Dr. Beryl Harding will deliver her presidential address on "Relief Work in Greece."

The first meeting of European pharmacists since the war is being held in London next month on the invitation of the Pharmaceutical Society of Great Britain. The members of the Bureau of the Fédération Internationale Pharmaceutique who will attend are: Dr. E. Høst Madsen, Copenhagen, president; Mr. E. Saville Peck, M.A., Cambridge, vice-president; Prof. D. Van Os, Groningen, Holland, vice-president; Dr. T. Potjewijd, Winschoten, Holland, secretary; and M. C. Moyens, Brussels, assistant secretary.

Dr. Elsie Violet Crowe, F.R.C.S.Ed., has been released from internment in Japanese hands.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales only two diseases had totals that differed appreciably from the previous week's return—scarlet fever with 148 more notifications, and whooping-cough with 173 fewer.

A slight rise in the incidence of scarlet fever was fairly general throughout the country; the largest local rises were Yorkshire 33, and Lancashire 25. The drop in the incidence of whooping-cough was due to the experience of a few counties; the largest falls were London 38, Middlesex 34, Warwickshire 33. Although there were only 10 fewer notifications of diphtheria than in the preceding week, there were wide variations within the counties. There were fewer notifications in Lancashire by 28, and in Durham by 23, but the total for London, Middlesex, and Essex was 29 in excess of the previous week's, and reached the highest level recorded this year. The other notable increase in diphtheria was in Glamorganshire, 16.

There were 6 fewer notifications of dysentery. Relatively large local outbreaks were recorded in Dorset, Poole M.B. 18; Yorks North Riding, Middlesbrough C.B. 18; Somerset, Taunton R.D. 14. The other large returns were in London 52, Lancashire 30, Surrey 20, Essex 16, and in Suffolk 15.

In Scotland the chief feature of the returns was a decrease of 33 in the incidence of dysentery; this fall was general except in Glasgow, where there was a slight rise from 55 to 57. The only change in the trends of diphtheria was a rise of 7 in Glasgow.

In Eire the number of cases of diphtheria fell by 8, and that for whooping-cough by 26, while rises were recorded for scarlet fever 13, and measles 8. Notifications of enteritis and diarrhoea increased by 9 cases to 110, of which 84 were recorded in Dublin C.B.

In Northern Ireland there was a further small rise in the incidence of scarlet fever; 17 of the 42 cases were notified in Belfast C.B.

Week Ending October 6

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,683, whooping-cough 909, diphtheria 479, measles 367, acute pneumonia 377, cerebrospinal fever 38, acute poliomyelitis 29, dysentery 207, paratyphoid 11, typhoid 15.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept. 29.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	17	1	20	—	1	39	4	18	2	2
Deaths	—	—	1	—	—	—	—	—	—	—
Diphtheria	486	37	133	63	15	545	14	159	90	29
Deaths	6	2	—	2	—	6	1	2	2	—
Dysentery	264	52	99	1	1	351	28	145	—	—
Deaths	—	—	—	—	—	—	—	1	—	—
Encephalitis lethargica, acute	—	—	1	—	—	2	1	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	34	10	5	—	40	7	5	—
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	75	6	25	110	4	63	1	24	69	6
Deaths	—	—	1	—	—	—	—	—	14	—
Measles*	406	35	83	25	4	2,015	27	201	46	42
Deaths	—	—	1	—	—	—	—	—	—	—
Ophthalmia neonatorum	66	6	10	—	—	67	2	11	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever ..	11	11 (B)	—	—	—	11	—	—	—	—
Deaths	—	—	—	—	—	1	—	—	—	—
Pneumonia, influenza† (from influenza)	302	13	5	2	6	479	14	8	2	2
Deaths	8	—	1	—	—	9	1	2	1	—
Pneumonia, primary ..	—	11	146	12	4	—	15	216	20	5
Deaths	—	—	6	—	—	—	—	7	—	—
Poli-encephalitis, acute	1	—	—	—	—	2	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute ..	40	5	1	7	2	20	1	6	4	1
Deaths	—	—	—	—	—	1	—	—	—	—
Puerperal fever	—	5	15	—	—	—	2	15	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡ ..	124	12	14	2	—	143	4	17	—	2
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	1,509	113	272	27	42	1,838	39	372	41	63
Deaths	—	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	15	—	1	4	—	11	1	5	6	1
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* ..	920	39	44	16	6	982	55	55	21	12
Deaths	5	1	—	—	—	8	3	2	2	—
Deaths (0-1 year) ..	343	37	67	34	14	316	26	55	36	13
Infant mortality rate (per 1,000 live births) ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	3,761	558	510	163	93	3,895	467	537	209	84
Annual death rate (per 1,000 persons living) ..	—	—	11.6	10.5	§	—	12.3	13.6	§	—
Live births	6,530	835	818	454	239	6,332	430	923	395	256
Annual rate per 1,000 persons living ..	—	—	16.4	29.3	§	—	18.8	25.6	§	—
Stillbirths	203	19	27	—	—	182	14	32	—	—
Rate per 1,000 total births (including stillborn) ..	—	—	—	—	—	—	24	—	—	—

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

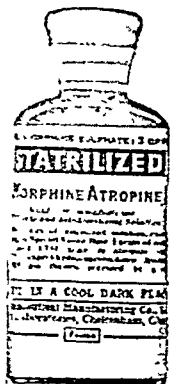
† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to movements of population, birth and death rates for Northern Ireland are still not available.

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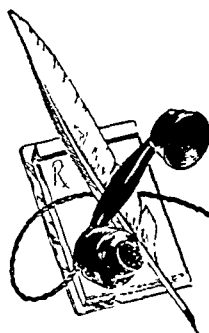
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ANY QUESTIONS?

Gymnastics for Young Children

Q.—At what age should a child undertake gymnastics at school? Is there any truth in the idea that this form of activity has a harmful effect on a young child?

A.—Gymnastics—by which term should be understood systematic activities—adapted to the age and physical capabilities of the pupils concerned form an integral part of the physical education scheme in all types of schools. Gymnastics include free and informal movements—e.g. those of a game-like character—as well as a wide range of free-standing exercises, and exercises on selected apparatus, carried out in accordance with a predetermined pattern and designed to aid healthy growth and development. Educational gymnastics have nothing in common with the type of work performed on horizontal and parallel bars, and popularly referred to as "German gymnastics".

Gymnastics can be safely and beneficially taught to the youngest pupils, though in the early age groups they appropriately take the form largely of play movements, utilized and controlled in such a way as to add to the value and enjoyment of these movements, while at the same time training the body and mind to respond to external suggestions and stimuli. They thus lead up to the immediate and more accurate physical and mental response expected from older children. Moreover, the youngest pupils, under a suitably trained teacher, can derive pleasure and profit from such basal movements as hanging, swinging, and climbing on apparatus devised for the purpose.

Gymnastics, interpreted as described above, can have no harmful effect on young children, on the contrary, they can contribute powerfully, under competent direction, to health and happiness.

Putrefaction of Meat, Poultry, and Game

Q.—Before the discovery of penicillin it was common knowledge that putrid cheese could be eaten with impunity. The same applies to putrid game, such as grouse and partridge, while ordinary meat or poultry could not be eaten in the same stage without danger. It has often struck me that there must be something inimical to ordinary putrefactive bacteria in the decomposition of game. What are the organisms concerned in the putrefaction of game? Has the question of its possible bactericidal or bacteriostatic effect ever been investigated?

A.—The inquirer poses a question, but also makes statements which are not altogether accurate. Putrefaction is a complicated process due to the action of many bacteria, some of which are aerobic organisms, but the main activities are due to putrefactive anaerobes. None of these organisms is pathogenic to man, and there is no evidence that the consumption of food—whether it is meat, game, poultry, or cheese—in a state of early decomposition is harmful to man, provided no pathogenic organisms are present in addition. The putrefactive changes develop rather differently in the types of food mentioned, due partly to differences in composition, including their water content, but these changes are all of the same order and due to non-pathogenic bacteria. The suggestion made that meat is dangerous if it shows putrefactive changes is still widely believed on the basis of the old idea that food-poisoning is due to ptomaines, but the conception of ptomaine poisoning is completely exploded. (See *Journal*, Jan. 6, 1945, p. 32.)

It is true that meat which is showing even incipient decomposition changes is condemned, but this action is based on the fact that the animals which supply the meat are liable to be infected with *Salmonella* and other pathogenic bacteria associated with food-poisoning, and it is a reasonable assumption that if meat exhibits such changes it has been badly looked after and that, if pathogenic organisms were present, they would have opportunities to multiply and generally infect the meat. With game and poultry the risk is

slight, but here again the sale of such food showing decomposition changes would not be permitted.

These considerations suggest no reason to suppose that there are any substances in game which are deterrent to bacterial growth, as all the facts are fully explainable on other grounds.

Capillary Naevus

Q.—Is a capillary naevus due to some intra-uterine arrest of development, or is it a hereditary recessive Mendelian characteristic? If both parents have naevi, are the children likely to be free?

A.—This is certainly not a recessive Mendelian characteristic. In fact the indications for any hereditary basis are very slight. On general principles it might be anticipated, perhaps, that a general tendency to the formation of such naevi was heritable, but it is likely that non-genetic accidents of development are much more important than any such hereditary tendency in determining the actual appearance of a port-wine mark. It has been noted that the naevus often has a segmental distribution, and it may be secondary to some abnormality of the nervous system. So far as present knowledge extends, it seems probable that the child of two affected parents would run little more risk of being similarly affected than any random unselected child in the general population.

Vitamin B in General Therapy

Q.—Could you please give a concise account of the indications, and if possible the rationale, for vitamin B therapy, which seems to be prescribed for so many varied complaints? I am not including deficiency diseases.

A.—Vitamins of the B group may be used rationally in treatment of conditions (as distinct from frank deficiency diseases) which are known to be caused in human beings by deficiency of these vitamins. For example:

Vitamin B (Aneurin).—Anorexia, constipation, tingling of hands and feet, aching muscles (especially calf muscles), changes of temperament (which may be called neurosthenic), bilateral neuritis, oedema and tachycardia without obvious cardiac lesions.

Niacine (Nicotinic Acid or Nicotinamide).—Diarhoea, changes of temperament such as morbid anxiety or fear, stomatitis (including Vincent's infection).

Riboflavin.—Correal vascularization. Wills has shown that a nutritional macrocytic anemia is cured by crude liver extract or marmite, but not by the purified extrinsic or intrinsic factors, nor any of the known components of the B complex. Anamiasis should be given whenever the diets used in treatment are likely to be deficient—for example when febrile patients are given large doses of glucose.

These vitamins may be used to treat conditions which are considered to resemble those that occur in deficiencies in animals. Aneurin has been used in treatment of Wernicke's syndrome on the ground that haemorrhagic lesions in the basal ganglion and brainstem occur in pigeons on a diet deficient in aneurin. However, Joliffe et al. reported a large series of cases of "nicotinic acid deficiency encephalopathy" which resembled Wernicke's syndrome in their clinical picture. Joliffe found that aneurin had no effect in these cases and that nicotinic acid caused rapid improvement.

Choline and vitamins of the B group protect animals against liver damage; hence choline and concentrates of the B group have been used in treatment of cirrhosis of the liver, and good results have been claimed. On the ground of its vasodilator action, nicotinic acid has been used in treatment of Ménière's syndrome.

There is no evidence that these vitamins will benefit patients with gastric ulcer if their diet is not inadequate. Their use for various neurological conditions is based on the belief that they have some general "protective" action on the nervous system.

Vitamins of the B group are employed extensively on the ground that they may do good and can do no harm. This may be justifiable; however, recent studies suggest that the administration of large doses of a single vitamin may provoke deficiency of another vitamin. If these vitamins are given, concentrates containing all the possible members should be used.

Variations in Pulse Rate

Q.—A man aged 60, past history no serious illnesses other than two periods of low blood pressure which were corrected with rest and treatment. Present condition: heart clinically and electrocardiographically normal. B.P. 145/88. Pulse rate varies between 60 and 40 beats a minute. What is the reason for this, and what treatment might be tried?

A.—Variations in the pulse rate between 40 and 60 a minute may be due to a high vagal tone—that is, presuming that the pulse rate is really the heart rate and that no beats occur at the heart which do not reach the pulse. The normal electrocardiogram has excluded complete heart-block. It is not clear whether the patient feels at his worst when the pulse is slow or quick. If vagal influence is to be got rid of, then full doses of atropine in some form should be made use of. If such variations in rate are the only abnormality

to be detected in the heart, then one need not restrict activity; probably exercise would improve the patient. It would be worth while knowing whether the blood pressure varied with the rate of the heart. It might be well to try full doses of strychnine, or some stimulant of the sympathetic such as ephedrine or amphetamine.

Treatment of Eclampsia

Q.—What is the modern treatment of eclampsia, occurring before the onset of, and during, labour?

A.—The modern treatment of eclampsia is based largely on the views of Stroganoff. It is believed that the danger of the condition depends on the number of fits, and that external stimuli are important in the causation of fits. The treatment, therefore, consists in placing the patient in a quiet, darkened room, reducing external stimuli to the minimum, and giving sedatives to lower the sensitivity of the central nervous system. Paraldehyde is preferred as a sedative in many clinics and is given per rectum in a dose of 6 drachms, repeated in 4 hours and again in 6 hours. If the patient is restless, morphine with atropine may be given in addition, but large doses of morphine should be avoided. Expectant treatment is advised in most cases of eclampsia occurring before labour, though pregnancy should be terminated within a day or two after the fits are controlled.

When eclampsia occurs during the course of labour the membrane should be ruptured when the cervix is half dilated. When the cervix is fully dilated forceps delivery should be employed. Any obstetric abnormality should receive the appropriate treatment. Caesarean section may occasionally be the treatment of choice, especially after the fits have been controlled in a case where the child is alive and viable. Caesarean section may also be needed in cases of severe eclampsia where medical treatment fails to control the fits.

The above is only an outline of the principle of the modern treatment of eclampsia. For a more detailed answer, and for special methods of treatment, the questioner is referred to *Antenatal and Postnatal Care*, by Prof. F. J. Browne (5th edition, Churchill, London, 1944, pp. 377 *et seq.*).

Pruritus and Glycosuria

Q.—A woman of 33 has suffered from severe pruritus vulvae for over five years. In January and April, 1945, urine examination gave +++ result for sugar. Within the last six months she has lost about 10 lb., feels nervous and shaky, easily exhausted, and has great craving for sweets and bread. Urine now free; blood-sugar-tolerance curve: fasting 83 mg., half an hour after glucose 160 mg., 1½ hours after glucose 100 mg., two hours after glucose 87 mg. (capillary blood findings). Is it likely that an undue amount of sugar is present in the tissues of the vulva and gives rise to irritation? If so, should insulin be used in small doses to assist the synthesis of glycogen in liver and muscle and to reduce the amount of sugar in the tissues? The restriction of carbohydrates in the diet is difficult because of her craving for them and the loss of weight.

A.—This question is difficult to answer satisfactorily and some further information is needed about the diet. The sugar tolerance is normal and consequently excludes the diagnosis of diabetes mellitus. It is possible that the present diet is very low in carbohydrate and that the patient has a mild diabetes which has recovered with dietetic treatment. If so the pruritus should have disappeared, and it does not seem likely that it is in any way connected with glycosuria. There is no evidence to suggest that there is any difference between the sugar content of the vulval tissues and that of the blood. If the diet contains less than 150 grammes of carbohydrate it should be increased to 200 or 250 grammes, as the patient is losing weight. If glycosuria returns and a high blood sugar is confirmed, insulin should be given in adequate amounts. It is suggested that another cause for the pruritus should be sought.

Tenderness of Muscles

Q.—For more than three years a patient has suffered from tenderness of the voluntary muscles. At times the slightest pressure on a muscle gives intense pain. Sometimes there is aching, but usually there is pain only on pressure. A slight pinch produces agony. His general health is good. What might be the cause?

A.—It is difficult to refer these symptoms to any recognizable lesion of the neuromuscular system. It is assumed that care has been taken to exclude peripheral neuritis and also occupational disease; puzzling symptoms are sometimes produced by chemicals used in industry. It is equally difficult to attribute the symptoms to neurasthenia, for, although they might be affiliated with the "rheumatism" and "fibrositis" of neurasthenia, the other symptoms of that disorder are apparently absent. The systematized pattern of the complaint suggests an underlying physical or biochemical abnormality. Biopsy of muscles is easily performed and might provide information of value in this patient. An x-ray examination of the muscles for parasites, calcification of ligaments, etc., might also be helpful. The blood chemistry should be investigated, particularly the blood sugar, serum calcium, and erythrocyte sedimentation rate. If none of these investigations gives a clue to the

cause, symptomatic treatment with the vitamin B complex should be tried, including large doses of B₁. Wide-field irradiation with ultra-violet or infra-red rays might also give relief.

LETTERS, NOTES, ETC.

Venerology

Brigadier T. E. OSMOND, Honorary Consultant in Venerology to the Army, writes: As I was mainly responsible for the introduction of the word "venerologist" into "Army medical jargon" I feel it incumbent on me to answer the letter of Lieut.-Col. Henry Richards (Sept. 22, p. 414). It must be admitted that the word is a hybrid, but "English contains thousands of hybrid words, of which the vast majority are unobjectionable" (Fowler: *Modern English Usage*, p. 241). In any case "venerologist" is preferable to "dermatologist," which it supplanted. But the difficulty lies deeper; the term "venereal disease" officially refers to syphilis, gonorrhoea, and soft chancre, yet many patients suffering from these diseases may be excused from "venery." For many years doctors have been searching for a more suitable word than "venereal" but without success. Parenthetically an "-ologist" is a person who makes a study of a subject but is not necessarily an "expert practitioner" in it. Criticism, to be of value, should be constructive: Col. Richards's seems to be destructive. Having forgotten much of the classics which I learned at school I consulted a friend who is an eminent classical scholar. He admitted that he found the problem difficult, but tentatively suggested "aedeologist," from the Greek αἰδῶ, or "aphrodisiologist" from ἀφροδῖσιος; either word can mean pudenda. Admittedly neither word contains any reference to disease, but nor do ophthalmologist or laryngologist. It is to be feared that neither of the words suggested will prove acceptable, but can Col. Richards or any of your readers suggest a better?

Digestive Disorders and Swallowed Sputum

Dr. P. A. GALPIN (Plaistow) writes: With reference to the question and answer on digestive disorders and swallowed sputum (Sept. 8, p. 341), from the reply given is one to assume that there is no risk to patients suffering from chronic sinusitis or bronchiectasis in swallowing muco-pus, and that one can trust the gastric secretions to deal with any infection? From my own experience I have noted many children suffering from post-nasal catarrh, who have not learned to spit, frequently have nausea or abdominal pain. In my opinion this has been due to swallowing muco-pus, and I have therefore endeavoured to persuade the parents to train the children to avoid swallowing muco-pus—in other words, to learn to spit. Two or three questions come to one's mind. Which is the factor in gastric secretion which has bactericidal properties? Is it hydrochloric acid? If this is so then patients with hypochlorhydria are at a definite disadvantage, and it would seem to me that patients debilitated after acute catarrhal conditions following measles or whooping-cough may be producing gastric juice deficient in bactericidal power. The surgeon has great faith in the bactericidal power of the peritoneum, but he does not willingly allow abscesses, whether acute or chronic, to spill over in the peritoneum.

Neutralizing Gastric HCl

Mr. E. H. JOHNSON and Mr. J. DUNCAN write: The treatment of peptic ulcer as described in your "Any Questions?" page of your issue of Sept. 1 mentions the importance of maintaining a stomach acidity in the region of pH 3.5 in order to promote healing of the ulcer by the inactivation of the pepsin. The maintenance of this continued neutrality can be accomplished by adequate dosage of aluminium hydroxide. Aluminium hydroxide alone of the common antacids possesses the property of neutralizing the gastric hydrochloric acid to a maximum pH of 3.5 to 4.0; excess dosage after the initial neutralization serves to maintain this favourable condition by the neutralization of further secretion. This important property of aluminium hydroxide was indicated in a recent paper upon the "Chemical Testing of Antacids" given by us at the British Pharmaceutical Conference held on July 18, 1945.

Early Treatment of Bell's Palsy

Dr. J. L. THOMAS (Brynawr) writes: The article by Mr. H. P. and Dr. Cecily Pickerill on the above subject (Oct. 6, p. 457) recalls with interest that, about fifty years ago, while in colliery practice in Glamorganshire, I had a case of Bell's palsy (catarrhal) in a young miner who was a promising public singer. While assiduously, but ineffectively, treating the case electrically, by good fortune I read of Robert Jones—always a friend of weak muscles—using in such a case mechanical means to draw the sound side of the face towards the paralysed one. I resolved to imitate his treatment by using strips of plaster, and after one month the result was highly successful—and very cheering.

Corrigendum

By a slip of the pen the title of Wing. Cmdr. Kenneth Bergin's letter (Oct. 13, p. 508) was made to refer to the Army; the heading should have read: "Psychiatry in the R.A.F."

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THE INCIDENCE AND CAUSES OF BLINDNESS IN THE BRITISH COMMONWEALTH

BY

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Only a tentative estimate of the number of blind and the barest of assessments of the causes of blindness in the British Commonwealth as a whole are possible. Fairly complete data are available for England, Wales, and Scotland, but those for other parts of the Empire vary between being relatively adequate to negligible. Any final analysis is therefore out of the question.

1. THE NUMBER OF BLIND

The two fundamental difficulties in assessing the number of blind are the lack of a universally accepted definition of blindness and the lack of uniformity in the methods employed for collecting blind statistics.

In the census returns of most countries information is sought on physical and mental infirmities in the population. Those totally blind are asked to declare this fact. The census returns therefore deal with total blindness as determined by a lay assessment. A lay assessment also enters largely into the statistics supplied by voluntary agencies caring for the blind, though total blindness is not generally the only criterion used by such agencies in granting benefits. Statistics from such sources are far from comprehensive, as they deal with only that section of the blind population which seeks charitable relief, and their extent is, moreover, determined by the energy and resources of the agency in question. Furthermore, lay assessment is still the general rule and appears to be particularly capricious when total blindness is no longer the criterion.

In contrast to these two distinctly fallible methods is the one that has emerged only recently as a result of the administration of the Blind Persons Act of 1920. Under this Act statutory benefits were made available to the blind in England, Wales, and Scotland, admission to the Register being obtained on medical certification—which of late has generally meant certification by an ophthalmologist. The data thus obtained have therefore considerable uniformity, but still cover only those who seek the statutory benefits that the Act allows. The fundamental difficulty as to what constitutes blindness is masked rather than solved by the statutory definition of "so blind as to be unable to perform any work for which eyesight is essential." In practice this has been interpreted—somewhat arbitrarily—to mean vision of 3/60 or less with a full field, or better central vision when associated with specified field defects.

For England, Wales, and Scotland data on medical certification by a definite, even if controversial, standard are thus available, and these data are limited only by the fact that not all blind persons seek certification. Elsewhere census returns are still the main source of information, but for some years now there has been considerable criticism of such returns. The data thus obtained have come to be regarded as so unreliable as not to be worth the trouble of collecting, and inquiries for personal infirmities have been discontinued in the censuses for 1921 and 1931 in Great Britain and in that for 1940 in the U.S.A. None the less census data are the fullest that are available for the greater part of the Commonwealth, and critically interpreted they are of considerable value, as will be shown in what follows.

British Isles

England and Wales.—In 1911, when the last census which sought information on infirmities was taken, there were 26,336 persons who declared themselves totally blind. When the Register under the Blind Persons Act was established there were found to be 25,840 eligible—a close approximation to the census figures. The number of registered blind has, however, increased steadily year by year, as the following figures show:

Year	Number on Blind Register	Year	Number on Blind Register
1920	30,785	1933	63,408
1921	34,894	1936	67,534
1923	36,518	1938	71,875
1925	42,140	1940	74,418
1927	46,822	1942	75,306
1929	52,727	1943	76,507
1931	60,593	1944	76,125

There is, of course, no reason for believing that the incidence of blindness has increased during 1920–44 in the startling proportions suggested by these figures; these merely represent an increasing efficiency in the registration of the blind. They furthermore indicate that registration has become fairly effective during recent years. It is also clear that the census figures were a gross underestimate, but it must be borne in mind that the criteria of blindness adopted for these two different returns were different: for the census it was total blindness, for the purpose of the Blind Persons Act it was—in practice—3/60. That the census returns were not quite meaningless is shown by the following findings. An analysis of 9,522 blind certificates in the Curries of London and Middlesex (Sorsby, 1945a) showed that 1,013 were totally blind and 1,822 had perception of light only. The rest mostly had vision up to 3/60. Thus some 2,835 qualified for what a layman would regard as total blindness, making 29.9% of all registered blind in these areas. If it is taken that 30% of all the registered blind in the country are blind in the sense indicated (i.e., no perception of light and perception of light only), an incidence of blindness approximating that shown by the census figures of 1911 is obtained. It is impossible to assess the number of blind persons who have not sought registration. At hospitals one still sees certifiably blind patients who have not been registered, while an unknown proportion for various reasons decline certification. It is safe to conclude that the number of blind people in England and Wales is not less than 80,000 and is unlikely to exceed 100,000.

Scotland.—The census for 1911 showed 3,317 blind persons in a population of 4,760,904 (or 70 per 100,000). The number of registered blind persons was 4,104 in 1919—a close approximation, as in England and Wales, to the census figure. But again as in England and Wales it has risen steadily, the rise being confined to the years up to 1929.

Year	Number on Blind Register	Year	Number on Blind Register
1919	4,104	1933	8,675
1921	5,138	1936	8,500
1923	5,754	1938	8,973
1925	6,332	1940	8,038
1927	6,939	1942	8,891
1929	8,518	1944	8,804

The Dominions

Canada.—The census figures for 1931 showed 7,343 blind persons in a total population of 10,376,786 (or 71 per 100,000). Statutory benefits for the blind were introduced by Act of Parliament in 1937, and by July, 1938, there were over 3,000 applicants for blind pensions. This was distinctly less than the 4,712 blind on the registers of the Canadian National Institute for the Blind in 1927, but the number of registered blind (? under the Act of 1937) had risen to 12,854 by 1944. It would therefore seem that in Canada the experience of England and Wales is being repeated, and that the number of registered blind is likely to increase. In Newfoundland the number of registered blind in 1944 was 219. The 1911 census showed 287 blind in a population of 242,619 (118 per 100,000).

South Africa.—In an official inquiry carried out in 1936 concurrently with the census there were 1,624 blind amongst the white population of 2,003,857, or 81 per 100,000. No adequate data are available for the coloured population: the same inquiry covering 769,661 coloured persons, excluding Bantu and Asiatics, showed 981 blind (127.7 per 100,000). At the end of December, 1940, the South African National Council for the Blind had detailed information regarding 17,263 blind persons in the Union: there were 1,828 Europeans, 1,632 coloured, and 13,803 natives. Since then, and especially since 1942, when the payment of an increased grant to blind natives was introduced, the Council has been "inundated with registrations of blind natives and the total had increased by leaps and bounds." Recently the Act allowing grants to blind people has been amended to include Indians. There is as yet no information as to the number of blind Indians in the country. By December, 1943, the total number of registered blind had risen to 30,834, and consisted of 2,103 Europeans, 1,887 coloured, and 26,844 natives. On the basis of an estimate of the population supplied by the Director of Censuses the rate per 100,000 at the end of 1942 for the three different communities was: European 91, coloured 211, natives 351.

Australia.—The 1933 census for the Australian Commonwealth showed 3,898 blind in a population of 6,229,839 (63 per 100,000).

New Zealand.—The census for 1916 showed 570 blind in a population of 1,009,449. The New Zealand Institute for the Blind in 1936 estimated the number of blind at 1,000 for the whole country, or 70 per 100,000 (against 56 shown by the census of 1916). It had records of 720 blind, and of these 688 were totally blind (It is unlikely that with 688 known cases of "total blindness" the total number of blind, by English standards, would be only 1,000).

The total white population of Canada, Newfoundland, South Africa, and Australasia is of the order of 20 millions. The census rates of blindness per 100,000 were 71 for Canada (1931), 118 for Newfoundland (1911), 81 for South Africa (white population, 1936), 63 for the Australian Commonwealth (1933), and 56 for New Zealand (1916). These are not dissimilar from the census rate of 73 for England and Wales and 70 for Scotland in 1911. If it is concluded, on the strength of experience in England and Wales since the working of the Blind Persons Act, that the actual rate is about 200-250 per 100,000 (on the basis of a computed number of 80-100,000 blind in a total population of 40,000,000), the total of blind amongst the white population of the Dominions is of the order of 40-50,000.

Other Possessions

India.—The census for 1931 showed 606,360 blind in a population of 352,837,778—a rate of 172 per 100,000. It is generally agreed that this is a considerable underestimate. If the rate of blindness known for England and Wales applied to India, its population of over 400,000,000 would provide 800,000 to 1,000,000 blind. But blindness in India is far more common than in England and Wales, and it appears that Indian census figures on blindness are grossly vitiated by the widespread illiteracy and by superstitious fears. On studies undertaken in selected areas both Henderson and Kirwan hold that the census figures indicate only one-third of the blind in India; Megaw puts it as low as one-quarter. Moreover, even these observers, in speaking of blindness, use a considerably lower

criterion than that now used in England—i.e., counting finger at one metre instead of 3/60. At the very least the census figure of 606,360 must therefore be multiplied by three or four. This gives the number of those totally or subtotally blind at between 2 and 2½ millions. For the present this must be accepted as a minimum figure. The actual number is likely to be considerably more, for India is one of the classical countries of blindness, and according to O'Dwyer "there is no country in the world to-day where the affliction of blindness is so widespread." This being so, a comparison with Egyptian and Palestinian figures rather than with those for England and Wales is called for. In both Egypt and Palestine the census figures indicate a rate of blindness 10 to 15 times that for England and Wales. On that basis the blind in India number between 10 and 15 millions.

Ceylon.—The census for 1921 showed 4,005 blind in a population of 4,498,605—a rate of 89 per 100,000. There is no reason for believing that the situation in Ceylon is substantially different from that of India, and the census figure must be regarded as a serious underestimate.

Egypt.—The appalling rate of 1,325 blind per 100,000 was recorded by the census of 1907. Ten years later it had declined to 1,222, whilst in 1927 it fell to 775 (109,934 blind in a population of 14,177,864).

Palestine.—Palestine has the world's highest census rate for blindness. It was 843 per 100,000 in the 1931 census (817 blind in a population of 969,268), surpassing the rate of 77 recorded for Egypt in 1927. In contrast to the high rate for the Muslims of the country, that for the Jews is relatively low and for Christian Arabs intermediate between the two (Muslim 1,061, Christians 564, Jews 139 per 100,000).

African Colonies.—No adequate data are available for the greater part of Africa. The native population in Uganda in 1911 showed a census rate of blindness of nearly five times that of England and Wales (354 against 73 per 100,000). It is not known whether blindness in the native population in Africa is of the order of frequency seen in India, Egypt, and Palestine. That blindness is extremely frequent, and indeed far more frequent than anywhere else in the world, is suggested by the following findings concerning natives in the Union of South Africa: Rosset-Berdez (1944) in an inquiry for the South African Government examined 4,500 natives; only 527 (13.2%) were normal; 214 (5.3%) were totally blind; 360 (9.0%) had lost one eye as a result of disease.

Pacific Islands.—Information is scanty. The census for 1911 for the Fiji Islands showed 1,385 blind in a population of 137,248, giving a rate of 1,009 per 100,000—i.e., a rate of the order of Egypt and Palestine. It is not known whether the Fiji Islands can be regarded as typical of Indonesia.

It is obvious that, whatever be the definition of blindness, no final assessment of the number of blind in the British Commonwealth is possible. A fairly clear indication is available for the 46,000,000 in England, Wales, Scotland, and Northern Ireland: it cannot be less than 90,000 and is likely to exceed 100,000. For the 20,000,000 whites in Canada, Newfoundland, Australasia, and South Africa the number of blind is likely to be 40-50,000. As for the native populations of the British possessions in Africa, Asia, and Indonesia, their blind would number about 1½ million if blindness were no more common among them than it is in the British Isles and the Dominion, but it is likely that the actual figure is considerably more than 10 millions.

2. THE CAUSES OF BLINDNESS

Data on the causes of blindness in England and Wales and in Scotland are fairly adequate. Elsewhere the information is scanty.

England and Wales.—No less than 77.2% of the 76,500 registered blind in 1943 were over 50 years of age; 20.8% in the age group 16-50 years, and 2.0% in that of 0-16 years. Analyses of the data as to the age at onset of blindness do not affect substantially the outstanding fact that in most cases blindness is an affliction that, in the phrase of the *Iliad*, "comes on the sad threshold of old age." As to the causes of blindness, the Prevention of Blindness Committee (1938) gives an analysis of 5,290 blind certificates and the Northern Counties Association for the Blind (1938) of 10,000 certificates. Both agree

placing cataract first with 25.0% and 33.6% of the total respectively; in both series glaucoma takes the second place with 11.8% and 10.0% respectively. Defects of congenital, hereditary, and developmental origin, and myopia take the third and fourth places in the first series (with 11.0% and 10.2% respectively), and occupy the reverse order in the second (with 7.0% and 8.5% respectively). Taken together, these four causes—cataract, glaucoma, defects of congenital, hereditary, and developmental origin, and myopia—account for 58.0% in the analysis of the Prevention of Blindness Committee and 59.1% in that carried out by the Northern Counties Association for the Blind. Substantially the same result was obtained in an analysis of 9,562 registered blind in the Counties of London and Middlesex (Sorsby, 1945a). Cataract and glaucoma again took the first and second places with 21.2% and 14.0% respectively, whilst myopia accounted for 12.1% and defects of congenital, hereditary, and developmental origin for 10.4%, the total for the four main causes being 57.7%. When this series of 9,562 cases is analysed in age groups a considerably different picture emerges.

(1) In the age group 0-14 years (143 cases) defects of congenital, hereditary, and developmental origin lead with 67.1%, and ophthalmia neonatorum is second with 5.6%, the remaining causes all being considerably less significant.

(2) In the age group 15-29 years (656 cases) defects of congenital, hereditary, and developmental origin still lead with 38.4%, with congenital syphilis in the second place with 14.0%.

(3) In the age group 30-49 years (1,303 cases) the leading cause is still as in the other two age groups, this time with 21.3%, and with myopia in the second place with 15.5%. Congenital syphilis is now third with 13.1%.

(4) In the age group 50-69 years (3,541 cases) myopia leads with 18.6%; glaucoma and cataract come second and third with 15.2% and 14.0% respectively.

(5) In the age group of 70 years and over (3,725 cases) cataract is responsible for 39.3% and glaucoma for 19.3%, with senile macular lesions in the third place with 11.7%.

The numerical frequency of cataract and glaucoma, which is so striking a feature in the statistics for the blind population, gives an exaggerated significance to these two causes. When the causes operative in the different age groups are evaluated in terms of years of expectation of life—i.e., in expected years of blindness—cataract falls from the first place to the third with 13.1% of the total of expected years of blindness, and glaucoma falls from the second to the fourth place with 10.0%. Defects of congenital, hereditary, and developmental origin, which in order of frequency are fourth, now assume a preponderant first place with 22.9%, and myopia takes the second place with 16.0%. The congenital and congenitally determined anomalies (such as myopia) together are thus responsible for no less than 38.9% of the total of expected years of blindness, whilst cataract and glaucoma together, though numerically so outstanding, account for considerably less—viz., 23.1%. On this reckoning congenital syphilis is also a cause of some importance, accounting for 8.8%, with ophthalmia neonatorum not far behind (6.2%). If these provisional data on the blind in London and Middlesex apply to England and Wales as a whole, the major causes of blindness are not cataract and glaucoma but, in order of frequency, defects of congenital, hereditary, and developmental origin, myopia, cataract, glaucoma, congenital syphilis, and ophthalmia neonatorum.

Scotland.—As in England and Wales most of the blind are over 50 years of age (the actual percentage for 1943 being 74.1 against 77.2 in England and Wales). Marshall and Seiler's study of 2,885 registered blind in Glasgow and South-West Scotland places myopia as the first of causes with 15.9%; cataract, chronic septicæmia, glaucoma, and congenital anomalies follow with 15.2%, 10.9%, 8.9%, and 8.1% respectively. Ophthalmia neonatorum occupies the eighth place with 3.4%. Calculated in years of blindness the patients in these different categories had experienced, chronic septicæmia comes first (with an average of 12 years); congenital, hereditary, and developmental anomalies second (11.4 years), myopia third (10.3 years); and ophthalmia neonatorum fourth (10.1 years). Cataract and glaucoma come low with the eighth and tenth place respectively. These findings agree with those for London and Middlesex on the significance of defects of congenital, hereditary, and developmental origin, and of myopia as foremost causes of blindness.

The Dominions.—No adequate data are available. There are various analyses of returns from blind schools and institutions and from records of patients seen by ophthalmologists in practice. They give the impression that in Australia, New Zealand, and Canada, at any rate, the same causes of blindness operate as in the British Isles. Registers of blind persons, comparable in completeness as to numbers and causes, do not appear to be available for any of the Dominions, except possibly South Africa. Here a register in the process of formation provides data on the causes of blindness in 26,844 natives and 2,103 whites registered by December, 1943. The main causes recorded were:

	White (2,103 Cases)	Native (26,844 Cases)
Cataract (senile, traumatic, and unspecified)	9.7	42.6
Syphilis	11.2	5.8
Glaucoma	7.2	5.4
Trachoma	5.0	2.4
Local infections of coats of eye	4.5	8.9
Ophthalmia neonatorum	4.4	0.8
Congenital, hereditary, and developmental defects (including congenital cataract)	20.9	1.2

Without a fuller knowledge of local conditions and the way these data were collected, the interpretation of these findings is difficult. A significant observation is the finding of trachoma in 13% natives out of 10,591 examined in a special investigation (Rosen-Berdez).

India.—Several analyses of the causes of blindness in relatively small series are available. In a series of 2,750 reported by Megaw cataract was responsible for 23%, glaucoma and smallpox for 9.0% each, and trachoma for 8.0%. In a series of 2,044 blind eyes Gnanadikam found that among these blind in both eyes the order of frequency of the causes was glaucoma, corneal ulcer, keratomalacia, trachoma, iritis, smallpox, and gonorrhoeal ophthalmia. Another observer (Bagchi) gives the following order of frequency in 3,404 persons blind in one or both eyes: anterior staphylococci, 39.7%; trauma, 7.0%; trachoma, 6.2%; leucoma, 5.9%; keratomalacia, 5.8%. In 74 inmates of the Calcutta Blind School Indra found the following distribution: congenital, 15 cases; smallpox, 11; syphilis, 10; ophthalmia neonatorum, 5; keratomalacia, 4—the last being regarded as an underestimate of the frequency of the affection, "as few such children can afford the expenses of the Blind School." Wright (1937) gives the principal causes in order of importance as:

In Children	In Adults
Keratomalacia	Cataract
Ophthalmia neonatorum	Optic atrophy (mainly syphilitic)
Congenital syphilis	Corneal ulcers
Hereditary blinding disease	Glaucoma
	Trachoma

which in both children and adults irritant remedies (the result of ignorance and the lack of adequate facilities for treatment) and smallpox are potent factors. All these assessments have one thing in common: the immense amount of blindness caused by various uncontrolled infective processes and by malnutrition.

Egypt.—In a cumulative list of causes of blindness published in the reports of the ophthalmic hospitals the predominant cause of blindness in some 75,000 cases (7 eyes) are shown as conjunctivitis with corneal complications and its sequelae. Some 82% of all blind fell into this category, and it appears that acute ophthalmia rather than trachoma is the main form of conjunctivitis leading to blindness. Glaucoma is also a cause of some significance.

Palestine.—The reports of the Ophthalmic Hospital of the Order of St. John, Jerusalem, give a parallel analysis to that in the Egyptian reports and the findings are similar. Some 78% of all blindness is caused by conjunctivitis and its corneal complications. Shihab (1937) holds that some 75% of all blindness is caused by the acute ophthalmias, and that the two extremes of age are most susceptible.

Trinidad and Tobago.—In a study of the causes of blindness in 194 patients Métiévier found syphilis the cause in 45 instances, glaucoma in 38, and leprosy in 14. Other significant factors were cataract and purulent ophthalmia.

African Colonies.—Little is known of the causes of blindness in the African colonies. Trachoma is probably rare but not unknown, as was previously believed. Two recent studies have drawn attention to onchocerciasis (Ridley, 1945; Scott, 1945). It is not known whether the incidence and causes of blindness seen in the natives of the Union of South Africa are typical of the African population as a whole.

3. PREVENTION OF BLINDNESS

In England smallpox figured as the main cause of blindness in such assessments as are available for the early years of the last century. Towards the end of the century ophthalmia neonatorum was the largest single cause; in a collective survey carried out by the Ophthalmological Society in 1884 it was found responsible for between 30 and 40% of blindness seen at blind schools and institutions. These findings may be taken as indicative of the role of infectious diseases as causes of blindness in this country during the last century. To-day infectious disease—both exogenous and endogenous—accounts for only a small proportion of all blindness; in the survey for the Counties of London and Middlesex it stood at not much more than 15% (Sorsby, 1945a). Generally speaking, the most significant cause in the undoubted decline in the incidence of blindness in England, and in advanced countries generally, has been the control of infectious disease by public health measures, adequate facilities for treatment, and of late years the advances in chemotherapy, beginning with arsphenamides in the treatment of syphilis. Other causes in the decline of blindness have been the development of ophthalmology, the rise of eye hospitals and eye departments, and the perfection of operative techniques for cataract and glaucoma.

England and Wales.—The decline in the incidence of blindness in England and Wales is hardly reflected by the mounting number of registered blind since 1920. That a decline has taken place is suggested by the census findings since 1851, which have shown a steady diminution in the rate of incidence per 100,000 with each census. The rate in 1851 was 102; it declined to 96, 95, 88, 81, 78 at the subsequent decennial censuses, falling to 73 in 1911. More definite evidence is supplied by the returns for the age group 5-16 years under the Blind Persons Act of 1920. Unlike those for the other age groups, the returns for this group may be taken as giving a true presentation, for children come under the care of the school authorities, and the blind child is unlikely to escape registration. In contrast to the increase in the total number of registered blind, there has been a striking decline in the number of registered blind children, as the following table shows (Sorsby, 1945b).

TABLE I.—Incidence of Blindness in Children aged 5-16 Years, England and Wales, 1823-43

Year	Population aged 5-16 Years	No. of Registered Blind aged 5-16 Years	Rate per 100,000
1823	7,477,143	2,723	36.4
1825	7,306,761	2,720	37.2
1827	7,385,359	2,554	34.6
1829	7,262,590	2,438	33.6
1831	7,166,056	2,355	32.9
1833	7,246,446	2,089	28.8
1836	6,890,730	1,853	26.9
1838	6,694,300	1,676	25.0
1839	•	1,619	24.2†
1840	•	1,499	22.4†
1841	•	1,425	21.3†
1842	•	1,369	20.5†
1843	•	1,355	20.3†

* Population figures not available for publication † On 1938 population figures

A decline to almost a half in the space of twenty-one years is a gratifying testimony to the efficacy of the many measures that are operative in the prevention of blindness. But it cannot be assumed that this trend is applicable to the whole blind population. In fact it is likely to be almost entirely confined to the lower age groups. It has already been seen that the causes of blindness are notably different in the different age groups and that nearly 80% of the blind are over 50 years of age. There is no reason for believing that blindness from cataract, glaucoma, myopia, and senile macular lesions—the causes operative in that age group—is declining to any marked extent, while the evidence available for the causes of the decline in the incidence of blindness in the young indicates that the reduction in them is wholly due to the elimination of the

sequelae of infectious disease. This is brought out by the following comparative table of the causes of blindness seen at provincial blind schools in 927 children in 1922, and 524 in 1944 (Sorsby, 1945b).

TABLE II.—Proportionate Incidence of the Main Causes of Blindness at Provincial Blind-Schools in 1922 and 1944

	Board of Education, 1922 (927 Cases)	Present Series 1944 (524 Cases)
Ophthalmia neonatorum	30.4	9.2
Purulent ophthalmia of later years	2.5	—
Phlyctenular ophthalmia	3.7	0.2
Interstitial keratitis	4.1	0.9
Iridocyclitis	2.5	0.8
Choroiditis	?	0.8
Syphilitic lesions	?	2.5
Optic atrophy	12.9	5.3
Congenital anomalies	—	—
Including myopia	37.2	67.6
Excluding myopia	30.8	55.0

This table shows a striking reduction in blindness from ophthalmia neonatorum and suggests a corresponding decline in blindness from congenital syphilis. As a corollary, blindness due to defects of congenital, hereditary, and developmental origin (in which myopia may be included) has assumed a proportionately increased significance. Two conclusions suggest themselves:

(1) The decline in the incidence of blindness in children is likely to come to an end within foreseeable time, in view of the fact that already some 65% of all blindness in children is due to defects of congenital or congenitally determined origin, and such defects are not readily amenable to treatment. It is therefore likely that blindness in children 5-16 years old will decline from its present rate of about 20 per 100,000 to about 12-14 per 100,000, but will remain at that level until more is known of congenital and congenitally determined disease.

(2) No substantial decline of the blind population as a whole is to be expected so long as there is no fuller knowledge of cataract, glaucoma, myopia, and the senile degenerations of the fundus oculi. Such decline as may be expected from better facilities for treatment may well be balanced by the shift towards more people in the higher age groups of the population as a whole.

A century of effort in public health legislation, hospital administration, bacteriology, and pharmacology is reflected in the diminution of the incidence of blindness. The further operation of these forces is likely to reduce blindness still more but at an ever-diminishing rate. Substantial advances can only come with intensive studies of the nature of genetic disease and intra-uterine infections on the one hand, and of cataract, glaucoma, and senile degenerations on the other. These are not all exclusively ophthalmic problems, any more than is blindness from infectious processes. In ophthalmology, however, these problems in pathology have become formulated perhaps more clearly than in other specialties.

Scotland.—In Marshall and Seiler's study of 3,219 blind persons 113 were aged 0-15 years, and of these 37 were blind from defects of congenital, hereditary, and developmental origin and 3 from myopia. This is a considerably lower incidence than that noted for the provincial blind schools of England. Proportionately there was more blindness from infectious disease. For the higher age groups their findings are essentially parallel with those for London and Middlesex.

The Dominions.—In the absence of more definite data may be assumed that the problems of the prevention of blindness in the white population are similar to those established for the British Isles.

Africa.—The limited inquiry of Rosset-Berdez for South African natives suggests that one in every twenty Africans is blind. If this is true and applies to Africa as a whole, it is unbelievable that such a state of affairs is not largely remedied. Fuller information is an urgent first step.

India.—Such Indian blind statistics as are available give prominence to lesions like anterior staphyloma (39.7% in one series), leucoma, and corneal ulcer. Trachoma is known to be endemic in some parts of the country; smallpox is still a significant cause of blindness, while ophthalmia neonatorum and congenital syphilis are recognized as important causes of blindness in children. All this is reminiscent of England at

beginning of the last century. The control of blindness in India is thus largely a problem of the control of infectious disease. That this is not purely an issue of pathology and pharmacology is obvious enough from the history of public health in Western Europe and is grimly emphasized by the fact that keratomalacia—a nutritional deficiency disturbance—is ranked as first among the causes of blindness in children. The problem of blindness in India is not one of the elimination of a particular infectious disease such as trachoma or the acute ophthalmias. It has to be conceived in terms of standards of living, education facilities for treatment and adequate and well trained ophthalmic personnel. None the less there is much that can be done immediately both outside and as part of the long term plans—how much, can be seen more clearly from a consideration of the position in

Egypt and Palestine—Here the social problems are not dissimilar in their broad aspects from those seen in India but unlike in India two clearly defined infectious diseases are the main causes of blindness—the acute purulent ophthalmias and trachoma. Purulent ophthalmia the more significant cause is now easily treated by the sulphonamides and by penicillin. An immediate and striking reduction of blindness in Egypt, Palestine (and indeed throughout the whole of the Near and Middle East) and perhaps India could be brought about by the organization of relatively simple treatment stations and possibly mobile units, with adequate supplies of the new chemotherapeutic and antibiotic agents. Trachoma, too could be considerably reduced by such stations, for the beneficial effect of sulphonamide therapy in trachoma is no longer open to doubt; moreover there are indications that penicillin may also be highly effective. The creation of such treatment stations will in any case have to be undertaken in any long-term programme but a sense of urgency has now been supplied by the availability of the new therapeutic agents for each day that such treatment is not available to the millions of Africa and Asia adds many blind to the roll of the avoidably blinded.

Summary

1 The number of blind in the British Isles is not less than 90 000 and is likely to exceed 100 000. In the white population of the Dominions it is between 40 000 and 50 000. In the native population of the British possessions in Africa, Asia, and Indonesia it is considerably more than 10 millions.

2 There has been a marked decline in the incidence of blindness in childhood in England and Wales during the past 21 years, but there is no evidence that there has been any substantial decrease in the older age groups. Before long the decline in the incidence of blindness in childhood will come to an end, as already about 65% of all blindness in children is due to congenital and genetic infections not readily amenable to treatment. With the rapid elimination of blindness due to infectious disease, intensive research in the problems of genetic disease, maternally transmitted infections, cataract, glaucoma and the pathology of senescence has become an immediate task if the incidence of blindness in England and Wales is to be reduced.

3 In the native populations of the British possessions the incidence of blindness could be reduced immediately and effectively by the organization of facilities for the intensive exploitation of the sulphonamides and penicillin in the treatment of the widely prevalent ocular infections.

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OBSERVATIONS ON OEDEMA OCCURRING DURING THE COURSE OF MACROCYTIC ANAEMIA

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Tropical or nutritional macrocytic anaemia is described in the textbooks and Wells in India, Trowell in Africa and a number of other workers have investigated it. Unfortunately, service conditions render this literature inaccessible and in this account of certain features of the disease which seem of practical importance I may be treading on ground that has already been covered. Reference to previous work is omitted from necessity, not from negligence.

The textbooks describe the disease as an anaemia often severe of a macrocytic type occurring in India, Africa, the Balkans and southern United States among populations suffering from poor nutrition. It is often seen in pregnant women. It is accompanied by fever, diarrhoea, sore tongue, and sometimes oedema (which seems to have been referred to cardiac decompensation). Achlorhydria is said not to occur. Haemolytic and non haemolytic types of the condition are distinguished.

Discussion with fellow officers suggests that many cases of this kind occur in South East Asia Command, more commonly among Indian troops, less so among East Africans, occasionally among West Africans and hardly ever among British soldiers. It is proposed to discuss a series of 38 cases among East Africans, living stress on certain features.

Table I shows the frequency with which the signs and symptoms mentioned above were observed in this series. Anaemia of a more or less severe degree was noted in all (several patients had blood counts of less than one million red cells when they came under observation). It is not proposed to comment especially on the cytology which conformed to the textbook description. Macrocytosis was observed in all cases and normoblasts were seen on a number of occasions. The absence of an adequate centrifuge precluded determinations of mean corpuscular haemoglobin concentration or of other features requiring haematocrit readings. On several occasions the cells were reported to be macrocytic and hypochromic. Sternal puncture was done in several cases. It always revealed an actively normoblastic marrow. Sickling of the red cells was never observed nor was increased fragility, even in cases which were clearly of a haemolytic type. No neurological features of any kind were noted.

TABLE I

Total cases	38
Chills	12
Caustic HCl in the stomach	1
Absent	12
Present	10
Not determined	16
Diarrhoea	12
Normoblasts	12
Macrocytosis	12
Haemolysis and ascites	12

While gross anaemia can be missed only through negligent examination it will be obvious that the other signs and symptoms except the oedema and ascites (which will be discussed more fully) and the achlorhydria may be attributed to a number of complaints very common in South East Asia Command. Haemoglobin determinations alone are insufficient to exclude a moderate anaemia of this type. The only safe procedure is to count the red cells as well as to estimate the haemoglobin. At the least, a well prepared thin film should be examined by a reliable observer. In this hospital some cases were certainly missed before this point was appreciated.

Fever is usual in the more severe cases and may be mistaken for that of malaria or other illnesses. Diarrhoea may be attributed to dysentery or to infestation with worms or flagellates. Several cases at first labelled "non-specific diarrhoea" proved later to be macrocytic anaemia. Splenomegaly may be attributed to malaria or schistosomiasis, and indeed in the cases under consideration it was difficult to be sure whether the enlarged spleens observed were in truth connected with the

anaemia or with a legacy from earlier disease. Jaundice, when present, is more likely to suggest infective hepatitis than anaemia.

Prominence of one or more of these signs may lead to a wrong diagnosis unless the possibility of macrocytic anaemia is kept in mind as an underlying cause, and appropriate investigations made.

The occurrence of oedema and ascites merits special discussion. Fairley and Low (1939) attribute it to the cardiac insufficiency. It occurred in 12, or nearly one-third, of the present series of cases, in all but one, however, it did not appear until, as a result of treatment, the blood count had risen considerably. At this time other signs which could be attributed to cardiac decompensation were entirely absent.

Dietary deficiency is known to be a cause of macrocytic anaemia, and although an East African soldier's diet is probably better than that to which he is generally accustomed in civil life, it contains only 41 g. of first-class protein. The manufacture of haemoglobin involves the synthesis of protein as well as the manufacture of the iron-containing haem molecule. For every gramme of iron in haemoglobin there are some 800 g. of protein. If an individual with 6 litres of blood in his body is to raise his haemoglobin by 1 g. per 100 c.cm. of blood he must manufacture 60 g. of protein. It is not uncommon in these cases for the haemoglobin to fall as low as 6 g. per 100 c.cm., in which case to restore it to normal nearly half a kilogramme of protein

"heavy" nitrogen were introduced into the body by injection or by feeding, the "heavy" nitrogen atoms could be identified in the protein of all the body tissues, including plasma.

Once the osmotic pressure exerted by the plasma protein below a certain critical level fluid can no longer be held in capillaries, and oedema or serous effusions result. If a reduction of plasma proteins does in fact determine the occurrence of oedema and effusion in these cases it should be possible to demonstrate it, and observations were undertaken with this end in view.

After the work had been planned and started, a copy of *B.M.J.* for Jan. 13, 1945, became available. This contained a paper by Trevor Davies recording a case of oedema and recovery from anaemia. He found that the total serum protein when the oedema was fully developed, was 4.16%, the albumin 1.8%, and the A/G ratio 0.76/1. At this time the red cell count numbered 3,700,000. A month later, as a result of plasma transfusion and protein feeding, the total serum protein was 5.61% and the A/G ratio 1.5/1. The writer quotes a case of plasma transfusion in severe macrocytic anaemia (J. McD. Holmes, 1944)—not available here. He also quotes Heath and Taylor (1936) as stating that for a rise in the haemoglobin level 80 g. of protein must be retained.

The equipment necessary for plasma protein estimation was not provided in the laboratory of a field hospital, and

TABLE II.—Cases without Anaemia or Oedema

Serum	Total Protein (g/100 c.cm.)	Albumin (g/100 c.cm.)	Globulin (g/100 c.cm.)	A/G Ratio	N.P.N. (mg/100 c.cm.)	Remarks
1	8.43	5.66	2.77	2.1	28	Mixed sera for Kahn tests
2	8.53	6.38	2.15	3.1	28	" " "
3	6.96	5.84	1.12	5.2/1	47	" " "
4	5.72	5.10	0.62	1.5/1	28	" " "
154265	9.94	6.74	3.60	1.7/1	33	Oedema (slight) of legs. No anaemia. Peritonitis of tibiae (oedema)
8066	8.15	4.85	3.65	1.23/1	16	A case of schistosomiasis. Formol-gel test negative
14404	8.07	3.28	4.79	0.68/1	29	A case of schistosomiasis. Formol-gel test weakly positive (t. test)

TABLE III.—Cases with Anaemia

Regimental Number	Date	Total Protein (g/100 c.cm.)	Albumin (g/100 c.cm.)	Globulin (g/100 c.cm.)	A/G Ratio	N.P.N. (mg/100 c.cm.)	R.B.C. (millions per c.mm.)	Remarks
*N/25528	1/1/45	5.50	4.40	2.10	1.6/1	?	2.02	No oedema or ascites
44131	15/4/45	7.50	4.10	3.40	1.2/1	33	(Hb 3.6 g)	Severe anaemia, very ill. No oedema or ascites
G/1119	21/6/45	6.07	3.26	2.80	1.16/1	19	1.64	R.B.C. rising. Oedema + + +
40866	25/4/45	4.77	2.89	1.88	1.5/1	28	2.59	+ + +. Pleural effusions
40876	6/5/45	6.01	2.58	3.43	0.75/1	28	2.34	Oedema + +, ascites + +
N/22916	29/4/45	7.81	2.90	4.91	0.59/1	27	3.10	effusions
N/22916	9/5/45	5.92	2.07	3.85	0.54/1	19	4.94	Oedema + +, ascites + +
N/22916	30/5/45	7.55	3.02	4.53	0.66/1	24	4.26	No oedema. Some ascites, less than before
N/22916	19/6/45	7.08	3.00	4.08	0.73/1	11	4.48	No oedema or ascites
ZBK/12410	9/6/45	6.83	2.56	4.27	0.59/1	16	3.99	Ascites +
DN/22926	30/5/45	5.70	2.66	3.04	0.87/1	115	2.98	Chronic nephritis. Gross oedema-nitrogen retention
DN/22926	6/6/45	5.03	2.15	2.88	0.74/1	164	—	—
G/3112	15/5/45	6.99	2.50	4.49	0.56/1	25	—	Determinations at intervals of 15 days on a case with fever, "megaly," and anaemia, with shifting dullness in flanks. Seropuncture showed Leshman-Donovan bodies. Diagnosis therefore kala-azar.
G/3112	20/5/45	7.04	2.35	4.69	0.5/1	17	—	—

* This estimation was done at another hospital, and taken from the patient's notes.

will have to be forthcoming. Further, the protein moiety of haemoglobin is believed to belong to a class of proteins which are known to be particularly rich in diamino-acids, such as arginine and lysine, and, since there is evidence that these substances cannot be synthesized in the body, proteins which contain them must be eaten. Even so, it is possible that a good many molecules of food or body protein have to be broken down before the necessary constituents can be obtained for the manufacture of a molecule of haemoglobin. This may result, during the periods of blood regeneration, in a very heavy drain on the total protein resources, during which the plasma protein may become depleted.

It has been held that the plasma proteins do not form part of the general protein currency of the body. This can hardly be maintained in view of the work of Schoenheimer and his collaborators, who showed that if amino-acids containing

method used, based on that of Walther (1941), had partly been improvised. Details are given in the Appendix to this paper. All the determinations were made on sera, since plasma cells cannot be freed from cells without a centrifuge.

In the first instance a number of estimations of total serum protein were carried out. Though in several instances the total serum protein of cases with oedema was much diminished (e.g., the patient had a total serum protein of 4.9%, with gross oedema, on Dec. 24, 1944) the figures did not clearly establish the point at issue, but the figure for total serum protein may not be a sufficient criterion. The osmotic pressure of the serum depends upon the sum of the osmotic pressures of its albumin and globulin components (that exerted by fibrinogen is very small). The albumin is the smaller molecule and is said to exert about four times the osmotic pressure of the globulin. A serum in which the albumin is decreased and

the globulin normal or raised may therefore exert a lower osmotic pressure than a serum of equal or less total protein content but containing a higher proportion of albumin. Still the following figures as "normal": Total protein, 6.3-8.0%; albumin, 3.8-5.2%; globulin, 2.0-3.5%; A/G ratio, 1.45/1 to 2.2/1.

The total colloid osmotic pressure is said to lie between 20 and 30 mm. of mercury. Oedema is said to occur if the total protein falls below 5.5% or the albumin below 2.5%. It is clear from this that fractionation of the serum protein is required if the influence of the serum protein in determining the oedema is to be assessed.

Table II gives the results of a number of control determinations on sera of cases without anaemia or oedema. In Table III are given the corresponding figures for anaemic patients, some of whom were oedematous, and for one or two other cases with oedema and anaemia due to other causes.

It will be seen from Table III that Nos. 44131 and G/1419, though grossly anaemic and very ill, were free from oedema or ascites and had serum albumin levels well over 3.0%. No. 40866 on April 24, 1945, was grossly oedematous, and his total protein was very low, although his albumin was only just under 3% and his A/G ratio normal. A comparison of these three cases shows that the A/G ratio, taken alone, has no particular significance (see also No. 14404 in Table II, in which the A/G ratio is low because of increased globulin). No. N/22916 had moderate oedema and ascites on April 29. It was much worse on May 9, by May 30 it was improving, and it had disappeared by June 19. Two determinations on DN/22926 are included to illustrate a type of case in which oedema has long been accepted as being due to lowered serum protein, while G/3112, who had a little ascites, exemplifies yet another condition with a low albumin and a reversed A/G ratio.

The presence of oedema and ascites in these cases of anaemia has certainly given rise to errors in diagnosis. It often occurs at a stage when the anaemia is not impressive, and at which it may be missed altogether if reliance is placed on haemoglobin estimations alone. Two such cases were evacuated to this hospital with the diagnosis of hepatic cirrhosis, and in another vitamin B deficiency was suspected.

Aetiology and Complications

These are discussed together because I feel in a real difficulty of the "chicken and egg" variety. Certain conditions have been observed sometimes to accompany the anaemia, but whether they are also its cause is very difficult to determine. Table IV gives the conditions which were noted in this series.

TABLE IV.—Conditions Present

Ankylostomiasis	11*	Malaria	2*
Pulmonary complaints	9*	Serub typhus	1
Amoebic dysentery	3	Schistosomiasis	1
Bacillary dysentery	1	None	12

* One patient suffered from malaria, ankylostomiasis, and a mild attack of pneumonia.

It will be seen that 12 of the cases suffered apparently from uncomplicated anaemia. Ankylostome ova were found in the stools of 11. In spite of the prevalence of dysentery, in only 4 of these cases was its presence established either during or before the onset of the anaemia. We can find no evidence suggesting that the anaemia was caused by dysentery; the diarrhoea from which many of them suffered was a feature of the anaemia itself, and was not caused by a bowel infection. In only two cases was the presence of malaria parasites established. (This raises a difficulty because the majority of East African troops come from districts in which malaria is hyper-endemic, and one would expect a higher parasite rate. On the other hand, they were all on suppressive mepracine.) The proportion of respiratory complaints, varying from a mild bronchitis to frank pneumonia, was high. One patient was admitted with pneumonia and developed a macrocytic anaemia while in hospital.

Case DT/1574—On admission (21/12/44): Temperature 103°, pulse 120, respirations 32. Crepitations at both apices; no frank consolidation. Not clinically anaemic. Given sulphapyridine.

26/12/44: T. normal; chest clear. Sulphapyridine stopped.
27/12/44: Moderate fever; looks pale. Hb 54%, R.B.C. 2,750,000, C.I. 0.99. Slight anisocytosis. W.B.C. 10,975 (P. 67%, E. 12%, L. 16%, M. 5%).

30/12/44. T. 100°. Weak and listless. Weil-Felix and Widal, negative.

5/1/45: R.B.C. 1,830,000, Hb 38%, C.I. 1.05. Anisocytosis, poikilocytosis, polychromasia; myeloblasts and normoblasts present; no sickling.

8/1/45: Put on high protein diet and vegetable

21/1/45: Reticulocytes 5%.

23/1/45: Hb 82%, R.B.C. 4,630,000. Slight anisocytosis and poikilocytosis. W.B.C. 3,400.

26/1/45. Fractional test meal shows free HCl.

6/2/45. Hb 96%, R.B.C. 5,020,000, W.B.C. 4,160.

It is a pity that a red cell count was not done on admission. However, the blood counts of Dec. 27, 1944, and Jan. 5, 1945, illustrate the development of the anaemia. Large hypochromic red cells were present. The response of this case was particularly rapid. The impression gained from this and other cases is that though respiratory complaints do not cause the anaemia they may precipitate and exacerbate it.

That ankylostomiasis is potent in preventing recovery from anaemia was suggested by two cases in which ankylostomes were found and treatment was given soon after admission. After a time the anaemia failed to improve and further stool examination again revealed eggs. A second "worming" was followed by improvement in the blood count, and no more ova were seen. In fact, however, of the number of cases in which neither ankylostomiasis nor any other disease was found, it is difficult to make a case for a causal relationship between the anaemia and any of the infections commonly seen in this theatre.

Of the total cases 31 were evacuated from forward areas, and 7 were admitted from L. of C. units. It is likely enough that the hardships of a particularly strenuous campaign would precipitate the condition in men already predisposed. But these figures may be misleading. At the time when almost all the sick and wounded from the East African Forces came through this hospital, all but a handful of troops were in forward areas. Later, when the division was out of the line, the bulk of the sick were diverted to another evacuation route, and were not seen here.

No apology is made for labelling the above points. In this, as in other instances, prevention is more important than cure. There is danger lest loose statement to the effect that anaemia is "always" due to malaria or ankylostomiasis may blind us to more important underlying conditions such as inadequate diet. In any case it is thoroughly established that the anaemia or that caused by malaria and ankylostomiasis is characteristic of the microcytic type and therefore different from that described. To expect a man who has had a diet poor in iron and protein since he was weaned to maintain or replenish his haemoglobin in the face of hard campaigning conditions, without added infection, may be to expect him to make bricks without straw.

Treatment

Of the series one patient died from an intercurrent attack of cholera. Three were evacuated (when improving) because of pressure on hospital bed-space, and one was graded Category C on account of an old chronic synovitis of the knee. All the remainder have been returned to duty in Category A except five who are still under treatment. Some of those discharged still had achlorhydria, though three, originally achlorhydric, were found to secrete HCl when reviewed after return from the convalescent depot. Those with persistent achlorhydria all had normal blood counts, had put on weight, made no complaints of dyspepsia, and seemed so well that, rightly or wrongly, the finding was ignored and they were returned to duty. It seems therefore, that the treatment given may be regarded as satisfactory in a long-term sense. But it has proved very slow. The average duration of treatment (including time at the convalescent depot) was 105 days: the longest 175 days, the shortest 58.

It is stated (Fairley and Low, 1939) that the condition responds to marmite, to liver, to liver extract by mouth equivalent to 1 lb. of liver a day, and to parenteral administration of liver extract. In the haemolytic type the doses of these substances may have to be very large. These authors say that before, the introduction of liver therapy the mortality rate was around 40%. Moore, Vilter, Minnich, and Spies (1944), working on a series of cases in America, found that these

responded to parenteral liver and to beef muscle by mouth, and further showed that the following substances were without effect: niacin, thiamine, riboflavin, calcium pantothenate, pyridoxine, inositol, para-aminobenzoic acid, and choline.

In the present series the supply of therapeutic substances was too irregular to allow of more than a "shot-gun" regime of treatment. The diet contained about 4,000 calories. There were approximately 165 g. of protein, of which 38 g. were contained in meat (muscle), 22 g. in liver (when available), 31 g. in milk (including cheese), and 12 g. in eggs, giving 103 g. of first-class protein. (Anyone familiar with the supply position of the forward hospitals will realize that not infrequently one or more of these items were not available.) In addition, each patient received 2 to 4 oz. of vegemite (marmite substitute) and 9 multivite tablets per day. Each received an iron preparation twice daily, and for a time 2 oz. of dried yeast. For a considerable period no liver extract for injection was available, and that eventually supplied was of Indian manufacture and doubtful potency. A quantity of liver extract for oral administration was available for some time.

In all, eight patients received liver by injection. In two only was a reticulocyte response observed. Two patients showed a reticulocyte response on vegemite. Eight patients had one or more blood transfusions because of their precarious condition. Three of these were previously given at other hospitals. More would have been given at this hospital but for the difficulty of persuading East Africans to act as blood donors. However, several patients whose condition seemed very precarious, but from whom blood had to be withheld for the reason mentioned, made a good though slow recovery without it.

Treatment of Oedema and Ascites

Five of the oedematous patients received intravenous infusions of reconstituted serum. This treatment was followed by a diuresis, and in three cases the oedema and ascites began to clear up a few days later. In the other two it appeared to have little effect. It is felt that this line of treatment should perhaps have been followed more vigorously. The difficulty was, first, that the amount of serum available was limited, and a good supply had to be conserved for surgical emergencies; secondly, that the giving of serum was usually followed by a sharp rise of temperature and a good deal of malaise and discomfort. The water used to dissolve it had been bottled for some time, and one would have felt happier in preparing fresh ammonia-free water; no glass still was, however, available. A 100 c.c. of serum will contain about 40 g. of protein, of which about 22 g. will be albumin, this would raise the serum albumin to about 0.5.

In the presence of a large effusion the question of paracentesis arises. The fluid contains protein which is for the time being out of circulation, though if the effusion is naturally absorbed it will presumably become "current coin" again. If, however, part of it is removed by paracentesis, and is replaced again (as so often happens) by further effusion, protein will be irrevocably lost to the body. As an example, on May 28, 1945, 2,570 c.c. — a very small part of a huge ascites — was removed from the abdomen of No. 40866. This contained 93 g. of protein, of which 40 g. was albumin. The removal of this fluid made little difference to his comfort, and in a few days he was as distended as before. Subsequently (June 19) the oedema and ascites began to diminish, and had all disappeared in a few days. Earlier, N/22916 had had 3,640 c.c. withdrawn at the cost of 32 g. of protein (which in this case was all globulin). He "filled up" again very quickly. Subsequently the whole effusion was absorbed. It is thought that, unless really serious embarrassment is being caused, effusions in these cases are better left alone.

Conclusion

In writing this imperfect account I have made use of some data — e.g., the first figure in Table III — contained in the documents of patients transferred from other hospitals, and, in certain cases, of the notes of other M.O.s (particularly those of Capt. R. A. Shanks, R.A.M.C., of this hospital). I am greatly indebted to Major A. B. Raper and his staff, especially S Sgt M Fitch, R.A.M.C., for all the haematological examinations, for routine pathological examinations, and for facilities for carrying out the serum protein determinations.

Summary

A brief account is given of 38 cases of tropical (or nutritional) macrocytic anaemia among East African troops. The aetiology of the condition in S.E.A.C. is discussed.

Particular attention is paid to the occurrence of oedema and effusions. They were observed in nearly 30% of cases, and appear to coincide with the regeneration of red cells rather than with the acute stage of the disease.

A number of estimations of serum protein have been performed. Their significance is discussed.

APPENDIX

The method used for serum protein determination was based on that of Walther (1941) for total serum of plasma protein. 0.02 c.c. of serum of plasma (measured by means of a haemoglobinometer pipette) is digested with 0.25 c.c. of sulphuric acid and 0.5 c.c. of saturated potassium persulphate. The digested mixture is made up to 40 c.c., nesslerized directly, and compared in a colorimeter against standard ammonium sulphate solution. In the original method a standard correction is applied for non-protein nitrogen, since it is estimated along with the protein nitrogen. In this work boiling-tubes, a spirit lamp, sulphuric acid, persulphate, and Nessler's solution were available, and the laboratory still fortunately yielded ammonia-free water. There was, however, no colorimeter. Fortunately, the commanding officer had brought with him a Lovibond tintometer, and the 0-100 mg. blood-urea disk. These disks are, of course, made for use under the precise conditions laid down by the makers and with Nessler's solution made to a certain formula. These conditions could not be fulfilled, so urea, dried in an improvised desiccator, was weighed out, dissolved, and the solution containing known amounts of urea treated exactly as the serum would be, and used to standardize the disk in terms of mg. of nitrogen per c.c.m.

The serum total nitrogen was then determined as described by Walther. After digestion the volume was made up to 25 c.c.m. and the nitrogen estimated in the comparator. Dilution, which was achieved by mixing the digest with ammonia-free water in the comparator tube, keeping the final volume 5 c.c.m., was carried out if required.

Non-protein nitrogen was estimated by mixing 2 c.c.m. of serum, 2 c.c.m. of distilled water, and 2 c.c.m. of 10% trichloroacetic acid, filtering, and digesting 1 c.c.m. of the filtrate with 0.1 c.c.m. of sulphuric acid and 0.2 c.c.m. of persulphate, and making the final volume 10 c.c.m. Nesslerization and comparison were carried out as described above. This is not very satisfactory: the colour comparison is often hindered by cloudiness in the tube, due probably to the precipitation of inorganic phosphate. If, on the other hand, this is avoided by greater dilution, the colours (with normal N.P.N. levels) become too pale to be read. With this procedure, of course, the amount of filtrate digested is equivalent to 1/3 c.c.m. of serum, instead of 1/50, which is used in the method for total protein. Fortunately, the protein equivalent of the N.P.N. is small, and the inaccuracy involved is not material.

It is worth noting that if the N.P.N. is high the difficulties mentioned disappear, since greater dilution can be used, and the method is then a quick and accurate one (e.g., Table III, No. DN/22926).

The fractionation of albumin and globulin was carried out on the usual principles: 0.2 c.c.m. of serum was mixed with 6 c.c.m. of 22% sodium sulphate (which was stored in the incubator) and the mixture allowed to stand at 37° C. No filter paper fine enough to filter off the precipitate was available, but by careful pipetting sufficient clear supernatant fluid could be obtained to carry out protein determinations, 1 c.c.m. of fluid (equivalent to 1/31 c.c.m. of serum) being digested as before. The blank tube contained appropriate amounts of sodium sulphate, sulphuric acid, and potassium persulphate. The result represented albumin nitrogen + N.P.N. The albumin was calculated from this and the globulin obtained from the figure for total protein by difference. All determinations were made in duplicate. Unless the duplicates were in good agreement they were repeated.

It will be appreciated that these methods were used from necessity not from choice. The employment of so little as 0.02 c.c.m. of serum implies an enormous dilution factor and a corresponding exaggeration of random errors. Distillation after digestion is always preferable to direct nesslerization, because of the presence of interfering substances. The lack of a colorimeter was a very severe handicap.

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SULPHAEMOGLOBINAEMIA DUE TO ANILINE DERIVATIVES

BY

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The continued use of aniline compounds may produce a marked and persistent cyanosis due to the formation of sulphaemoglobin in the red blood corpuscles. Attention has been directed in recent years to the frequency with which sulphonamide therapy is associated with sulphaemoglobinæmia, but the power of the humbler aniline antipyretics in this direction does not appear to be so well appreciated. Snapper (1925) described two cases of sulphaemoglobinæmia which were due to the continued use of aniline antipyretics. Similar cases have been described by Harrop and Waterfield (1930), Healy (1933) and Morgan and Anderson (1940) among others.

The toxicity of the different members of the aniline antipyretic group varies. The relative toxicity of acetanilide is high, and most of the reported cases of sulphaemoglobinæmia precipitated by aniline antipyretics have been due to that drug. Addiction to it has been observed and this danger has been emphasized by a number of observers. Acetanilide is now included in Part I of the Poisons List (1937) is not easily available to the public and hence widespread abuse of it is not to be expected.

Phenacetin presents a quite different problem. It is a component of numerous proprietary headache powders and can be obtained without difficulty. Its chemical structure is similar to that of acetanilide, it is less toxic, however, and cases of chronic poisoning by phenacetin are therefore seldom encountered. In large doses it can, as might be expected, produce poisoning, with effects, including sulphaemoglobinæmia, very much like those seen with acetanilide. Snappers (1925) two cases of sulphaemoglobinæmia were due to chronic poisoning with phenacetin, and Coxon and Crawford (1940) have reported another. Two cases of sulphaemoglobinæmia have been seen recently, and are described here.

Case I

On April 6, 1943, a housewife aged 42 was admitted to hospital on account of severe headache, weakness, and cyanosis. She had been subject to attacks of severe headache since childhood. These attacks occurred at least once a week and each lasted one to two days. Since the menopause in 1941 the severity and duration of the headaches had increased. The pain began in the crown of the head and then spread to one or other side. The patient could not account for the headaches. She read avidly without ill effect, and was free of nausea and photophobia during the attacks. She shunned company and crowded places, as she feared that an attack might be precipitated in these circumstances. In 1930 she received numerous injections of morphine to ease the headaches. Eighteen months before admission she had noted that her lips were blue, and she stated that her skin had been blue for about a year. This blueness was more pronounced during attacks of headache, and the patient's relatives had remarked on the blue colour of her face. She had taken many brands of analgesic powders for her headaches but two years before admission she resorted to a proprietary tablet (phenico) which contains approximately 3.6 gr. of acetylsalicylic acid and 2.1 gr. of phenacetin. She took between 4 and 10 tablets daily, according to the severity of the headache. During an attack of pain she had had as many as 30 tablets in a day (=63 gr. of phenacetin).

Her husband stated that in the last attack, which persisted for four days before admission, his wife had taken over 100 tablets. He said that the patient had become very irritable and depressed during the past few months. She was confused when the headaches were severe and kept swallowing tablets without regard to their number. During the past year she had been given 41 gr. of ferrous sulphate daily and monthly injections of anaheimin, presumably to improve her general condition.

On admission the patient was greatly distressed with headache but not confused. She was thin and poorly nourished. There was no dyspnoea, but cyanosis was very marked. The skin was a slate-grey colour, which was especially noticeable in the lips, ears, nose and beds of the nails. The temperature was 99° F, the pulse rate 100, and the respiratory rate 20 a minute. The pulse was regular and of good volume, the arterial wall was not palpable. The area of cardiac dullness was not increased and the heart sounds were well heard. A systolic murmur audible at the mitral area was not conducted. The chest was symmetrical and moved equally on both sides. Further examination did not reveal any abnormality of the

lunes. There was no evidence of any mediastinal abnormality. The abdomen was tense, but moved freely with respiration. The liver and spleen were not palpable. Examination of the retinas was not revealing any abnormality. The optic fundi were normal. The urine was free of albumin, sugar, and blood but showed the "diacetic acid fallacy" with ferric chloride solution.

Blood examination showed Hb, 105% (Sahli); red cells, 4,500,000 per cmm.; white cells, 4,200 per cmm. The blood films were normal. The venous blood was darker than normal and remained so despite shaking in air. On spectroscopic examination of mixed blood an absorption band was seen in the red portion (612-620 mμ) of the spectrum. This band was not affected by the addition of potassium cyanide solution and was presumed to be due to sulphaemoglobin. It was visible in a 1 in 100 dilution of blood in water two days after admission (April 8). No specific treatment was given. The headaches were considered to be psychogenic in type.

Progress.—The acute headache passed off after three days, but the cyanosis remained. Analgesics were withheld and so far as known the patient did not have a secret supply. Despite this it was 16 days before there was any obvious diminution in the cyanosis. Three weeks after admission the cyanosis had lessened considerably, but the sulphaemoglobin absorption band was still present in a 1 in 18 dilution of venous blood. The patient was discharged after four weeks.

Six weeks after admission (May 21) the cyanosis had almost disappeared although the sulphaemoglobin band was still detectable in a 1 in 12 dilution of the blood. Blood examination showed Hb 70% (Sahli); red cells, 4,800,000; white cells, 6,000 per cmm. On June 11—i.e. just over eight weeks after withdrawal of the tablets—spectroscopic examination of the blood failed to reveal a sulphaemoglobin band. The general skin cyanosis had gone but the lips were still dusky. Reviewing this case, we may conclude that the regular ingestion of phenacetin (8-20 gr. daily) over a period of two years had led to the formation of sulphaemoglobin in the blood.

Case II

A clerk aged 57 was seen as an out-patient on July 10, 1944. He had had severe pain in the left shoulder during the previous three weeks. The onset of the pain had been sudden and some improvement had occurred with local counter-irritant measures and analgesic powders. There was no dyspnoea.

The patient was a cheerful well built man. Marked cyanosis of blue-grey colour was seen in the lips, face, ears, and especially in the nail beds. Systemic examination did not show any further abnormality. In particular there was no evidence of any upset of the respiratory and cardiovascular systems. Blood films were normal. Hb 95% (Sahli); red cells, 4,250,000 per cmm.; white cells, 7,800 per cmm. The urine appeared to be normal on chemical examination. Rheumatic myalgia of the left deltoid muscle was also responsible for the pain, it responded to massage.

Analgesic powders prescribed by the patient's doctor contained 0.9 gr. of phenacetin and 5 gr. of acetanilide. Twelve powders were taken each week. Thus when first seen he had had a total of 24 gr. of phenacetin and 120 gr. of acetanilide in two weeks.

On being questioned he stated that the blue colour of his face had been noted by his relatives for a week and that it had caused them some concern as they feared it was due to "heart trouble". The venous blood was darker than normal, having a chocolate tinge. An absorption band in the red was found on spectroscopic examination. This band was not affected by potassium cyanide solution and it was thought to be due to sulphaemoglobin. The band was only detected in a 1 in 65 dilution of the blood.

More powders were given and the patient made an unremarkable recovery. As is usual in sulphaemoglobinæmia, the cyanosis disappeared slowly. Thus one week later (July 17) cyanosis was still present and the sulphaemoglobin band was detected spectroscopically in a 1 in 70 dilution of venous blood. Two weeks later (July 24) the cyanosis was definitely less marked. The patient resumed his employment and did not return for further observation.

But acetanilide and phenacetin had been taken in this case and he may have contributed to the formation of the sulphaemoglobin. However, acetanilide, because of its greater toxicity, may be held largely responsible. No treatment of the cyanosis was given apart from withdrawal of the drugs. Long and Spriggs (1918) noted that inhalations of carbon dioxide and oxygen improved their cases of sulphaemoglobinæmia. Healy (1933) gave carbon dioxide and oxygen inhalations, together with a high fat diet and ammonium chloride, to two cases of sulphaemoglobinæmia and reported that the cyanosis disappeared within a week.

Discussion

Apart from the different drugs involved these two cases of sulphaemoglobinæmia may be taken as examples of two clinical types in which cyanosis is due to aniline antipyretics can occur. Case I is an example of the entity called "enterogenous"

cyanosis." The salient features here are psychological instability, weakness, chronic headache, and cyanosis without associated dyspnoea, occurring almost exclusively in women. While it is just possible that some of these cases may be idiopathic, it is now recognized that the majority are due to the ingestion of aniline antipyretics. The self-administration of drugs is often denied by these patients, and careful search may be necessary to find the actual cause of the sulphaemoglobinaemia. Case I suffered a relapse some months after dismissal. This patient was admitted to another hospital and a normal ventricular system was demonstrated by cisternal encephalography. She was then examined by a psychologist, who reported that the symptoms were psychological in origin. Case II presents many different features. Here the drugs were taken to obtain relief from pain caused by an organic condition. The pain of rheumatoid arthritis, as in the case reported by Coxon and Crawford (1940), or of rheumatic myalgia as in the case here described, may be the prime factor. Both sexes may be affected, psychological instability is not present, and the tendency to habit formation is not marked.

The mode of formation of sulphaemoglobin is the same whether it is produced by aniline itself or one of its derivatives. According to Snapper (1925), the circulating haemoglobin is sensitized by aniline derivatives and can thus unite with traces of sulphide absorbed from the intestine. Snapper induced sulphaemoglobinaemia in men by administering aniline compounds and sulphur. Outside the body, however, aniline and its related compounds have no effect on haemoglobin. It appears that aniline compounds are oxidized to the corresponding phenyl-hydroxyl amines and *p*-aminophenols in the blood stream and that these substances affect haemoglobin. Gley (1937) and Morgan and Anderson (1940) have demonstrated that both these substances, when added to blood, lead to the rapid formation of sulphaemoglobin if a trace of sulphide be present, and to methaemoglobin if sulphide be absent. Methaemoglobin can be produced only with difficulty by giving aniline antipyretics alone (Harrop and Waterfield, 1930). Further, methaemoglobin is highly unstable in the blood stream, being rapidly converted to haemoglobin (Stadie, 1921), and large quantities are required to produce cyanosis. Such cyanosis lifts within 24 to 48 hours after withdrawal of the drug, and is more likely to appear in acute than in chronic poisoning.

Finally, there is some evidence in favour of the view that coloured oxidation products of *p*-aminophenol are present in the blood after the ingestion of aniline compounds and that these are partly responsible for the cyanosis. Leslie (1939) described a case of acute acetanilide poisoning in which marked cyanosis was not associated with any change in the blood pigment and was considered to be due to the presence of some coloured derivative of acetanilide in the blood. Lundsteen, Meulengracht, and Rischel (1938) described 11 cases of chronic acetanilide poisoning with cyanosis, and were able to demonstrate a chocolate-coloured derivative of *p*-aminophenol in the blood of one of their cases which was specially investigated. It is difficult, at present, to assess the importance of this coloured *p*-aminophenol derivative in the production of cyanosis. In the majority of cases of chronic poisoning with aniline antipyretics, including the two described here, the cyanosis has been adequately, if not completely, accounted for by the presence of sulphaemoglobin in the blood.

Summary

The clinical and laboratory findings in two cases of sulphaemoglobinaemia due to aniline antipyretics are described. The method of formation of the abnormal pigment and other factors which may contribute to the cyanosis are discussed.

I wish to express my indebtedness to Dr. John Gracie for permission to investigate cases under his care, and to Drs. S. V. Telfer and G. H. Bell for their advice and help.

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THE CHILD WITH FREQUENT COLDS

BY

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In this article are given the results of a comprehensive investigation of 100 school-children suffering from frequent colds. At the invitation of the County Medical Officer, the children were referred by the school medical inspectors in the area of South-West Essex to a special clinic established at the hospital for the purpose of investigating this prevalent condition. The children were mostly drawn from middle-class and artisan families. The main part of the investigation consisted of clinical, x-ray, and laboratory examinations, and note was also taken of the environment and development of the children. While our chief purpose was to establish the clinical characteristics of the child with frequent colds, we also considered the problem of which department in a hospital should be responsible for their examination and should advise on their treatment.

It was inevitable that a number of children suffering from asthma and hay-fever should be referred to such a clinic. If these are excluded the history of the disorder is a typical one. The children usually began to suffer from frequent colds when they started attendance at school. They complained at first of blockage of the nasal passages followed by a mucous discharge which after a few days became muco-purulent. Often there was also a mild upper respiratory infection, with slight cough but little sputum. The general constitutional disturbances always found in an adult suffering from coryza were absent. The cold will last about two weeks, and then the child may be free for a few weeks until the next attack. This cycle will continue right through the winter and may often be present during the summer months, though the colds are usually less severe in the warm weather. In a small number of cases there was continuous muco-purulent nasal discharge between the attacks. Many of these children had had these frequent colds for as long as three years. While the children remain fairly well in spite of these frequent attacks, both the parents and the education authorities show concern at the amount of schooling lost. Some parents are also anxious lest the frequency of the attacks denotes some constitutional deficiency or even serious organic disease—e.g., tuberculosis.

We have examined 130 children, the findings in the first 100 of which are given below. There were 59 boys and 41 girls in this series. Four children were between the ages of 1 and 5, 69 between 6 and 10, and 27 between 11 and 15 years.

History

Their birth weights were all within normal limits, and they all developed normally from birth, reaching the usual milestones at the expected ages; 88 had been breast-fed and 12 bottle-fed; and 95 were given cod-liver oil and orange juice or other additional vitamins to supplement a normal diet. Only 2 children were in the habit of going to bed late. We analysed this series with regard to previous infectious diseases and found that 84 had had measles, 59 whooping-cough, 3 diphtheria, 59 bronchitis, 23 tonsillitis, and 14 otitis media. The majority of them had been vaccinated and immunized against diphtheria. No definite relation was found between any of these infectious diseases and the onset of colds. In 33 cases the mothers complained that their children snored at night and were mouth-breathers. Twenty-one children had had their tonsils and adenoids removed before being seen by us, mainly for the relief of frequent colds, and of these 18 were not improved. A near relative of 26 children had suffered from tuberculosis and of 22 from an allergic condition.

Clinical Examination

These children all showed normal weights and heights for their age and sex, and appeared to be well developed and of normal intelligence, with the exception of 3 who were slightly

backward. None showed evidence of rickets. Their temperatures, pulse, and respiration rates were normal. Eight had carious teeth. Tonsillar enlargement of varying degrees was present in 39 and the adenoids were prominent in 27. In no case was there complete nasal obstruction, and the adenoid facies was rare. We specially observed the shape of the thorax of these children, and found that in 17 it was definitely barrel-shaped, in 5 alar, and normal in 78. In no case was serious lung disease found, but 8 showed a few scattered rhonchi and occasional rales. The heart, abdomen, and central nervous system were normal in all cases. No serious organic disease was therefore found on clinical examination.

Investigations

A number of laboratory tests were done on every child. The haemoglobin in 2 cases was between 60 and 70%, in 6 between 71 and 80%, in 45 between 81 and 90%, in 16 between 91 and 95%, and in 31 over 95%. The white count was between 6,000 and 10,000, and in no case was there a leucocytosis. The differential count showed some interesting features. Only 3 had increased eosinophils, but there were more than 40% of lymphocytes in 53 of the patients, showing a relative lymphocytosis. The urine was normal in every child. B.S.R. (Westergren) was done in one-third of the children, and was within normal limits. Twelve children had a positive Mantoux (1:1000), and 5 of these had positive family histories. None of them showed any other evidence of tuberculous infection, and there was no relation between the positive Mantoux reaction and anaemia or frequent colds. X-ray examination of their chests showed mild catarrhal changes in 49, particularly in the right lower zone, and also slight increase in the hilar markings. Skiagrams of their sinuses showed definite opacities in one or both maxillary antra in 51, and this was the most common abnormality found in the investigations done on these children. The radiographic appearances were thought to be due to mucosal swelling and thickening in the majority of cases, and only 3 showed opacities thought to be caused by actual pus in the sinuses.

Each child was also tested for allergic skin sensitivity to the common air-borne inhalants by the intradermal method, and to the pollens and the main food groups by the scratch test. In all, 14 groups covering 60 substances were used. No food sensitivity was discovered in any child. Eleven children showed positive reactions; 4 of these were cases of hay-fever and had marked sensitivity to pollens, and 5 were cases of bronchial asthma showing marked sensitivity to air-borne inhalants, those most frequently incriminated being house dust, feathers, horse dander, cat, dog, cow, wool, and furs, in that order. The remaining 2 cases gave positive skin reactions to air-borne inhalants, but the symptoms for which they had been referred were not regarded as allergic. The skin-testing was done independently of the history-taking and clinical examination, and therefore any bias in its interpretation can be excluded. It is interesting that in every case where an allergic factor was diagnosed it was confirmed by skin tests. At the clinic at this hospital for children suffering from respiratory allergy, in which skin sensitivity tests are done, 80% show positive reactions. This is in marked contrast to the present series, only 11% of which had positive skin reactions to the common air-borne inhalants. Two other features distinguishing the two groups are the absence of radiological abnormality of the nasal air sinuses in the allergic group and the low incidence of eosinophilia in the present series as opposed to the allergic.

The cervical, axillary, and inguinal groups of glands were carefully examined, and enlargement of the cervical chain of glands was noted in 30 cases. This was usually found in patients with enlarged septal tonsils. In addition, however, many children showed enlargement, sometimes to a considerable extent, of the other groups of lymph glands. This generalized glandular enlargement seems to be common in children who have an active septic or tuberculous focus, though often no obvious cause can be found. Twenty children with adenopathy had several additional investigations done to see whether further light could be thrown on this clinical problem—namely, the Paul-Bunnell test, Wassermann reaction, and biopsy of a small gland in 6 cases. All these tests proved negative, and the results of the routine investigations in no way differed from those

obtained in children with no generalized glandular enlargement. The glands studied histologically showed activity only in the germinal centres, and the general structure of the gland was quite normal.

No bacteriological examination of the muco-purulent nasal discharge was made. Many workers have investigated its flora and the results are well known.

Conclusions

From these investigations we learn that the child with frequent colds is of normal development, build, and intelligence, and does not suffer from any other organic disease. Though minor degrees of anaemia occur, the children cannot be regarded as physically defective. The onset of the attacks at the beginning of school suggests that the continuous contact with infection is an important aetiological factor. No definite relation was found between the colds and developmental abnormalities, upbringing, previous illnesses, or contact with tuberculous infection. No conclusion can be drawn from the lack of improvement after tonsillectomy, as naturally the children who improved after this operation would not be sent to the clinic; but we believe that in the absence of other indications, such as infection of the tonsils or nasal obstruction due to adenoids, surgical removal of the tonsils and adenoids will be relatively ineffective as a measure designed to prevent frequent colds. No allergic aetiological factor could be established. Investigation of the blood, the Mantoux test, and special investigations with regard to glandular enlargement, though of general interest, did not throw any light on this condition. These frequent colds are due to inflammatory reactions of the mucous membrane lining the nasal passages and air sinuses, and give rise to few general constitutional disturbances in children. A filterable air-borne virus seems to be responsible, aided by other organisms such as the pneumococcus, *Str. viridans* and *haemophilus*, *staphylococcus*, *Micrococcus catarrhalis*, or *Haemophilus influenzae*, which set up secondary infection. Repeated colds may cause nasal obstruction, and there may be arrest of nasal development and failure of muscular control over nasal respiration. These factors predispose the child to further infection.

We think that the treatment of this condition is entirely a problem for the ear-nose-and-throat surgeon, who should keep these children under supervision in a special clinic where they can receive conservative and operative treatment. A general medical or surgical, paediatric, or allergic clinic should not have to deal with these children, as, apart from the local conditions affecting the nasal passages, sinuses, and throat, no other abnormality could be discovered.

We wish to acknowledge our indebtedness to the County Medical Officer, Dr. W. A. Bullough, for his interest and co-operation in the investigation, and for permission to publish the results.

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Dr. Douglas Lothian, resident medical superintendent of the Down Mental Hospital, Downpatrick, in his report for 1944 records that 39 patients were treated by the electro-convulsive method during the year, and 9 of them were discharged recovered, 3 being cases of dementia praecox and 6 suffering from depression. Two other cases of depression made such considerable improvement as to warrant the expectation that they would soon be discharged, as did 1 case of dementia praecox. Three cases of dementia praecox made an apparent recovery, but relapsed later; 2 cases made some improvement, but relapsed completely later. Forty-seven patients recovered without electro-convulsive therapy, but with psychotherapy and occupational therapy; these included 18 cases of dementia praecox, 16 depressions, 7 anxiety neuroses, 5 manias, and 1 paraphrenia. The other recoveries included a case of general paralysis of the insane treated by trypanamide and bismuth, 2 cases of arteriosclerotic confusion cleared up by careful attention to living habits, 1 case of uraemic confusion, and 2 cases of mental disorder resulting from alcoholism.

MASS MINIATURE RADIOGRAPHY OF FACTORY GROUPS IN MIDDLESEX

BY

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The Middlesex County Council Mass Radiography Unit took x-ray films of its first volunteer on Oct. 11, 1943, and to July, 1945, had examined over 70,000 persons, their ages ranging from 12 to 76 years. This report is confined to a survey of the work of the unit during the year 1944, with the exception of the age groupings of examinees and significant lesions, which are for the period Oct., 1943, to June, 1944. During 1944 ten factories were visited, their population ranging from 1,050 to 4,608. Neighbouring factories were invited to attend at most of these centres, so that the actual number of examinees varied between 706 and 9,640. Using the present set-up and the routine to be described below, it has been found to be uneconomic, from the point of view of time, to visit groups of fewer than 3,000. The response varied between 73 and 93% for inside groups, but fell to as low as 36% for some of the visiting factories. This was readily accounted for by the extra loss of working time when any considerable journey had to be made. The average period away from the work for an "inside" examinee was 15 minutes, and the unit has received letters from several firms stating that there was no appreciable loss in production time during its visit to their factory.

In a normal working week miniature films are taken on Monday, Tuesday, and Wednesday, and large films on Thursday. Friday is devoted to viewing miniatures, reporting on large films, and general clerical work. An average of 450 to 500 miniature films are taken daily, and as 500 is the maximum that can be satisfactorily viewed at any one sitting it is necessary to hold three viewing sessions weekly. During the first week of a visit there are four full days for miniatures, making a weekly total of 1,800 to 2,000, and the viewing sessions are correspondingly increased.

On Friday is completed the list of those persons required to attend for large films on the following Thursday. At one time it was the practice to send out the recall letters to their home addresses. In order to be sure of their receiving them in time it was necessary to post the letters a few days before the examinees were required to attend. We found that this period of waiting caused considerable anxiety and the development of a few symptoms. To obviate this, examinees are now notified, where possible, by a note handed to them at their work an hour or so before their large film is due to be taken. Usually all persons who have a large film have a medical interview, including a discussion on their wet film, shortly after it is taken. In this way, by the time they return home from their work the whole procedure is completed.

Analysis of Results

The total number of examinees during 1944 was 34,227, comprising 19,609 males and 14,618 females. It has been impossible to date to set these out in age groups, but this has been done for the 20,982 persons examined by the unit during the period Oct., 1943, to June, 1944, and these are shown in Table I.

TABLE I—Age Groups of Examinees

Age:	14-24	25-34	35-44	45-54	55+	Total All Ages
M ..	1,758* (14.6%)	3,652 (30.4%)	4,222 (35.5%)	1,610 (13.4%)	722 (6.0%)	12,010
F ..	3,680 (41.0%)	2,711 (30.2%)	1,718 (19.1%)	695 (7.7%)	168 (1.9%)	8,972

* It may be noted in regard to the small number in this group that in a paper by Trail *et al.* (1944) reporting a survey in the Royal Air Force 70% of the male examinees were in the 17-24 age group and that the incidence of active pulmonary tuberculosis among them was 0.3%.

Refusals.—It was possible to analyse the refusals by 682 persons from two factories with a total available population of 5,930. The result is given in Table II.

TABLE II.—Analysis of Refusals by 682 Persons

Age	Men		Women	
	Available	Refusals	Available	Refusals
14-34 ..	1,177	67 (5.7%)	2,167	165 (7.6%)
35+ ..	1,469	260 (17.7%)	1,117	190 (17.0%)

A further factory (Factory A of the Medical Research Council Report on Mass Radiography of Civilians) has been visited at yearly intervals, first by the M.R.C. and subsequently by this unit. It is of interest that out of 148 persons at this factory who refused in 1943 but who were x-rayed in 1944, and a further 214 who while refusing in 1944 attended for examination in 1945, there was not one who showed any evidence of pulmonary tuberculosis.

There were 1,909 examinees recalled for a large film in 1944 giving a recall figure of 5.6%. Of these, 50—that is, 2.6% of those recalled—did not attend for their large film. As would be expected, the number of defaulters was always higher in the outside groups, averaging 3.7%, compared with 1.6% for the main factories. There were a further 36 who, having had a large film and on interview been recommended to attend a chest clinic, failed to do so. Of those who attended a chest clinic 1.5% were reported as requiring no further action.

Abnormalities Found

The abnormalities discovered among the 34,227 persons examined by the unit during 1944 are listed below. They are divided into tuberculous and non-tuberculous groupings. Cardiovascular lesions predominated in the latter, and it is of considerable interest that the great majority of these patients were already aware of their disability.

A. Non-tuberculous Pathological Conditions

Cardiovascular	157 (0.5%)
Congenital 12; acquired 145 (86% already knew of their condition)	
Tumours	15
Bronchiectasis	31
Lung abscess	2
Pneumoconiosis	33
Pneumonitis	10
Bronchitis and emphysema	104
Pleural thickening	569*
Miscellaneous	158

* Some of these were almost certainly of tuberculous origin.

B. With Evidence of Pulmonary Tuberculosis, including Healed Lesions (1,435 Cases)

(1) Known cases	140
(Improved or no change, 130; relapsed, 10)	
(2) Newly discovered:	861 (2.5%)
(a) Requiring no further action	434 (1.3%)
(Including 537 healed primaries)	
(b) Showing significant lesions	427

C. Analysis of Significant Lesions

(a) Extent of disease:	
Unilateral	275 (63.4%)
Bilateral	159 (36.6%)
(b) Disposal:	
Observation	346 (1.0%)
10.8% of these were put on modified work	
Treatment	88 (0.3%)
(c) Presence of symptoms (Table III):	

TABLE III

Disposal	With Symptoms	Symptom-free	Total
Observation	105 (32.0%)	241 (68.0%)	346
Treatment	46 (52.3%)	42 (47.7%)	88

(d) Sputum results in the 88 treatment cases:

None	34
Negative	32
Positive	22

(e) Age groups of significant lesions found in first 20,982 examinees (Oct. 1943-June 12, 1944) (Table IV):

TABLE IV

Age:	14-24	25-34	35-44	45-54	55+	Total All Ages
M ..	14 (0.8%)	40 (1.1%)	59 (1.4%)	27 (1.7%)	8 (1.1%)	148 (1.2%)
F ..	42 (1.1%)	38 (1.4%)	20 (1.2%)	6 (0.9%)	1 (0.6%)	107 (1.2%)

Comments

If the population of Middlesex be taken as 2,000,000 it can be calculated that there are approximately 1,200,000 persons in the 14-55 age group. Allowing that the age distribution of the females in the above survey is very skew, being excessively overweighted at ages 14-24, it appears that there are probably some 3,000 undiagnosed cases of pulmonary tuberculosis in the county in need of treatment, and that half of these cases are without symptoms.

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A CASE OF LEFT-SIDED APPENDICITIS

BY

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Although left-sided appendix is by no means rare, the following case is interesting in that a full examination was possible later in the post-mortem room and an unusual condition found.

Case Report

A soldier aged 19, three months convalescent from a subtotal thyroidectomy for Graves's disease, was admitted to hospital on March 21, 1945. He was in a very nervous and toxic state, and gave a history of severe abdominal pain, which had started suddenly 36 hours previously and become progressively worse. The pain was continuous in character, and was at first generalized and was accompanied by nausea, but had since become localized to the hypogastrium and medial side of the right iliac fossa; he had vomited twice just before admission. There was no history of dysuria, and the bowel actions had been normal. Previous history did not give any indication of gastro-intestinal disease.

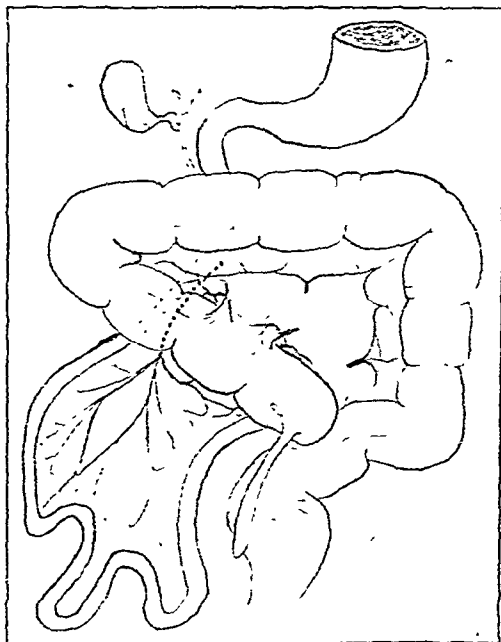


Diagram showing the abnormal position of the abdominal viscera, with the restrictive band

Abdominal examination showed slight distension, with rigidity over the whole lower half of the abdomen; and acute tenderness localized to the hypogastrium and right iliac region. Auscultation revealed a "silent abdomen." Per rectum, he was tender anteriorly, high up. His general state was poor, with dehydration and a rapid pulse which showed occasional extrasystoles. A diagnosis of early diffuse peritonitis, secondary to a perforated inflamed appendix, was made, and operation arranged accordingly.

Operation.—The abdomen was opened through a right gridiron incision as there was no clinical indication of an abnormal situation of the appendix, and purulent fluid escaped. On inspection rather the appendix nor the caecum could be seen, and their absence was confirmed by finger exploration—the right iliac fossa being apparently filled with distended coils of small gut only. The incision was closed and replaced by a right lower paramedian incision. This revealed a long gangrenous appendix lying obliquely across the left lower abdomen, from left to right, with the tip reaching the recto-vesical pouch. The caecum was occupying the left iliac fossa, together with the sigmoid colon, and it was ascertained that the liver was in its normal situation; but, apart from this, no further exploration was attempted, in view of the patient's critical state, and appendicectomy with suprapubic pelvic drainage was carried out. Intravenous infusion was started, and an attempt was made to institute continuous duodenal suction; but the man proved more intractable and refused to tolerate either form of treatment, repeatedly pulling out both Ryle's tube and intravenous cannulae.

He became progressively worse, developing paralytic ileus and dying on the fifth day. Permission for a "limited" necropsy was granted.

Post-mortem Findings.—On opening the abdomen the small bowel was found to be entirely confined to the right side, with the caecum and ascending and descending colons occupying the left. The ascending colon passed obliquely upwards and to the right to join the transverse colon at a normally situated hepatic flexure, the ascending colon being maintained in its abnormal site by a thick band, 2½ in broad, between its middle third on the left side and the transverse mesocolon. The appendix arose from the right side of the caecum, and the ileum entered it towards the right side on its postero-lateral aspect. The jejunum started at its junction with a vertically descending third part of the duodenum, on the right-hand side of the superior mesenteric artery. No other congenital abnormalities were found. (See Diagram.)

Commentary

I could not find any evidence of inflammatory adhesions, and there were no enlarged or calcified mesenteric glands, so it must be presumed that the band from the ascending colon was of congenital origin; further close inspection of the band showed fairly large vessels coursing in its substance, derived from the right colic artery and distributed to the colon, suggesting that it was a contracted right mesocolon.

A so-called "wandering caecum," due to excessive rotation of an unduly mobile caecum, was excluded by the position of the appendix and ileo-caecal valve on its right side, and further proof of the congenital origin of the condition was supplied by the abnormal site of the duodeno-jejunal flexure to the left of the superior mesenteric artery.

From these findings it is suggested that the case described is a result of rotation of the mid-gut loop, which normally takes place at the beginning of the tenth week of foetal life during the process of reduction of the "physiological umbilical hernia"; the colon and caecum, with the attached post-arterial mesentery, being allowed to enter the abdominal cavity first, instead of the normal mid-gut and pre-arterial mesentery—probably as a result of a lax umbilical ring. As a result of this mechanism, the later return of the mid-gut loop tends to displace the vitelline artery and hind-gut, with its post-arterial mesentery, to the left and dorsally, thus accounting for the left-sided position of the large bowel. Some attempt at normal fixation of the mesenteries had taken place, as is shown by the hepatic flexure occupying its normal position, in contradistinction to the more usual U-shaped transverse colon of non-rotation of the mid-gut loop, and this partial fixation probably prevented the marked tendency to volvulus around the superior mesenteric pedicle in early infancy, of which Dott describes two cases (*Brit. J. Surg.*, 1923, 11, 251).

An unusual feature of the clinical findings was the presence of signs and symptoms in the right iliac fossa, at a point remote from the actual position of the appendix; but its deep pelvic situation might have accounted for this.

I am indebted to Dr. Ponder, county medical officer for Kent, and Mr J. W. D. Buttery, medical superintendent of the Royal Victoria Hospital, Folkestone, for permission to publish this case.

A. Louis (*Thèse Paris*, 1945, No. 95), who records an illustrative case in a girl aged 19 months, came to the conclusion that the best treatment of Still's disease at the present time consists in intramuscular injection of gold salts.

Medical Memoranda

Four Cases of Hemicolectomy

Below are presented accounts of four cases of hemicolectomy performed for different and rare conditions.

CASE REPORTS

Case 1.—Man aged 56. On admission the patient gave a history of increasing constipation for the past six months, together with colicky abdominal pain about seven hours after meals, loss of weight (one stone), and recent onset of vomiting after meals. On examination a palpable mass was felt occupying the right iliac fossa and right hypochondrium, which was not tender, but which was fixed to the posterior abdomen. **Operation.**—Heavy spinal anaesthesia. A plasma drip was started and a transverse muscle-cutting incision made. On exploring the abdomen an ileo-colic intussusception was found, extending as far as the middle of the transverse colon. It was possible to reduce the intussusception only up to the hepatic flexure, so it was decided to undertake a hemicolectomy, removing the terminal ileum, caecum, ascending colon, and hepatic flexure, and performing an ileotransversostomy. The patient made an uninterrupted recovery. The cause of the intussusception was a lymphosarcoma of the terminal ileum.

Case 2.—A woman aged 70. This patient was admitted as an emergency case (? acute appendicitis). She had complained of colicky abdominal pain in the umbilical region for the past eight hours and also of pain in the right iliac fossa. A history of a similar attack two months before was given. The temperature was 99° and the pulse 74. On examination a mass about the size of a hen's egg was palpable through the abdominal wall. **Operation.**—Heavy spinal anaesthesia. A plasma drip was started and a transverse muscle-splitting incision made. On exploring the abdomen an appendix 4 in. long, thickened and hard, was found. This thickening and hardness extended to about a third of the caecum. A diagnosis of carcinoma of the appendix was made, and a hemicolectomy was performed. The terminal ileum, caecum, ascending colon, and hepatic flexure were removed and an ileotransversostomy was done. The patient made an uninterrupted recovery except for an intramural abscess which developed at the outer part of the incision. On microscopical section an adenocarcinoma involving the appendix and extending into the caecum was found.

Case 3.—This patient, a woman aged 60, was admitted as an emergency case with a two-days history of central abdominal pain, colicky in type, and vomiting which began about two hours after onset of pain. This vomiting was not marked until just before admission to hospital. The bowels had moved on the day of the onset of abdominal pain, but had only a slight motion the next day; thereafter neither faeces nor flatus was passed. On examination the lower abdomen was distended, chiefly in the right iliac fossa; there was also tenderness over the lower abdomen. On auscultation peristalsis was increased; the general condition was good. **Operation.**—Heavy spinal anaesthesia. A plasma drip started. A made, the caecum black, and friable, also involved; the caecum and ascending colon had twisted anti-clockwise on the mesentery. The volvulus was apparently caused by a very long mesentery to the right colon. As the general condition was good, it was decided to carry out a hemicolectomy; the ileum, caecum, ascending colon, and hepatic flexure were removed and an ileotransversostomy was performed. The patient made an uninterrupted recovery.

Case 4.—A man aged 62. This patient was admitted as an emergency case with a two-days history of lower abdominal pain, colicky in nature, and vomiting soon after. On the day of admission vomiting (dark brown in type) had been continuous. He had been constive since the onset of abdominal pain and had passed neither flatus nor faeces on the day of admission. On examination the lower abdomen was distended (most markedly in the right iliac area) and was tympanic on percussion; there was also lower abdominal tenderness. On auscultation peristalsis was increased. Blood pressure was 110/82. **Operation.**—Cyclopropane anaesthesia. A plasma drip was started immediately. A right paramedian incision was made; there was volvulus of the caecum and the proximal half of the ascending colon, non-viable, friable, and blue-black in colour. A hemicolectomy was performed, removing the terminal ileum, caecum, ascending colon, and hepatic flexure, and ileotransversostomy was carried out. The patient developed pneumonia and died three days after operation.

HUGH MACCARTHY, F.R.C.S.I.&Ed., M.R.C.P.I.

- Allergy to Egg-prepared Vaccines

A case is here reported of an alarming reaction to the egg allergen in typhus vaccine. One previous case has been found in the literature, and more examples of similar reactions to preparations from egg media may be expected. Oral desensitization for six months enabled this patient to take 60,000 times the dose of allergen originally causing symptoms and to eat eggs with impunity. But skin tests were unchanged, and

it would have been dangerous to attempt further inoculations. A simple precaution before giving injections of such vaccines would be to ask the question, "Do you eat eggs?"

CASE RECORD

In Nov., 1943, an airman was admitted to No. 1 N.Z. General Hospital, Middle East Forces, in a state of severe collapse, having vomited blood and become acutely breathless and then comatose. He had an urticarial eruption and his respiration was asthmatic. By next morning he had completely recovered. He had been allergic to eggs all his life—35 years—and was usually able to avoid egg foods by their taste. But if he happened to swallow the food he would vomit, or, if there was no vomiting, he would get oedema of the lips, tongue, and larynx, asthma, urticaria, and general shock. He had never before vomited blood or passed into coma, and as he was at a meal when the symptoms came on he concluded that the rissoles contained egg. Further inquiry, however, showed that he had had his first antityphus inoculation 15 minutes before this meal. It was then clear that his reaction was due to the introduction of a large amount of egg protein parenterally. An extract of egg was made, and strongly positive scratch tests were obtained both in the patient and in a subject passively sensitized by his serum.

Oral desensitization was then started, daily doses being given of a quarter of a teaspoonful of a 1:2,500 dilution of egg in water. At first this caused a mild reaction in the form of nausea and tingling of the lips, which lasted about half an hour. This reaction passed off in a few days, and the dose was increased by 50%. With a steady increase in this manner he continued the treatment until in July, 1944, he reached the dose of one raw egg daily, which has been continued since. On two occasions the sensitivity has shown signs of returning—once with a nasal cold and once when he stopped treatment for a few days.

In Sept., 1944, further scratch tests were made with egg extract and with undiluted typhus vaccine. Both gave strong reactions (3 plus), of no less intensity than before desensitization.

DISCUSSION

The preparation of vaccines from viruses and rickettsiae on egg media is a recent method of which more and more examples will be seen in the future. And since a small section of the population are highly allergic to egg protein, this will lead to some severe or even fatal reactions.

For the following list of vaccines prepared on egg media and manufactured on a commercial scale I am indebted to Major E. C. Van Rooyen, R.A.M.C.

Typhus	Prepared from yolk sac
Yellow fever	" " egg embryo
Influenza	" " "
Smallpox egg-lymph	" " allantois

An alarming reaction from the egg allergen in yellow-fever vaccine has already been reported by Swartz (1943), his patient developing asthma, gastro-intestinal allergy, and angioneurotic oedema a few minutes after the injection. My own patient gave a history of receiving yellow-fever inoculations without any ill effects, and apparently his sensitivity was to a yolk allergen not present in egg embryo.

The response to desensitization is in keeping with atopic sensitivities in general. At the outset the airman was sensitive to even the minute quantities of egg protein which could get into his circulation without being digested. Prolonged desensitization enabled him to take these minute amounts with impunity, but not the relatively large doses introduced by injection or scratch test.

I wish to thank Brig. H. S. Kenrick, C.B.E., F.D., N.Z.M.C., Director of Medical Services, N.Z.F.F., for permission to publish this report.

R. G. PARK, M.D., M.R.C.P.,
Lieut.Col., N.Z. Medical Corps.

REFERENCE

Swartz, H. (1943). *J. Lab. clin. Med.*, 28, 1663 (quoted in editorial, *J. Allergy* 1944, 15, 241).

The 25th report of the National Council for the Unmarried Mother and her Child (117, Piccadilly, W.1) has a foreword by the president, Lord Gorell, and is signed by the chairman, Mrs. H. A. L. Fisher, to whose devoted labours he pays tribute. The report covers a period of fifteen months and is a record of strenuous, unremitting, and valuable work. Before long the Council hopes to become incorporated and enter upon a new stage of its existence. Meanwhile it has become affiliated to the National Council of Social Service while renewing affiliation to the National Council of Women and remaining a constituent body of the National Council for Maternity and Child Welfare. The Case Committee has dealt with an unprecedented number of cases, and the Ministry of Health's scheme for the care of women discharged from the Services on account of pregnancy has involved the Council in a very great deal of work. While the Council is not itself responsible for any home, nearly all the homes and hostels of the voluntary and statutory organizations are affiliated to it.

Reviews

WAR AND SOCIAL PSYCHIATRY

The Story of Psychiatry in War. By John Rawlings Rees, M.D. (Pp. 158, 10s. 6d.) London: Chapman and Hall, 1945.

Brigadier Rees, as consulting psychiatrist to the British Army, has had a unique opportunity of investigating the psychiatry of the war, which he has summarized in these Salmon lectures given in America. While he has for the most part described the work of others, he has himself been the inspiration of that work, and as such has, with the whole body of psychiatrists, Service and lay, changed the "shape" of psychiatry. The main problem of modern psychiatry is concerned not with the psychoses but with the numerous personality problems which, in certain adverse situations of work and of social environment, lead to the psychoneuroses and behaviour disorders. Methods of analytic treatment are necessarily prolonged and can, therefore, deal with only a small proportion of those who need such treatment. An effort must therefore be made to prevent even those who are predisposed from breaking down. This is the aim of social psychiatry, and the principles and means of coping with this problem in the Army have here been described. It opens up vast possibilities for civilian life in the future.

The "priorities" in social psychiatry are: first, methods of selecting the right man for the right job; secondly, prophylaxis by better training and "man management"; thirdly, morale; and, finally, treatment. The first three are fully dealt with and their methods described.

Selection.—Some points make very interesting reading; for instance, when all candidates are examined by the psychiatrist they welcome it, whereas if some only are selected for examination this implies that they are peculiar, and they dislike it. Brigadier Rees considers that the chief credential of a good psychiatrist is the personality qualification. The importance of personality qualifications is indicated in the fact that a much shorter course is required to make a good psychiatrist provided he is of the right personality. This applies also to the selection of officers: "It was early realized that in selecting men for commissioned rank the personality factor was the major consideration, provided that the candidate had adequate intelligence" (p. 72). But is personality a "factor"? Is it not the sum total of factors, of which intelligence is one? One nevertheless has an uncomfortable feeling that in assessing personality we are assessing something the nature of which is not understood or defined. For selection, the tendency has been away from laboratory tests to tests calling forth the whole personality, such as putting the officer into a difficult test situation with a number of his fellows without any instructions.

Prophylaxis.—While the author rightly stresses that those with analytic experience are the best capable of designing methods and carrying out these procedures, it is not perhaps sufficiently stressed that only by the radical investigation and treatment of the individual can the predisposing causes be rightly assessed and the prophylaxis become really effective. Without this, social psychiatry will become a superficial study and make blunders. The medical officer, says the author, has to think in terms of groups rather than of individual patients. This is true for prophylaxis, but it is not exclusively true of treatment; and it is to be questioned why the individual casualty suffering from a war neurosis should not receive the same care, say, as an orthopaedic patient, who sometimes takes months to recover.

Morale.—To many this will be the most interesting part of the work: for instance, the observations on the danger of discipline without morale. "The three main factors which make for good morale in wartime are: adequate war aim and purpose, a sense of one's competence and value, and the feeling that one matters as an individual in a group of other similar people" (p. 84). Some of these investigations confirm earlier opinions, but others gave unexpected results, such as that women (A.T.S.) in mixed batteries complained more of fear of sterility than of sex (possibly because fear inhibits sex), and that sexual disorders arose out of loneliness rather than excess of sex feeling. A hint from child psychology was found to apply also to Army recruits (p. 79)—namely, that it is best to let a recruit use his weapon first and then learn to look after it,

otherwise he loses the enthusiasm with which he started and becomes bored. Some of us wondered at the beginning of the war whether a war could be successfully fought without hate. An interesting observation regarding morale is, therefore, that the original attempt to inculcate hate of the enemy was ineffective and led to depression; also that too much realism at first encouraged anxiety. The recruit had to be inoculated into realism. The importance of morale in war has always been recognized, but never so much as in this war. On page 95 Brigadier Rees states: "Wars are won, not by killing one's opponents, but by undermining their morale." But some of us may still believe that killing them is the most effective way of undermining their morale.

In the chapter "The Way Ahead" Brigadier Rees points out the application of the findings in war psychiatry to social psychiatry in civil life. These are but some samples of the large number of interesting subjects dealt with. Altogether it is a book that everyone interested in psychiatry, and in social and industrial medicine, should read. It gives a new orientation to the practice of psychiatry, and Brigadier Rees deserves the thanks of the profession for so lucid and interesting an introduction to the subject.

HISTORY OF ANAESTHESIA

The History of Surgical Anesthesia. By Thomas E. Keys. With an introductory essay by Chauncey D. Leake, and a concluding chapter by Noel A. Gillespie. (Pp. 191, illustrated, 8s. 6d.) New York: Schuman's.

The serious study of the origins and development of a specialty augurs well for that specialty. Sturdy and well-cared-for roots can but ensure a healthy and productive tree. So far as anaesthesia is concerned an accurate and scholarly account of its history has been long overdue. The earlier appearance of such a history might have prevented both the duplication of invention and the undeserved praise for the supposed originality of the inventors.

Major Keys has obviously put enthusiasm and energy into his task and has managed to pack a remarkable amount of information into small compass. No anaesthetist will read this book without pride, nor surgeons without wonder that so much has been accomplished in the field of anaesthesia in so short a time. The emphasis on American achievement is a little heavy, and British anaesthetists may feel that the very noteworthy contribution of this country to the development of anaesthesia in the 19th century is treated rather lightly. One of the many lessons to be learnt from reading this book is that progress in anaesthesia is not to be made by a new knob here or an altered tap there. Such stories as that of diethyl ether, told by Chauncey Leake in the introductory essay, are examples to inspire those who would make real contributions to the subject.

Major Keys has made his material not only readable but enjoyable both to the medical and to the interested lay reader. For the anaesthetist, however, the book cannot be regarded as the last word on the subject. There are only some 90 pages of text, the other half of the book consisting of a chronology, lists of references, and an index. Included, also, is a short and excellent essay by Dr. Gillespie on the future of anaesthesia. Inevitably, therefore, much has had to be omitted. Thus no reference is made to Cattlin, whose revolutionary introduction, in 1803, of a reservoir bag, now frequently misnamed a rebreathing bag, made it possible to dispense with the cumbersome gasometer. Clover, an illustrious pioneer in this country, receives but five lines in the text, in none of which are even mentioned his more important contributions, such as the, to us, familiar ether inhaler and the very ingenious and accurate apparatus for the production and administration of known percentages of chloroform. They receive a bare mention in the chronology. Some of the sources might not satisfy the academic, who would dispute the superiority of an encyclopaedia over an author's own works as to what the author did or did not say.

Most of the illustrations are portraits, and but few are instructive or help to clarify the text. They provide, however, a fine picture gallery of Americans, past and present, whose names are respected in anaesthesia. Queen Victoria finds herself in strange company. Her patronage of and submission to anaesthesia *à la reine* seem little qualification for inclusion of her portrait here.

However, these are but small blemishes in an excellent little book. One hopes that it will be widely read and become a pioneer, to be followed by more exhaustive works on this subject, which will provide not only interest for the clinician but also a detailed source of reference for the research worker in anaesthetics.

COSMETICS

Modern Cosmetology. By Ralph G. Harry, F.R.I.C. Second edition. (Pp. 432; illustrated. 35s.) London: Leonard Hill Ltd. 1944.

This book had a very good reception when first published in 1939. There are considerable alterations in the new edition. The book has grown very greatly, having expanded from fewer than 300 to over 400 pages, and is now embellished with numerous figures, including 8 coloured plates. It may be added that, whereas it was originally published in New York, it has crossed the ocean, notwithstanding the difficulties of war, and is now published in London. Although it has greatly increased in size the paper used is much thinner, and it has diminished in bulk and is very convenient to handle.

The new edition is fortified by a foreword from Dr. P. B. Mumford, who gives it his blessing. The scientific approach to the whole subject, which we noted with satisfaction in the first edition, is still well maintained—perhaps this is in large measure due to the fact that Mr. Harry is an original investigator of some experience. He himself has worked particularly on the conditions necessary for the preservation of oils. These compounds are of much importance in the manufacture of many forms of cosmetics, and they are very liable to become rancid owing to the development of a certain degree of oxidation in them, and rancidity spoils any cosmetic preparation. This tendency can be controlled to a very large extent by the help which certain anti-oxidants give to the keeping qualities of various oils. His experiments show that gum guaiacum is a very good anti-oxidant which has the advantage that, unlike several other compounds that have been used for the purpose, it appears to be quite innocuous.

This volume includes a consideration not only of creams and powders but also of the cosmetic problems presented by the hair, the teeth, the nails, and, in fact, by all the cutaneous appendages. Naturally it overlaps the domain of the skin physician, but the author is extremely careful not to trespass too far into pathology and therapeutics, and there is no doubt that the dermatologist can profit a great deal from study of this book; in fact, even more from the present edition than from the original one. On the whole the illustrations are opposite and useful, but it is doubtful whether the coloured photomicrographs of the human skin and scalp are valuable enough to justify the additional cost they must involve. They throw very little light upon the problems with which cosmeticians are concerned. This, however, is a very minor blemish, if indeed a blemish at all, and we have no hesitation in recommending *Modern Cosmetology* to all concerned with the enhancement of human beauty.

Notes on Books

Dr. ARLETTE BARBEQUOT-BUTAVAND has produced a book—*Cahiers de Dessins d'Anatomie*—for the use of the hospital attendants and nursing staff of the Medical School at Lyons. It is issued by J. B. Baillière et Fils, of Paris, in two parts, each containing 57 plates and comprising 203 separate figures. These consist of a series of anatomical drawings in simple outline, with brief legends and names of the principal parts, supplemented by occasional comments. The drawings are arranged in copybook form, the plates being on one side of the opened book—the left—whereas the opposite page on the right is left blank, to be filled in by the pupil with notes or copies of the printed drawings, which it is suggested may be coloured so as to distinguish bones, arteries, veins, nerves, and muscles from one another. The principal object which the author has had in mind is, he states, twofold: since anatomy is easily understood and impressed on the memory by drawings, to provide something concrete, which will enable each pupil to develop his own powers of observation and dexterity in drawing; and at the same time to cultivate his visual memory. He also recommends that pupils should, when possible, supplement the drawings on the printed page by original drawings from Nature, and thus increase the value of their course of study and of the books they read and benefit them in the exercise of their profession. In these days, when hospital attendants, nurses, and doctors of different nationalities frequently

become associated in their work, the publication of these two "Cahiers" should be no bar to their use by English-speaking readers, but, on the contrary, a distinct advantage, since it would tend to familiarize them with the names of the various parts and organs of the body in the French language.

The importance of the care and housing of the aged is being increasingly realized. A pamphlet entitled *Bucks Old People's Welfare* tells the story of the formation of a county committee for that purpose at Aylesbury on Feb. 3, 1945. Sir Leonard West, chairman of the Buckinghamshire County Council, presided, and every branch of social endeavour was represented. It was pointed out by Mrs. Keeling that it was the transfer of responsibility for supplementary pensions in December, 1940, to the Assistance Board that had brought to light the fact that many old people were living alone under the most unfavourable conditions. The aim of this committee was to see that such were not only fed, clothed, and sheltered "in a negative kind of peace" but enabled to spend what was left of their lives in "positive happiness." In pursuit of this laudable, if difficult, objective, representatives were appointed to look into the situation and to report later with suggestions to an adjourned conference. The body of this booklet discusses, in an interesting way, both short-term and long-term policy for remedying a gap in our social services still inadequately filled, though some real success has been achieved already. It is evidently written by an enthusiast for the subject, with definite and clear-cut ideas. Copies may be had from the printers, Hunt, Barnard and Co., Aylesbury, price 1s. 2d. post free.

The welcome we gave to the first edition of Dr. JULIUS BAUER's *Constitution and Disease* can be given with equal cordiality to the second (William Heinemann; 21s.). That this has been called for within eighteen months of the publication of the original edition proves its usefulness. For too long the genetic factor in disease received scanty and intermittent attention, and although this is being corrected it has not been easy to obtain the evidence in a compact form such as is now possible from these pages. In this new edition the text has been amplified, the bibliography has been added to considerably, and it is now, as it should be, provided with an adequate index.

We have noticed in these columns several books on the population problem. Mr. MARK ABRAMS's little book, *The Population of Great Britain: Current Trends and Future Problems* (George Allen and Unwin; 3s. 6d.) is among the best; it is very clearly written and objective. It can be read through in an hour and provides any intelligent person with an adequate basis of knowledge. We may add that, unlike so many wartime books, it is pleasant to look at and read.

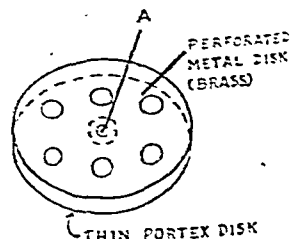
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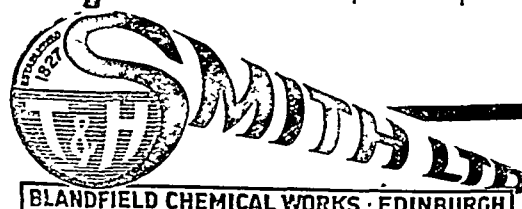
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LONDON

SATURDAY OCTOBER 27 1945

DOSAGE AND EFFECTS OF CHOLINE CHLORIDE

In a recent letter to this *Journal* J. A. Barclay and co-workers¹ have suggested that the dosage of methionine and choline should be much higher than the amounts used in the therapeutic trials which have been reported in the *Journal*² and elsewhere. They calculate that the curative dose in man would be 20 grammes of choline a day for two or three weeks, or 20 to 60 grammes of methionine a day for a period as yet undetermined. For the moment such quantities of methionine can be dismissed as unobtainable for general therapeutic use. Choline is a simpler and cheaper compound, and as it is likely to be the subject of further therapeutic trials in diseases of the liver and kidneys and in protein malnutrition, the following observations on dosage and toxic effects may be of value to intending prescribers.

Twenty years ago physiologists and physicians were interested in choline chiefly because it was the parent substance of acetyl choline. It has, in fact, much the same action on the autonomic nervous system as acetyl choline, acetyl- β -methyl choline, and carbamyl choline, though it is far less potent. Sollman³ states that cats show no ill effect after the slow intravenous injection of 15 mg. per kilogramme of body weight, 35 mg. per kg. are fatal. As the choline is rapidly destroyed, 0.8 to 0.9 mg. per kg. a minute may be injected "practically indefinitely." This corresponds to a dosage of approximately 3 grammes an hour in man. Slow intravenous injections have been recommended for the treatment of paralytic ileus, and this probably represented the only therapeutic indication for choline until the last two or three years. Both the *British Pharmaceutical Codex* (1934) and the *Extra Pharmacopoeia* (Martindale, 1941) give the dose for this purpose as 10 grains (0.6 g.) intravenously, though the latter subsequently recommends "10 g. in 180 ml. of normal saline," which is presumably a misprint.

During the past decade a considerable literature has accumulated on the nutritional significance of choline. It is now regarded as an important constituent of the vitamin B complex which is concerned in the transport of fat in the body and is essential for the health of the liver and the kidneys. As a consequence choline chloride has been used in the treatment of acute and chronic disease of the liver in man. On theoretical grounds more might be expected of choline in chronic enlargement of the liver and the fatty type of cirrhosis than in acute hepatitis or in the shrunken liver of atrophic cirrhosis. Therapeutic trials of choline in cirrhosis so far reported have been

carried out without controls, and a decisive answer will not be obtained until a large number of cases is collected and alternate patients are treated with and without the drug. Reports on the treatment of isolated cases of acute hepatitis or acute necrosis are likewise suspect. It is difficult to follow Barclay's argument that results become more convincing when they are buttressed by metabolic data; changes in metabolism are just as much subject to the statistical law of variation, and demand just as careful controls, as clinical improvement or deterioration. Our purpose, however, is not to assess the clinical value of choline but to discuss the dosage by mouth and the possibility of toxic effects from long-continued administration.

The daily requirement of choline chloride has been estimated approximately in the growing rat. Griffith⁴ puts it at 4 to 6 mg., and Engel⁵ at 10 mg. for a 40-gramme rat. This works out at 250 mg. per kilogramme of body weight. This figure probably represents the order of dosage required in man, for, although the growing rat has a high rate of metabolism and therefore uses a lot of choline compared with an adult man, this is balanced by the fact that the dosage of vitamins in disease has to be much higher than the maintenance dose. In the dog, Fouts⁶ has used 100 mg. per kg. of body weight to counteract the effects of a low protein diet, but Kaplan and Chaikoff⁷ found a higher dose necessary to exert a curative action on the fatty liver of experimental animals. They had to give 400 mg. of choline chloride per kg. for more than three weeks to reduce the fat content of the liver of the depancreatized dog to normal levels. Dosage in man has hitherto been a good deal lower. Broun and Muether⁸ treated four patients with cirrhosis with choline chloride in a dosage of 1 g. daily for periods up to two years. Russakoff and Blumberg⁹ in ten cases of cirrhosis gave up to 6 g. of choline chloride a day in divided dosage. One of their patients, who was given 0.5 g. of choline chloride on an empty stomach, complained of nausea, which was associated with a slight drop of blood pressure and slowing of the heart; otherwise there were no ill effects. Their highest single dose appears to have been 15 g. Richardson¹⁰ gave 15 g. of choline chloride a day for eight days to sixteen patients with infective hepatitis without appreciable effect.

Only one author has described ill effects from continued administration of choline chloride, and his observations have not been confirmed in man. Davis¹¹ has reported that the red cell count in dogs falls when they are given choline chloride by mouth for fifteen days or longer. He observed a fall when the choline was given in a single dose of 8 mg. per kg. a day, but the effect was greater when 10 mg. per kg. of choline chloride was given thrice daily.¹² The anaemia was attributed to dilatation of the blood vessels by the choline and increased supply of oxygen to the bone-marrow. Davis suggested the possibility that dogs prepared in this way might be used for the biological assay of liver extracts for the treatment of pernicious anaemia.

¹ *J. Nutr.*, 1945, 22, 239.² *Ibid.*, 1942, 24, 174.³ *Ibid.*, 1943, 25, 217.⁴ *J. Biol. Chem.*, 1937, 120, 647.⁵ *J. Amer. med. Ass.*, 1942, 118, 1403.⁶ *Ann. intern. Med.*, 1944, 21, 848.⁷ *British Med. J.*, 1945, 2, 156.⁸ *Amer. J. Physiol.*, 1944, 142, 65.⁹ *Ibid.*, 1944, 142, 402.¹⁰ *British Medical Journal*, 1945, 2, 298.¹¹ *Ibid.*, 1945, 1, 415.¹² *Manual of Pharmacology*, 6th ed., Philadelphia, 1942.

Davis¹³ has also reported that choline chloride in a daily dose of 100 mg. by stomach tube is effective in partially reducing cobalt polycythaemia in rabbits. These experiments have not been supported by observations on man. Cartwright and Wintrobe¹⁴ found that choline chloride had no effect on the blood count in man when given in doses of 10 mg. per kg. of body weight orally three times daily, and choline chloride has been tried without success in a smaller dosage in polycythaemia in man.^{15 16} Finally, there is the paradox that Moosnick, Schleicher, and Peterson¹⁷ report the cure of a refractory case of pernicious anaemia by means of intravenous injections of choline chloride, 1 g. daily. They suggest that fatty infiltration of the liver prevented successful elaboration of the liver extract and that the infiltration was removed by the choline.

The conclusion from the literature is that the effective dose of choline chloride for the treatment of disease of the liver or kidneys, and for disturbances of nutrition or metabolism, is likely to be at least 100 mg. per kg. of body weight, or 6 g. a day in an adult man, and it might be three or four times as high. In other words, the curative dose of choline chloride must approach close to the toxic dose. The danger is a sudden flooding of the circulation with choline and consequent depression of the heart and blood pressure. This has happened with as little as 0.5 g. taken on the fasting stomach in man. This danger and other disadvantages may be circumvented by intravenous drip therapy, as Barclay suggests, but whatever expedient is used treatment with choline will need careful supervision if it is to be both effective and safe. The risk of depression of the bone-marrow can probably be discounted, but it would be well to keep a watchful eye on the blood count until more is known about the reaction of the human marrow to high dosage. Furthermore, we cannot regard the therapeutic failure of choline in human polycythaemia as completely demonstrated until maximum tolerated doses have been tried.

LUNG DISEASE IN COAL-MINERS

do justice to the fascinating material in the third report recently issued by the Medical Research Council's Committee on Industrial Pulmonary Disease¹⁸ would tax the ingenuity of the most experienced abstracter. In a small volume of 94 pages is accumulated what must surely be a unique series of experimental attacks on the fundamental problems of coal-miner's disease, carried out quietly and with restraint at a period when the world's greatest war was being waged. It will be recalled that the committee's scheme of inquiry included a medical survey and related pathological studies of chronic pulmonary disease in South Wales in terms of the environmental background. Previous reports have dealt with these facets, ranging over physical, chemical, and petrological no less than medical peculiarities. The third report is a complementary one, and describes the experimental problems which have been

encountered. It must be a source of satisfaction to the committee that a convincing answer to many queries has been given by their colleagues in the laboratory.

Before attempting to give some idea of what awaits the reader it will be useful to remind him of the trend of previous investigations sponsored by the committee. A careful survey established beyond doubt the responsibility of air-borne dust as a factor of first importance in the production of coal-miner's disease. Chemical and petrological investigations of the nature of such dust, and of the coal seams and adjacent rock strata from which the dust is derived, brought out the complexities of the disease-producing agent, and suggested that variations in the incidence of pneumoconiosis might depend on differences in the dusts. It can now be stated that the composition of mineral residue obtained from the lungs varies with the occupation of the miners, according to differences in the dust-producing strata in which the men work. Although anthracite colliers show no significant increase in dust or total silica or quartz with increasing degrees of fibrosis of their lungs, the group as a whole has an increased quartz residue when the picture of silicotic nodulation is impressed on the pulmonary tissue. Prof. E. J. King and his co-workers consider that quartz, rather than mica or kaolin, constitutes the chief hazard, though its activity may be modified by the other dust components. Some idea of the relative importance of the various dusts as agents of disease may be obtained by introducing them into the lungs of experimental animals—a method developed by the late Prof. E. H. Kettle. Belt and King find that the purest coal dust, whether anthracite or steam coal or bituminous, has a low pathogenicity. Animals so treated show little fibrosis in their lungs even after the lapse of long periods of time. As the content of siliceous material in the coal dust increases so do its pathogenic properties. Mixing quartz dust with shale dust, which is lowly pathogenic, substantially reduces the harmful nature of the quartz. Mixtures of quartz dust and coal give a confluent fibrosis more closely allied to that seen in coal-workers than the lesion resulting from pure quartz dust. It is apparent that many factors are concerned in the production of the South Wales pulmonary disease; among them are the quantity of siliceous matter in the inhaled dust and the presence of mineral matter which modifies the deleterious action of silica. The problem is complicated by the observation that some siliceous dusts are harmful and others relatively harmless; so far there is no clear explanation for these differences. In accounting for the injurious effect of silica the possibility of a toxic action on tissue cells when it is in solution has to be considered. The difficulties encountered in establishing this hypothesis are set out in the admirable report of Prof. King, who has earned the gratitude of at least one reader for the lucidity he has brought to a forbidding chemical labyrinth. In general it seems to be true that the more soluble a siliceous dust the greater its toxicity; but there are many exceptions to this generalization, and further investigation is required for a satisfactory answer.

What, then, is the present position of the coal-miner's problem? The third report of the Medical Research Council's committee suggests that quartz is probably the

¹³ *J. Pharmacol.*, 1941, 73, 162.

¹⁴ *J. Amer. med. Ass.*, 1945, 127, 911.

¹⁵ Carpenter, G., *Amer. J. med. Sci.*, 1940, 200, 462.

¹⁶ Meyer, O. O., and Thewlis, E. W., *J. Lab. clin. Med.*, 1941, 26, 1137.

¹⁷ *J. clin. Invest.*, 1945, 24, 278.

¹⁸ *Chronic Pulmonary Disease in South Wales Coalminers*. III. Experimental Studies. Med. Res. Cncl. Spec. Rep. Ser. No. 250. H.M. Stationery Office. (5s.)

most noxious factor, but that its action is modified by admixture with other substances. The South Wales dust is composed of small amounts of quartz mixed with large amounts of coal and other minerals, either of which may contribute its part or even exert an antidotal effect on the action of the quartz. This sort of explanation might account for the decrease in incidence of pneumoconiosis among colliers in South Wales with the rank of the coal mined, from high in anthracite to low in bituminous coal. In other words, there must be considered a number of possibilities, such as a generally higher dust concentration in anthracite mines, differences of interaction of quartz with different types of coal, or differences of modification of quartz effect because of varying mineral composition of the shales and other strata associated with the coal. It seems likely at the moment that all these factors are involved in causing the differences in the incidence of pneumoconiosis—a truly formidable prospect for the investigator. If the M.R.C. reports are an indication of the energy and inspiration which will be directed in the future towards a most difficult problem, there need be no room for pessimism over its solution.

THE EFFECTS OF LIGHTNING

Since Seneca, doctors and philosophers have for centuries been interested in the diverse and often bizarre sequelae of lightning-stroke, and the manner of death. Pliny's opinion that a person who has heard the clap of thunder and seen the lightning flash can consider himself safe from that particular hazard has a curious topical ring in view of the beliefs as to survival during aerial bombing and falling V1 and V2 projectiles. Among the seventeenth- and eighteenth-century writers on fulguration we can with benefit re-read J. A. Dietericus,¹ J. A. Munnich,² F. J. Baier,³ C. F. Hoffmann,⁴ and J. G. Biedermann.⁵ In the nineteenth century more serious attempts were made to study the physiology and pathology of lightning-stroke, and the monographs by Bonnet⁶ and by F. Sestier⁷ are classics. L. Weber's report on the Schleswig-Holstein disaster of 1878, in which 92 people were struck and 10 killed, may be taken in conjunction with F. Panse's account⁸ of the Königstein incident, where, out of a party of 29, 3 were killed and 26 temporarily paralysed. Charcot was particularly interested in the neurological effects of lightning—a phenomenon which he termed "keraunoparalysis". In more recent years the subject has been written up by H. A. Spencer⁹ and by M. Critchley.^{10 11}

The Goulstonian Lectures of Dr. A. J. Jex-Blake on "Death from Electric Currents and by Lightning"¹² are well remembered. This same author has lately contributed a paper to the *East African Medical Journal*¹³ dealing with modern ideas on the physics of lightning. We learn that the electrical potential between the two ends of a flash is around a thousand million volts. The current is direct, amounting to 20,000 amperes at least, and the quantity of electricity conveyed averages 20 coulombs. Most of the energy is converted into heat, but there also appear

Herzian waves (or "atmospherics") with a frequency of 20,000 or so. According to Simpson's "breaking-drop" theory¹⁴ it is considered that electricity separates whenever a raindrop breaks up into a number of smaller particles. The water becomes positively charged, the air negatively. The upward movement of warmed air brings about an electrical separation. A single flash occupies a thousandth of a second, and photographs demonstrate that it follows a meandering course with lateral branches, and has not the conventional zigzag shape depicted by artists. When lightning strikes sandy soil it may produce by fusion an irregular fulgurite or lightning-stone, reminiscent of the vitreous changes brought about in Hiroshima by the detonation of the atomic bomb.

The same issue of the *East African Medical Journal*¹⁵ contains an editorial on "What to do in a Thunderstorm." One should remain indoors, with doors and windows shut, and away from the fireplace. Telephones may be used with impunity, but the neighbourhood of the main electrical switch and meter should be avoided. The lead-in wire from the aerial to the wireless set should be fitted with a switch to permit earthing. Out of doors one should shun crowds, flocks of cattle, isolated trees, hedges, walls, and river banks. It is better for one's clothes to be soaking wet than dry. To hold up an open umbrella is unwise. The treatment for apparent death after lightning-stroke is prompt artificial respiration, continued if necessary for hours or until the body cools or rigor mortis ensues.

It is common knowledge that Great Britain is relatively immune from severe thunderstorms as compared with Kenya and South Africa. Nevertheless during the 29 years 1852-80 there were 546 fatal cases of lightning-stroke in England and Wales, and in the decade 1901-10 there were 124 deaths. A. G. S. Mahomed¹⁶ considered from an analysis of 237 fatalities that lightning storms in England and Wales are commonest on the plains and oolitic uplands, but the usual belief that lightning is more frequent along the course of rivers was not supported.

NUTRITIONAL SURVEYS IN ITALY

The I.N.R.R.A. medical programme in Italy was described at a recent Press conference in London by Dr. J. Metcalf, one of two young Harvard doctors, the other being Dr. A. Queeney, who have been carrying out nutritional surveys in that country. Dr. Metcalf explained that the I.N.R.R.A. programme had three main objectives: (1) to determine the degree of malnutrition in Italy as evidenced by clinical examination; (2) to use the results for the purpose of providing foodstuffs to meet specific needs, and (3) to bring Italian organization to a stage at which it would be able to assume responsibility. During a period of six or seven months, beginning in January last, some 34 surveys had been carried out in areas of Rome and Milan, also south of Rome, and to the north from Pisa to Ravenna. Data were obtained on the heights and weights of selected poorer children who were likely to be undernourished. The statistics were thus heavily weighted in favour of reflecting the lower levels of malnutrition in Italy, not the average nutrition. The object was to gain information rapidly, and to utilize it rather than to obtain the exact statistics desirable in an ordinary research project.

Out of some 2,500 children, about 31% showed some form of classical nutritional deficiency, and of that deficient class roughly 90% had rickets. Only 17 cases of gross inanition or profound malnutrition of the starvation type were discovered, and these were all in infants in insti-

¹ *De fulmure et torione ac fulgure*, 1696

² *Relatio physica medica*, 1732

³ *Oratio de fulguribus literarum ordini fatalibus*, 1766

⁴ *De Morie in fulmure tactis*, 1766

⁵ *De Morie in fulmure tactis*, 1766

⁶ *De Morie in fulmure tactis*, 1766

⁷ *De Morie in fulmure tactis*, 1766

⁸ *De Morie in fulmure tactis*, 1766

⁹ *Lightning, Lightning-stroke, and its Treatment*, London, 1913

¹⁰ *Lancet*, 1934, 1, 68

¹¹ *Bristol med-chir J.*, 1932, 49, 285

¹² *British Medical Journal*, 1913, 1, 425, 492, 548, 601

¹³ *E. Afr. med J.*, 1945, 22, 170

¹⁴ *Proc. roy. Soc. Lond.*, 1937, A161, 209.

¹⁵ *E. Afr. med J.*, 1945, 22, 165

¹⁶ *Proc. roy. Soc. Med. (Sect. Electr.)*, 1916-17, 10, 45

tutions. Of the mothers examined 3.5% had classical nutritional deficiencies. Attention had been mainly directed to expectant and nursing mothers, the groups most likely to show the first evidences of malnutrition. A number of the persons examined were in refugee camps. The deficiencies most frequently suggested were in riboflavin and vitamin A.

A technical committee on nutrition had been set up by the Italian Government. Its members included eminent medical specialists, and it had issued a pamphlet as a basis for examination of the population generally, but more specifically of mothers and children. This pamphlet had been sent to about 20,000 doctors in Italy, accompanied by a record card for setting out the findings of their own examinations. The information thus gathered from the whole country was sent to the central committee, and in essence it provided a system, which was still in its early stages, for the notification of malnutrition. Dr. Metcalf believed that Italy was one of the few countries, if not the only country, which had made malnutrition a notifiable disease. The pamphlet also gave a basic food schedule for infants—a standard method which went as far as it was possible at the moment to go in this direction. Mothers and children in need would thus be enabled to obtain supplementary foodstuffs from U.N.R.R.A.; the amount and kind being determined on an economic and medical basis. The economic need must be considered independently of the medical need, because it was conceivable in such a country that a person might exhibit no signs of gross malnutrition and yet be in great need of food.

The Nutrition Committee of the Italian Government, said Dr. Metcalf, had also started a series of training courses for Italian doctors. The courses were to be carried out at five universities, and the programme in the University of Rome had already begun. Each course lasted for about two weeks and consisted of some 38 hours of didactic lectures and a similar amount of time in practical demonstrations. Doctors who had been out of contact with recent developments, especially on the nutritional side and in paediatrics and maternal welfare, would thus have an opportunity of being refreshed. Infant mortality in Italy had always been high. It was difficult to determine the actual mortality at the moment, but the general feeling was that it had not been greatly aggravated. Rickets had undergone a sudden increase during the war, but no exact comparison with pre-war figures was available. There was also an increase in tuberculosis. In view of the many other causes

acting in wartime favouring tuberculosis, such as over-crowding and the distribution of infected people among the population, this must not be regarded as attributable to malnutrition. Children's clinics in Italy, while architecturally satisfactory, appeared to be under-used. Some of the larger clinics were found to be caring only perhaps for two dozen children, whereas similar clinics in other countries would be serving in the course of the year a couple of thousand. Steps were now being taken for the clinics to be more adequately used.

RELAXIN

In 1854 Duncan¹ published his observations on "The Behaviour of the Pelvic Articulations in the Mechanism of Parturition." Ever since it has been recognized that a relaxation of the pelvic ligaments occurs during pregnancy, but only in the last two decades has the mystery of this mechanism begun to clear. In the 'twenties Hisaw and his colleagues²⁻⁵ demonstrated the nature of the relaxation

as it occurs in guinea-pigs, and found in the serum of pregnant animals of many kinds a substance which they called "relaxin." They prepared a powerful extract of the hormone from the corpora lutea of sows,⁶ and claimed that it was distinct from both oestrone and progesterone. Confirmatory evidence was published by Brouha,^{7,8} Pommerenke,¹⁰ and Abramson *et al.*,¹¹ but the discovery by de Fremery *et al.*,¹² Courrier,¹³ Tapfer and Taslhofer,¹⁴ and Haterius and Fugo¹⁵ that relaxation can be brought about by oestrogens and progesterone naturally cast doubts upon the existence of relaxin as a separate hormone. That oestrogens are capable of producing relaxation is, indeed, a fact of veterinary importance, for the consequent alteration in the morphology of the hind-quarters of cows is a cause of the fractures which occur when stilboestrol is used with a view to increasing the production of milk.¹⁶

These doubts have stimulated Hisaw and his colleagues to further research. They have now shown¹⁷ that a preparation of relaxin can be made which has no oestrogenic effect in a dose 120 times and no progestational effect in a dose 500 times that required to relax the pelvic ligaments of guinea-pigs. They showed also that relaxin not only fails to bring on the physiological effects of oestradiol and progesterone but differs from them chemically in being insoluble in fat solvents. The relaxing effect of relaxin is maximal 6 hours after injection, that of progesterone 72 to 96 hours later. The injection of progesterone into intact animals (but not into those which have been castrated and hysterectomized) is followed after the same interval by the appearance of relaxin in the blood. Progesterone, moreover, cannot bring about relaxation in castrated and hysterectomized animals. It seems probable, therefore, that the relaxation it causes in intact animals is due to the fact that it stimulates the formation of relaxin in the genital tract. Oestradiol is likewise capable of doing this in intact animals, and in castrates, but not in castrated hysterectomized females. In them, however, it potentiates the action of injected relaxin, and it has in all probability some independent relaxing activity. It is noteworthy that so far relaxin has been found only in conditions in which progesterone is normally present. One of the functions of progesterone may well be the formation of relaxin in the uterus. In unpregnant females only the concentration found in pseudo-pregnant animals can be experimentally achieved. This is one-fiftieth the concentration found in normal pregnancy, and it therefore seems likely that the placenta is the main site of formation of relaxin.

Although the changes induced by relaxin in animals are not identical with those found in women, they are similar enough to suggest that a parallel mechanism is at work. Moreover, relaxin has been found in the serum of pregnant women by Abramson and his colleagues.¹¹ The possible clinical significance of these findings is obvious, and further work on the human subject will be eagerly awaited.

The Minister of Health (Mr. Aneurin Bevan) is reported to have stated at a meeting of the Society of Physiotherapists on Oct. 20 that by the early months of 1946 he would be presenting a Bill in the House of Commons for a comprehensive health service.

⁶ *J. Amer. chem. Soc.*, 1930, 52, 3340.

⁷ *C. r. Soc. Biol.*, Paris, 1928, 99, 1769.

⁸ *Ibid.*, 1932, 109, 548.

⁹ *Arch. int. Pharmacodyn.*, 1934, 48, 147.

¹⁰ *Amer. J. Obstet. Gynec.*, 1934, 27, 708.

¹¹ *Surg. Gynec. Obstet.*, 1937, 65, 335.

¹² *Neerl. Physiol.*, 1931, 1, 146.

¹³ *Proc. Soc. internat. Congr. Sex Research, Edinb.*, 1931, 357.

¹⁴ *Arch. Gynäk.*, 1935, 159, 313.

¹⁵ *Proc. Soc. exp. Biol., N.Y.*, 1939, 42, 155.

¹⁶ *J. Endocrinol.*, 1944, 4, 19.

¹⁷ Abramowitz, A. A., Money, W. L., Zarrow, M. X., Talmage, R. V. N., Kleinholz, L. H., and Hisaw, F. L., *Endocrinol.*, 1944, 34, 103.

¹ *Dublin quart. J. med. Sci.*, 1854, 18, 60.

² *J. exp. Zool.*, 1925, 42, 411.

³ *Proc. Soc. exp. Biol., N.Y.*, 1926, 23, 661.

⁴ *Anat. Rec.*, 1927, 37, 126.

⁵ *Physiol. Zool.*, 1929, 2, 59.

ANNUAL HARVEIAN COMMEMORATION

THE PRIME MINISTER WITH THE ROYAL
COLLEGE OF PHYSICIANS

The Harveian Dinner of the Royal College of Physicians was held at the Dorchester Hotel on St. Luke's Day, when Lord Moran presided over a company numbering about two hundred. The principal guests were the Archbishop of Canterbury, the Lord Chancellor, the Prime Minister and several members of his Cabinet, the Prime Minister of Canada, Mr. Anthony Eden and other members of the late Government, the French, Soviet and Chinese Ambassadors, the Lord Mayor of London, the President of the Royal College of Surgeons, and representatives of other medical bodies, including the President and the Chairman of Council of the British Medical Association. It was a notable occasion and not least because of the blend of seriousness, wit, and brilliance as represented in the speeches of the Prime Minister, the Archbishop of Canterbury, and the President of the College.

The PRIME MINISTER who said that though he spoke as a layman he could claim many doctors in his family tree, both as ancestors and as collateral, proposed the health of the Royal College. Since the foundation of the College, over four hundred years ago, it had played a noteworthy part in contributing to the health and happiness of mankind, and it was well in these days of change when so many monuments of the past were being swept away to consider the continuity of effort directed to a single aim which the College represented.

Mr. Attlee went on to speak of two outstanding advances in medicine during the war, one of them, which would have been of special interest to Harvey himself, the development of the blood transfusion service, and the other the discovery of penicillin. But in mentioning these advances on the research side he wished also to pay tribute to the personnel of the medical profession both in the fighting Forces and in civil practice. Here he digressed to speak of the services rendered by the President to the late Prime Minister.

"We in the War Cabinet often had great anxiety owing to the voracious travelling habits of our wartime Prime Minister, and it was always a comfort to know that on these expeditions he was under the care of Lord Moran."

After saying that he could give no details of the Government's proposals for a National Health Service, Mr. Attlee proceeded:

"We seek a service which will be comprehensive in the double sense of being available to every member of the population and of covering every form of medical and allied activity. We intend to have a service in which no patient shall be without the treatment he needs through lack of money or through deficiency in or lack of organization of the necessary facilities. We need, too, a service in which professional men and women will be able to devote themselves to their great calling without financial anxiety and without in any way feeling cramped and over-controlled by regulations."

He spoke of the need for a great improvement in the hospital service in the facilities for diagnosis and treatment outside hospitals, in the number and distribution of medical men, both consultants and general practitioners, and perhaps above all in the planning and organization of all the different branches into a single integrated service. "The task is not easy, but we are going to do it. Above all we realize—no one more keenly than my friend the Minister of Health who is here this evening—that for this to be successful we must have the help and co-operation of the profession itself."

Doctors and Politicians

LORD MORAN began by giving a little ancient College history. In 1637, when the College prepared for the Government a report on the health of the people—a report which would do credit to any modern medical officer of health—it ended by proposing a Ministry of Health. The actual words were: "They suggest the provision of a commission or office of health, which has been found useful in Spain, Italy, and elsewhere." The Ministry was established nearly 300 years later. The College still made suggestions, and on the whole he thought the tempo had quickened a little! Truth compelled him to say that not all the College pronouncements were so prescient. In 1648 it

pronounced public baths hurtful to the commonwealth and cited the experience of Athens and Rome to show that they caused physical effeminacy and debauchery of manners.

Politics and medicine, Lord Moran went on, had certain things in common. The Prime Minister of one of the Dominions once said to him that the great thing in politics was to avoid mistakes, and certainly in the practice of medicine the best physician was the one who committed the fewest errors in diagnosis. How was this done? The physician who never for a moment forgot the distinction between what he knew and what he only thought he knew would not go far wrong. But if as he grew older and vainer he refused to admit that he was fallible, his mistakes would multiply. A physician who in the hubbub of success had lost his humility was not a safe guide.

A kind of success could be won in both professions by the gift of the gab. He supposed that the greatest danger to the doctor's integrity of mind was the credulity of his patients. A friend of his, one of the ablest Ministers in the last Cabinet once confided to him that at all times and in every ill he had found salvation in the manipulations of a certain gentleman.

I forget now whether he twisted his neck or merely pulled his leg. Was the quality of credulity entirely lacking from the audiences which hung on the words of politicians in Parliament and in the country? Was it not true that in a democracy the gift of public speech had an undue advantage over other qualities? And if the credulity of the public was a snare to both professions, what was the remedy? It could only be the education of public opinion.

"Will medicine and politics go forward into the future in step? I wonder. Medicine is becoming more scientific. The glittering victories she has won in the field of bacterial disease by the discovery of penicillin and by the use of sulphonamides have enriched our resources. The physician of to-day is twice as well equipped in the war against disease as he was when I was a student. The physician who knows what is wrong with a patient and has an effective remedy in his hands can cut the cable. He has no need of it. The doctor's patter has been the subject of ridicule from Moliere to Bernard Shaw, but the profession has been weaned from this patter because it has been armed. The task of the politician is less simple. Even more than the doctor he has to deal with the vapours in man's mind. But let me end my comparison of politics and medicine with this admission: that while medicine has riveted the attention and absorbed the energies of some of the ablest of our race, the government of man, which is the business of politics, is the creation of all human studies."

Responding to the toast of the guests proposed in a speech of commendable brevity by Dr. John Parkinson, Harveian Orator, the ARCHBISHOP OF CANTERBURY who enlightened the occasion with a wit that delighted everyone referred to his connection with the King's School at Canterbury, mentioning that he had only discovered that afternoon that two old boys of that school bore honoured names in the early history of the College. One was Thomas Linacre, founder and first President, and the other was William Harvey himself. Both of them were also Oxford men—one a Fellow of All Souls and the other Warden of Merton, the two Colleges of which the Archbishop of Canterbury was always Visitor.

They were all thankful the Archbishop went on that medicine could now turn from salvaging the wreckage of fratricidal war to peaceful and constructive tasks. The medical profession had always been governed and disciplined by the zeal for scientific truth, the passion to serve society, and the sense of personal vocation. Although we expect the members of the medical profession to know their job scientifically and to serve the public well and skilfully, what in the end we treasure most about them is something in their character which is the proof of their personal vocation and devotion and we all pray that that may never grow less in this great profession.

MR. ERNEST BEVIN, the Foreign Secretary, who also responded, said that this was not his first experience of the College. He had attended an earlier dinner in which he had ventured to ask for the help of the members of the College in industrial health and welfare, and he expressed his appreciation of the progress made in that field, although it was not so much as he would have liked. He also referred to the work done by the joint committee of the Trades Union Congress and the British Medical Association, which he thought had done a great deal to bring the medical profession nearer to men and women at their work. A tragic shortage of efficient manpower would

exist in this country for several years to come. This was due to two causes—the losses of the last war, which were now being felt in the scarcity of responsible men between the ages of 45 and 55, and the losses of this war, as measured not only in life but in interruption of training. The devastation in Central Europe, the loss of productive capacity all over the world, the tremendous wealth of the United States, the enormous power of Russia, all made it evident in different ways what a great burden was laid upon the British people if British leadership was to be maintained. During the next twenty-five years they could not afford to lose a single productive unit. "I know that you as one of the great professions will cast aside any prejudices you may have, and just as you flung everything on the altar to resist the enemy, you will place your great ability to the fullest extent to the common service in order that this country may survive and still play its part in human destiny."

RHEUMATIC FEVER AND HEART DISEASE

The annual Harveian Oration founded by William Harvey in 1656 was delivered on Oct. 19 at the Royal College of Physicians of London by Dr. JOHN PARKINSON, physician to the cardiac department of the London Hospital and to the National Heart Hospital.

Dr. Parkinson said that Harvey, by his discovery of the circulation, confined to the blood and the blood vessels the evil humours of early writers which were regarded as the cause of rheumatism. In the 17th century rheumatism was differentiated from gout; in the 18th century rheumatism was first recognized as being associated with the heart, and in the 19th century this association was confirmed.

Rheumatic fever of childhood was the main source of heart disease up to the age of 40. The damage was done between the ages of 5 and 15, and it exceeded tuberculosis as a cause of death to the age of 20. During this war, as in the last, large numbers of our young men were found unfitted for service because of valvular disease of the heart directly due to juvenile rheumatism. It was estimated that almost one-tenth of all rejections were on account of heart disease. In peacetime the economic loss each year could be judged by the fact that the duration of economic activity in these men was no more than ten years on the average. All were agreed that poverty and overcrowding were basic causes, and rheumatic fever was rare among children of the well-to-do. Anything a Government did in these directions would reduce the incidence of rheumatic heart disease.

Dr. Parkinson said there was almost unanimous opinion that compulsory notification of rheumatic fever was essential to progress, for it would permit its early diagnosis before heart disease had taken hold. The excellent scheme for rheumatic fever now in operation by the London County Council was copied in the United States and elsewhere as the most comprehensive in existence; but doctors knew, and the public should know, that institutional treatment from the outset, and subsequent supervision, would have to be extended to every case of rheumatic fever occurring in this country. There should now be created a Rheumatic Fever Committee to co-ordinate research and plan for the future. The Orator believed that the Royal College of Physicians was prepared to take a lead in this great endeavour. The objective should include one main country hospital for research, and hospitals and clinics to serve all densely populated areas. Ultimately it would be found necessary, as it had been in the United States, to create a National Council for Rheumatic Fever and Heart Disease.

HEBERDEN SOCIETY MEETING

The Heberden Society will begin its first post-war academic year with a two-day meeting in London on Friday and Saturday, Nov. 2 and 3. This clinical and scientific society, founded in 1936 for the advancement of the study of rheumatic diseases, and closely associated with the Empire Rheumatism Council, has been so re-organized that membership is now drawn from all centres in the British Isles, notably the universities and spas. The inaugural general meeting, which is timed to coincide with part of the post-graduate course arranged by the Empire Rheumatism Council (see *Journal*, Oct. 13, p. 516), opens on Nov. 2 in the rehabilitation unit

of the Royal Free Hospital at 4 p.m., when during tea there will be exhibits. A short business meeting will be followed at 4.45 p.m. by a lecture-demonstration on recent advances in physical methods by Dr. C. B. Heald in collaboration with Fl. Lieut. B. C. Elliott, Dr. Graham Weddell, and Sister F. L. Greenhill. (Medical practitioners attending will be welcomed to tea, provided they apply for a tea invitation to Miss Bereton, 91, Priory Road, West Hampstead, N.W.6.) On the same evening the members will dine at the Euston Hotel. On Nov. 3 at 10 a.m. at the Middlesex Hospital Prof. B. Windeyer will give a lecture-demonstration on the treatment of ankylosing spondylitis by x rays.

BRITISH CIVILIANS RELEASED IN CHINA

We have received from the War Organization of the British Red Cross Society and Order of St. John of Jerusalem a preliminary report—dated Sept. 11, 1945, Shanghai—on the British inmates of civil assembly centres. The author is Dr. W. S. Flowers, the War Organization's medical superintendent in China.

Health of the Inmates

The physical condition of the 5,570 internees in the several internment camps is surprisingly good. Despite crowded living conditions, some deficiencies in diet, and inefficient and uncertain sanitation (which in Ash Camp was found to be both primitive and inadequate), no serious epidemic diseases have broken out. There has been a good deal of malaria, particularly in Lungghwa Camp, where a very unreliable water supply could be maintained only with much labour and worry, and where 45% of the internees had one or more attacks of malaria. Yangtzepoo Camp has had a mild epidemic of amoebic dysentery, while all camps have had dysenteric diarrhoea. One camp had an epidemic of whooping-cough which affected most of the children. There have been recently a few sporadic cases of encephalitis japonica, from which the mortality among the stateless outside the camp has been as high as 75% but has not so seriously affected the internees in Allied camps. Otherwise the physical condition of the people, including the children, has been well maintained. This has been largely due to the untiring labours, vigilance, and medical nursing care provided by a fine team of doctors and nurses in each camp, and dental facilities were made possible by a good team of dentists. Equipment was limited and supplies were often short, but by improvisation and local purchases an amazing medical service was developed and maintained.

The figures under a rough-and-ready classification are as follows: Ash Camp, 424 persons; Yangtzepoo, 1,122; Pootung, 881. Lungghwa, 1,538; Chapei, 703; Lincoln Avenue, 295. Up to the present we have no report from Yangchow (total 607), but anticipate that the internees there will be in equally good health.

While the physical condition of these people is good, they are all obviously very tired, many have lost a good deal of weight, the majority are definitely anaemic, and all are eager to escape from "camp life" as early as possible. The camp mind and outlook is psychologically interesting: memory is unreliable, and outlook and interests have been narrowed. The mortality has been low—if anything lower than it would have been had these people been living the normal rushed life of civilization. The majority of deaths have been among the aged from natural causes. There has been no typhus, typhoid, or cholera.

Nutrition, Housing, and Recreation

Nutrition has varied considerably from week to week. The average level was above 1,700 calories per head. Occasionally it fell below this as a punishment for escapes or attempted escapes. Fats were not very plentiful, milk for the children was always in short supply—generally about 6 oz. could be allowed daily to them. Adults often went short to maintain the best standard possible for the young, who are uniformly in pretty good shape. Detailed charts of the nutrition show peak periods when parcels came in and low periods when punishment was meted out. Recent liberal supplies from United States sources have adequately supplemented all previous deficiencies. Vitamin extracts have generally been sufficient to make up for other shortages.

The accommodation provided allowed 40 sq. ft. per person. The barrack-like buildings which were converted into dormitories allowed of little privacy, only curtains dividing the families. For the large majority there was obviously no escape from the crowd by day or night. Most places had room for some recreation, but Jap guards prevented any wandering over the fences. They would not allow the preventive units formed to wander into the paddy fields to prevent the breeding of the mosquitoes responsible for so much malaria. Sanitation was rarely very good, and only by the labours of the internees themselves was some hygiene maintained. The kitchens where they worked in shifts for the cooking of their own food were very primitive and must have demanded incessant effort to keep clean. Water supply, except at the Lungghwa camp, was generally good.

Recreation fields were laid out where there was room by their own labours. Football and tennis were possible part of the year. Exercise was practised by all at first, but towards the end few had energy for it. Schools for the children were run in the camp by a band of teachers and the children sat their exams even up to matriculation. Lectures, concerts, plays and opera filled in the evenings, and there were few signs of boredom. It all represents a refusal to be hindered by circumstances from pursuing a free and enjoyable life.

Summary

The health record is good. All are tired, many are anaemic, and many are affected to a greater or less degree by psychological changes. Conditions were favourable for large epidemics, but none developed.

Malaria could not be prevented in view of Japanese control, but was adequately treated. Morale was maintained throughout, despite the mixed community assembled together in such close proximity and lacking all privacy, by the efforts of enthusiastic leaders, teachers, and entertainers.

Reports of Societies

INTERNATIONAL BIOLOGICAL STANDARDS

DIXON MEMORIAL LECTURE BY SIR PERCIVAL HARTLEY

The Walter Ernest Dixon Memorial Lecture was delivered in the Section of Experimental Medicine and Therapeutics of the Royal Society of Medicine on Oct 9 by Sir PERCIVAL HARTLEY, Director of Biological Standards, Medical Research Council. Dr E H ALLOTT presided.

After a tribute to Dixon, one of the earliest advocates of the biological standardization of drugs Sir Percival described a biological standard in its simplest form as an arbitrarily chosen but representative sample of the substance for which it was to serve as a basis of measurement, preserved under conditions ensuring its permanence. A unit might be defined as the specific biological activity contained in a certain weight of the standard. The first biological standard to be established was for diphtheria antitoxin, the discovery of which by von Behring was announced in 1890. Then followed Ehrlich's remarkable series of researches, amongst the most famous in immunology, which laid the foundation of biological standardization as it was known to-day. The supply of standard diphtheria antitoxin from Ehrlich's institute at Frankfurt ceased with the outbreak of war in 1914, and this withdrawal rapidly led to the establishment of the standard on an international basis and to the creation and adoption of international standards for other substances.

In 1921 an international conference in London recommended the adoption of Ehrlich's original unit as the international unit, and in the following year a second international conference in Paris explored the possibility of establishing standards and units for other antitoxin and antisera. As an outcome of this and later conferences international standards for digitalis, pituitary (posterior lobe) extract, insulin, and the arsphenamines were adopted, and a Permanent Commission on Biological Standardization was set up by the Health Organization of the League of Nations to provide international standards and units and to secure their widest acceptance. Within less than twenty-five years 35 international biological standards had been established, and even during the recent war progress had not stopped, for standards for vitamin E (1941) heparin (1942), and penicillin (1944) had been adopted during that period.

International Achievement

The materials for biological standards had come from many countries but in all but seven of them the final operations to secure conditions of permanence and stability had been carried out in England and for all but two of these at the National Institute for Medical Research, Hampstead. Five of the original international serum standards were made at Hampstead, and a number of equivalent international standards had also been made there for the purposes of the Therapeutic Substances Act and the *British Pharmacopoeia*. To illustrate the international character of the work, the lecturer mentioned that material for the serological standards was supplied from England, Denmark, and the United States, the tuberculin standard was made in England, material for the vitamin

standards came from Switzerland, Dutch East Indies, Hungary, England, France, Germany, Sweden, and the United States; that for the arsphenamines originally from Germany and the United States and later from England; the first insulin standard was made in England and the second in Canada, the material for both pituitary (posterior lobe) standards was supplied from the United States and manipulated in England, the first digitalis standard was prepared in Holland, the second in England, ouabain standard material was supplied from France, materials for the sex hormones were supplied from eight countries, Canada provided the material for the heparin standard and the United States and this country the material for penicillin.

Practically all the material for these standards was presented to the international organization some of these gifts representing very large sums of money. A laboratory in Switzerland presented 30 grammes of androsterone to provide the replacement standard for male hormone activity; a laboratory in England presented 20 grammes of the purest beta-carotene to provide a replacement standard for vitamin A and another presented 30 grammes of pure crystalline penicillin sodium salt for the standardization work in Hampstead. Free distribution was made of all standards issued from Hampstead on a national basis or to the British Commonwealth or to individual research workers anywhere, as for the international standards.

Standard for Penicillin

After recounting the course of events which led to the adoption of international standards for vitamins and the subsequent action in this field Sir Percival Hartley turned to the latest standard, possibly the last, established by the Permanent Commission—namely, the international standard for penicillin. For many reasons, he said it was desirable that an international standard for penicillin and an international unit defined in terms of it should be agreed and established without delay. Delegates from five countries with expert observers from certain others met in London a year ago under the chairmanship of Sir Henry Dale and unanimously recommended the adoption of a sample of pure sodium salt of penicillin II as the international standard, and for practical reasons which were justified at the time a sample of a calcium salt of penicillin as the international working standard. The international unit was defined as 0.6 microgramme of the international standard and such unit was contained in 2.7 microgrammes of the international working standard. Decisions as to nomenclature and other matters were also recorded by the conference.

Hampstead they were now almost ready for the final step of giving effect to these decisions by the world wide distribution of penicillin standards. He exhibited a sample of the international standard mentioning that at Hampstead they had over 300 such small containers, each holding about 30 microgrammes, also a sample of the international working standard of which they had 200 containers each containing about 65 milligrammes. The actual international standard preparations obviously could not be used for the routine assays of penicillin, there were not enough of them, but they were supplied for the assay and periodical check up of equivalent national standards which the national control centre of each country was expected to prepare.

The Oxford Unit

The first standard for penicillin was made at Oxford and the unit of activity, which came to be known as the Oxford unit, was defined as that which was contained in 0.23 milligramme of this preparation. In one way or another the original Oxford unit had been redetermined in many other, more active preparations. At Hampstead they were provided with two such accurately assayed preparations—one containing 71 and the other 84 units per milligramme—and with these the potency of the British standard for penicillin—155 units per milligramme—was assayed. These three preparations, with two others from the United States carrying the Oxford unit, were included in the samples examined by the London conference a year ago. The results of the assays, despite the different methods employed by the collaborating laboratories showed remarkably good agreement. There was sound evidence that the value of the unit which was being used a year ago in the United States was the same as the value of the unit being used in this country, from which it certainly seemed that, in

spite of the repeated redefinition of the unit in both countries, the original value as defined at Oxford had not been significantly varied. Finally, the value of the unit recommended for international adoption was approximately equivalent to that originally adopted at Oxford.

Impending Developments

Sir Percival then discussed the important part which international biological standards had played in ensuring the high quality of therapeutic substances. The Therapeutic Substances Act had for nearly 20 years controlled the supply of certain drugs and medicaments, but it was limited in scope and in geographical application. For example, its control did not extend to the vitamins or heart drugs, and its application was restricted to Great Britain and Northern Ireland. A way had been found, however, whereby both these limitations might be overcome—namely, by including all the substances for which international biological standards had been established in the *British Pharmacopoeia*, and the *Pharmacopoeia* on its part had laid down the principle that the standards and units to which pharmacopoeial preparations must conform were the international biological standards and units. In some parts of the British Commonwealth and Empire a control over these substances similar to our own had been established, and in these countries also international standards were in general use.

After describing the interesting replacement operations which had taken place from time to time in respect of 18 of the 35 standards, including the first insulin standard and the first standards for pituitary (posterior lobe) extract and for vitamin B₁₂, the lecturer said it was quite likely that a new international organization which might replace the Permanent Commission of the League of Nations would decide that standards for antisera and some of the antitoxins could be dispensed with, and that arsphenamine—the original “606”—had earned an honourable retirement. The position of vitamin standards might also come under review. As Sir Henry Dale had picturesquely put it, “The ultimate aim of biological standardization, as of all preventive medicine, may be regarded as self-extinction.” But there were new candidates with good claims to admission. The standardization of the diphtheria prophylactics was a problem of outstanding importance and urgency. The establishment of an international standard for tetanus toxoid for the active immunization of man might well have an early priority. Some of the investigations carried out at Hampstead regarding the standards for and the assay of gangrene antitoxins, which became urgent and important because of the immediate needs of the war, also indicated new directions in which the work of biological standards might develop.

International biological standards might find useful application in the rapidly developing field of chemotherapy. Pure substances could, as a rule, be fully described in chemical and physical terms, the doses to be administered could be expressed in weight, and biological standards and units were neither necessary nor desirable. It was otherwise, however, in the case of substances of proved biological activity and clinical usefulness of which the chemical composition was unknown, and successive batches of which possibly exhibited varying biological properties. For such substances, in the interim period pending the discovery of their chemical composition and structure, or perhaps of a more reliable process of manufacture, experience had shown the value of the adoption of a standard by comparison with which other preparations could be matched.

THE “DISCHARGING LESION” IN NEUROLOGY

At a meeting of the Neurological Section of the Royal Society of Medicine on Oct. 4 the new president, Dr. J. Purdon Martin, delivered a presidential address on the subject of the “discharging lesion” in neurology.

The theory of the “discharging lesion” was propounded by Hughlings Jackson to account for convulsive phenomena, but Dr. Martin considered that it was capable of a wider application in neurology than had hitherto been accorded to it. The theory postulated that nervous tissue (and therefore nerve cells, inclusive of their axis cylinders) “stored up” energy, and under

the influence of physiological stimuli some of this energy was emitted in an orderly and controlled manner as impulses, but that under certain abnormal conditions the energy might be discharged without a physiological stimulus, and then in an excessive, uncontrolled, and disorderly fashion. A portion of nervous tissue which was in a pathological state such that was liable to discharge in this manner constituted a “discharging lesion.” Modern physiological knowledge lent much support to this theory, and he (Dr. Martin) had in fact come to it chief by way of the physiology of muscle.

Jackson was mostly occupied with convulsions, but there were many other phenomena which provided objective evidence of “uncontrolled” and apparently unphysiological discharge (some of which Jackson had referred to in his writing). Observation led to the belief that discharges might be of three different degrees or varieties, which, however, graded into each other. The convulsion was evidence of a massive or explosive discharge. The smaller repeated discharges which would give rise to peripheral facial spasm, or to the muscular fibrillation of amyotrophic lateral sclerosis, might be described as “spluttering,” while those that caused continuous spasm of muscles such as trismus might be called “continuous.” There was evidence of a still lesser degree of abnormal instability in certain conditions in which there seemed to be an excessive motor response to normal stimuli, as in some of the motor phenomena of tetany and of tetanus and of strychnine poisoning.

Jackson considered that symptoms attributable to “spontaneous” discharge were essentially paroxysmal and transient, since the portion of nervous tissue from which the “primary” discharge occurred required time to become again “overcharged.” While it was true that the phenomena indicative of massive discharge were transient, those attributable to “spluttering” and “continuous” discharges might go on for a long time, and in some instances for the rest of the patient's life. Trismus and tetany were actually continuous, while peripheral facial spasm might be said to be paroxysmally continuous. In regard to all of these we must suppose that in the discharging nervous elements the store of energy on which the discharge depended was being renewed as quickly as it was expended. A similar condition of energy exchange could be maintained and demonstrated in muscle, and was known as a “steady state.” The peripheral facial spasm which occurred as a sequel of Bell's palsy was associated with an imperfectly recovered nerve. The fibrillation of amyotrophic lateral sclerosis was associated with a degenerative state of the anterior horn cells.

We might apply, Dr. Martin continued, what we have deduced from observation of the motor phenomena to the interpretation of certain sensory phenomena which patients described. After a vascular lesion of the thalamus, imperfectly recovered cells of the “pain system” might constitute a discharging lesion and achieve a steady state, thus giving rise to the spontaneous pain of continuous nature that was the characteristic after effect of such a lesion. In other cases the degree of recovery might be such that the cells did not discharge spontaneously but their “energy substance” remained hyperexcitable (e.g., in consequence of anoxia) so that they reacted excessively to normal stimuli. The alternative theory—that the “thalamus syndrome” resulted from a release of the thalamus from control normally exerted over it by the cerebral cortex—was not in keeping with some of the essential facts.

In the case of a recovering sensory nerve (as in that of the recovering facial nerve) there might be a state of instability of the energy substance, and this might be the basis of that hyperalgesia which Head attributed to “protopathic sensation.”

Lightning pains in tabes were attributed to discharges occurring in degenerating afferent elements. If a discharge arose in the afferent portion of a reflex arc it might give rise to reflex movements. All the organs liable to be affected by visceral crises were reflexly controlled, and such a crisis might be due to “spluttering” discharges in the afferent part of the arc producing the effect of an irritant or foreign body in the viscera concerned.

All these symptoms had something in common—namely, an excessive, “explosive,” or compelling quality. The motor phenomena referred to had also this in common—that they might occur or continue during sleep. This applied to convulsions, facial spasm, tetanus, and tetany—whereas motor

abnormal movements, such as those of paralysis agitans, chorea, and spasmodic torticollis, ceased during sleep. This difference might not be fundamental, because chorea had many of the features of a symptom due to "spontaneous" discharges.

The theory provided explanations for, and enabled one to see a certain unity in a number of symptoms for which the current explanations were unsatisfactory. Dr. Martin recalled a quotation from Pasteur: "... the characteristic of a true theory is its fruitfulness."

Correspondence

Telling the Patient

SIR.—Major J. C. Hogarth's letter on this subject (Oct. 13, p. 513) is timely and deserves more than a passing comment. Observations of the same kind have been made to me by a number of thoughtful Service medical officers—usually with unit experience—who have been frankly shocked by the impersonal methods which prevail in many Service and E.M.S. hospitals. I had frequent occasion to make similar criticisms, during the first three years of the war, as the result of my numerous contacts with E.M.S. and teaching hospital medicine.

How have these strange habits of thought and action, this routine of intensive and often repeated investigation and multiple specialist opinions, but with so little said and done for the patient as a person, come to characterize hospital practice? What is the function of the physician, what is the object of medicine if it is not to help the patient's mind and body in every way possible and at every stage of his illness? There can be no greater disservice than to leave him puzzled or in the dark. It is a sad reflection on the trends of our clinical teaching in recent decades that institutional medicine should now so frequently be allowed to degenerate into a kind of mechanical bedside pathology; that it should prefer reports and labels to human histories, and diagnoses and treatments to "treatment," and delight so selectively in what is called the "interesting" case. "Examination, explanation, and reassurance" should be as much in the mind of the student and young doctor as "inspection, palpation, percussion, and auscultation," if—that is to say—he cannot be human without a mnemonic.

In another letter in the same issue Wing Cmdr. Bergin comments on some of the consequences of the modern "passed to you, please" ritual of investigating and handling patients. What a travesty of our old clinical discipline it is to employ a succession of specialists to exclude organic disease and then to ask a psychiatrist to make the final diagnosis, and, too often, to confirm the invalidism. The technological age in medicine has added much to our investigatory powers and has done much for many patients, but it is time our science and humanism resumed a more equal co-partnership. Two books have recently been sent to me from the United States, where similar trends are, I gather, all too common. One is called *The Patient as a Person* (by G. Canby Robinson), the other *Patient as Families* (by Henry B. Richardson). We stand on the threshold of large reforms in our teaching and our practice. May we hope that the teachers of the new generation will take every occasion to remind their students and house-officers that "patients" are, above all, "persons" and not just "cases," and also that they have families and that they get better more quickly or accept their adversities better if they and their families are simply and clearly told what they most need to know?—I am, etc.

Oxford

JOHN A. RYLE.

SIR.—How cordially I agree with Major Hogarth's suggestion that the patient be given constructive information about his complaint. I would go further, and suggest that therapy is incomplete until the disease is evaluated to him in terms commensurate with his intelligence, education, and emotional maturity, and until he is helped to adjust to it.

One of my first lessons in psychotherapy—from Dr. T. A. Ross; I have never forgotten his advice—was that the patient should be completely overhauled physically and the nature of his physical complaints precisely delimited and evaluated to him. How much more important, surely, where the complaint

is predominantly physical; or in the extending field of the psychosomatic complaint—i.e., the physical symptom due to emotional stress.

Hypochondriasis is due to—or at any rate encouraged by—ignorance or fractional knowledge. It is surely the function of the doctor—specialist or G.P.—to dispel that ignorance. In doing so he will tend to clarify his own clinical conceptions and amplify his own therapeutic influence, by failing to do so he may become the creator of suffering. In doing so he will also help dispel the suspicion—explicit in many intelligent laymen and implicit in many more of their less articulate brothers—that much of the doctor's business is a defensive juggery-pokery of false magic.

The doctor who has not the patient's full trust is crippling his own therapeutic influence. That trust can be more easily gained if a more rightful conception of the doctor's business is encouraged that his influence is based, not on symbols, prestige-attitudes or an implicit claim to a higher esoteric level of understanding, but on compassion fused with skill and experience and the ability to help the patient to see his complaints in their proper perspective.

Much avoidable psychotherapy, suffering, and distrust of the medical profession could be prevented if more doctors—specialist or G.P.—were to spend the few moments necessary to complete their therapeutic effort by bringing the patient into the picture. It would also help those of us who come later to get a reasonable medical history. I am continually being surprised by the number of intelligent young officers who have vague ideas about quite serious illnesses and who are naturally worried because no one has told them what to expect or what to do about it—I am, etc.

H. HARRIS,
Lieut. R.A.M.C.

Witley, Surrey

SIR.—Major J. C. Hogarth (Oct. 13, p. 513) surely realizes that in the out-patient department of a hospital the patients are referred for an opinion by the general practitioner. The majority of these practitioners, I am sure from personal experience, would resent the out-patient physician discussing in detail the diagnosis, prognosis, and treatment with the patient. This is the function of the general practitioner, and it is the physician's duty, in my opinion, to communicate only with the doctor concerned. Only in exceptional cases and at the doctor's request should the physician discuss the diagnosis with the patient. Otherwise, surely, essential trust and harmony between patient and general practitioner are apt to be jeopardized—I am, etc.

A. H. MIDDLETON

E. IDDIS JONES.

Rehabilitation of Fractured Limbs

SIR.—The letters of Dr. R. Murray Barrow (Sept. 8, p. 332) and Dr. Vaughan Pendred (Oct. 6, p. 475) prompt me to point out that in 1899, when a student at Edinburgh University, I was transferred to Prof. Annandale and Mr. J. W. Dowden at Edinburgh Royal Infirmary an electrical method of producing controlled contractions and relaxations of any of the muscles of the body. With their assistance I treated various types of fractures, particularly Colles' fractures, the latter being put in plaster and the case split in four to eight days, then daily contractions of the extensor and flexor muscles were produced by the apparatus described, so as to cause movements of the wrist and fingers. I showed that contractions and relaxations were so finely controlled that only the slightest movements of the muscles were discernible at first, and gradually increased to the maximum required without pain until the wrist and fingers were put through their full range of movements. About the year 1905, when I was in charge of the X-ray Department of Great Ormond Street Children's Hospital (which I started as a department), I showed the same method to Sir Arbuthnot Lane and Mr. Stansfield Collier, who were so impressed with the results that they sent many of their fractures to me for treatment by this method. In spite of the recent literature advocating long periods in plaster I have continued to carry out this method with consistent success, and full functional use of the wrist is obtained in much shorter time than when treated by the present-day so-called orthodox method.

By the method I advocate, which has stood the test for so many years, an important factor is that the muscles can be

made to contract and relax painlessly *without their point of origin being approximated*, so that considerable movement of muscles in the initial stage of treatment can be carried out without moving the fractured ends of the bone in the slightest degree. This reproduction of the function of the muscles in the neighbourhood of a fractured bone by graduated contractions acts beneficially in the following manner: (1) The contractions and relaxations gradually increase the local blood supply and aid its circulation, so that absorption of lymph and extravasated blood in the tissues is rapidly promoted and the growth of callous powerfully stimulated. (2) Slight movement at the broken ends may increase the production of granulation tissue by causing hyperaemia. (3) The movement of the muscles prevents contiguous muscles, tendons, and other structures from becoming adherent. (4) The reproduction of the physiological action of the muscle prevents their becoming atrophied. (5) By the muscle movements increasing the local blood supply, the resting bone is less likely to become atrophied. (6) By preventing adhesions and wasting of muscles, as soon as the repair of the bone is sufficiently advanced, the patient is able to regain full function in the limbs very much sooner than is possible where adhesions and wasting of the muscles result from enforced complete rest.

I can claim for this method that, if properly carried out, there is no danger and that the results in time and restoration of function are most satisfactory.—I am, etc.,

London, W.1.

MORTON SMART.

Sciatic "Neuritis"

SIR,—Dr. J. MacDonald Holmes and Mr. B. R. Sworn's article on sciatic neuritis (Sept. 15, p. 350) will be of great interest to all who have to try to deal with the problem of sciatic pain. But I still think that an injured intervertebral disk might account for their cases, both of which gave a history of associated trauma, for what that is worth. It is possible to envisage injury to the attachment of part of the annulus fibrosus, allowing a local bulging of the disk in the standing position which would be absent in the position at operation, and where no softening or break in the posterior contour of the annulus would be felt. I am uncomfortably aware that this explanation is highly suppositive. But I feel we should be unwilling to abandon a pathological concept which has shed so much light on sciatic pain, unless logic truly demands it.

Symptomatic relief from decompression is understandable with any pathology. But if the disk is damaged, further protrusion in the years to come might be expected. It will be interesting to know if either symptoms recur as the protrusion again fills up the extra space provided, or a demonstrable narrowing of the disk space occurs.—I am, etc.,

C. W. M. WHITTY,
Major, R.A.M.C.

Psychiatry in the Services

SIR,—As a practising psychiatrist it is with much regret that I find myself in agreement with most of the statements in Wing Cmdr. K. G. Bergin's letter (Oct. 13, p. 508); for, having myself served as a unit medical officer, I realize that there is no lack of confirmatory evidence regarding the facts mentioned. I have no doubt that the majority of unit medical officers could cite an infinite number of similar cases, and I am sure that many other correspondents will be only too glad to recall their own experiences. Personally, however, I am much more concerned in striking at the root of the trouble, and, though willing to admit that there are many first-class psychiatrists serving in the Forces, I do not agree with Wing Cmdr. Bergin's statement that the psychiatric branch can be exonerated from all blame in the matter of the treatment and disposal of such cases. It must be admitted that, owing to the shortage of trained psychiatrists, it was inevitable that the original selection of personnel for this branch was a matter of great difficulty, and, for the same reason, it was impossible to give these officers an adequate military training. It is, indeed, a well-known fact that, especially in the early part of the war, many "specialists" were appointed though there was scant evidence that they possessed more than a superficial knowledge of their "specialty."

In my opinion many of the difficulties confronting even the expert neuropsychiatrist would have been obviated if these

specialists had been posted for an adequate period as ordinary unit medical officers. They would then realize to the full the actual conditions under which Service personnel—especially N.C.O.s and other ranks—live and work. This, I believe, is the crux of the whole problem, and raises a matter which is of vital importance to the future of psychiatry. Although he is obviously viewing the matter from an entirely different aspect, I think that Wing Cmdr. Bergin sums up the situation very concisely in the clause: "... a system which lays too much stress on psychological illness and not enough on a man's responsibility to his fellows." It is obvious that he did not intend this to be an indictment against psychiatry, but we who profess to be psychiatrists would do well to ponder and give the matter much consideration. In the past too much stress has been laid on the academic and scientific aspects of psychological medicine, and the sociological implications have not received the attention they deserve. This broader view can be achieved only when psychiatry is accepted as an integral part of the social service of the community and not segregated as a little-understood and narrow specialty.—I am, etc.,

St. James Mental Hospital,
Milton, Portsmouth.

W. LIDDELL MILLIGAN.

SIR,—Wing Cmdr. K. G. Bergin's experience (Oct. 13, p. 508) differs entirely from that of all serious writers on the subject of Service neurotics in two respects—their progress after invaliding and their response to disciplinary measures. Careful follow-ups on patients who had been invalided out of the Services for neurosis were done by Lewis (*Lancet*, 1943, 1, 167) and Ferguson (*Health and Industrial Efficiency*, H.M.S.O., 1943), it being found that the great majority were still seriously incapacitated after months of civilian life. I have encountered many patients of this type who had been harshly dealt with by the executive because of their failure to meet the demands made upon them or their supposedly malingering propensities. In each case the results were disastrous, and a completely useless individual, often with a very great nuisance value, was produced. Such eminent psychiatrists as Ebaugh (*Manual of Military Psychiatry*, W. B. Saunders, Philadelphia, 1944) on the other side of the Atlantic and Hadfield (*British Medical Journal*, 1942, 1, 281) on this have emphasized the unfortunate consequences of treating these patients as malingerers. "Neurotic symptoms are very real, and the man or woman in a state of pathological anxiety and depression finds it more difficult to lead a normal active life than does a healthy person. A refusal to recognize this produces a strong sense of injustice and grievance and has a most harmful influence."

That the object of neurotic behaviour is to procure discharge from the Service is a dangerous half-truth in so far as it implies that this is the chief or sole *raison d'être* of the illness, and that it will cease as soon as it is made quite clear that there is no chance of this end being achieved. In fact the genesis of these states is complicated in the extreme, and in most cases the neurotic behaviour cannot be stopped by any method known to man.

Wing Cmdr. Bergin's examples are completely unconvincing and indicative of a disarmingly naïve outlook. For example, the ability to cycle home and work in the garden with every appearance of pleasure does not in any way suggest that the man's distress when required to work overtime is feigned or exaggerated.

It is obvious that Wing Cmdr. Bergin has let his judgment and interpretation of the facts be influenced by his moral indignation at the gain which the neurotic may derive from his illness. This gain is a common phenomenon in civilian life also and by no means confined to conditions of military conscription. The only way to prevent this secondary gain in the circumstances would be to gather the neurotics into special units, which would probably serve little useful military purpose and whose chief function would be to keep the personnel on Service pay and living under camp or barrack conditions, so satisfying the code of morality which Wing Cmdr. Bergin advances and which will command widespread approval. These units would require efficient administrative staffs, which would be hardly justifiable from the point of view of the national interest in time of war. The "system" which is castigated is presumably that of invaliding on medical grounds for neurosis. From the moral point of view there is much to be said for the

merican system of discharge on the grounds of inaptitude. Not that I personally would agree that our present system is immoral.

The grossly unsatisfactory state of the treatment of neurosis at the present time arises out of the stubborn and intractable nature of these pathological emotional disturbances. Light-hearted superficialities will not help in the solution of this problem—I am, etc.

Chichester

A. HARRIS, S/Ldr.

SIR,—I have read Wing Cmdr. Bergin's letter, and there is no doubt that his remarks are only too true. It has been my unfortunate lot as a station medical officer to have to deal with a vast number of these cases, and his description and subsequent history are correct in every detail. Many station medical officers with whom I have discussed this type of case are agreed that the approach and handling are wrong, but unfortunately they have no other way of dealing with them. The solution suggested by Wing Cmdr. Bergin—i.e., Do your duty or take the consequence—is of course the solution to the whole problem; but unfortunately it is not so easy as that. I have tried that myself successfully on occasions; but from time to time political influence has been used and instructions issued from higher authority that the patient is to be dealt with in a certain manner. These instructions are issued by someone who has never seen or examined the patient and without consulting the station medical officer. After much thought I have come to the conclusion that the vast majority of these patients are devoid of all sense of duty and are sickened only by selfish thoughts.

The only solution is courage—courage on the part of the medical branch to stand by their convictions; courage among the higher authorities to stand by the medical branch and to say so publicly; and, lastly, courage in the hearts of the weak and selfish to face the slings and arrows—I am etc.,

G. F. MAGURRAN

SIR,—Wing Cmdr. Bergin seems to be passing through one of the phases common to medical officers. Even the kindest M.O. is apt to feel annoyed when he discovers what he fancies is a leg-pull, and he naturally relieves his feelings by a more or less indiscriminate outburst of severity, rationalized in whatever way appeals to him. A few M.O.s become congealed in this phase, or its opposite extreme of leniency, but the majority gradually settle down to a middle course as they grow more able to discriminate and less afraid of being wrong. It is perhaps better to be fooled occasionally than to be unjust to an honest man. Even the irritation of being informed—with relish—by a non-medical officer that a man for whose story one has fallen has been heard boasting of his successful deception may be soothed by the reflection that this is by no means proof of malingering.

As to the methods in vogue for separating the wheat from the tare, they fall into three classes: (1) "The Sign from Heaven," otherwise known as clinical intuition or diagnostic acumen. (2) "The Geographical." Certain parts of the British Isles seem to maintain steady streams of "bad eggs" to the Services. Wild horses would not induce me to name my own favourite black spots. (3) "The Police Method," which relies on "information received" and on catching the accused out in contradictory statements.

By a judicious combination of these methods supplemented by very occasional disciplinary action, it should be possible to keep the lead-swinging rate within reasonable limits. The picture that Wing Cmdr. Bergin paints of neurotics "almost without exception" deteriorating steadily and being invalided out is quite outside my experience in the Army. It certainly need not happen, and if it does it must be—in spite of his statement to the contrary—the fault of psychiatrists, unit medical officers, or the executive.

The moral issue, to which your correspondent refers, is simple enough in theory. The measure of a man's sacrifice is the degree to which he disliked making it. War divides people into those who like it and those who don't. Those who like it go willingly, knowing the risks and discomforts; they are the lucky ones, and they have their reward. They make the best soldiers, of course, but to be quite fair they should clearly not be allowed to get away with it; if fairness were the only

consideration, they would sternly be directed into offices, factories, or other occupations uncongenial to them, so long as other people are forced into the Army against their will. Fairness, however, must come second to efficiency, and even if it did not it would be impossible to be fair to everybody. And since we cannot claim to be fair, it is difficult to see how we can demand "duty" and "moral responsibility." Such words have their cynical uses, of course. But we live to be fair in our thoughts even if we cannot be fair in our actions (at least, we think we like to), and we cannot be so unless we realize that the man whose dislike of service is sufficient to drive him to decisive action, whether that action take the form of desertion, malingering, or the development of neurotic symptoms is getting, or has had, a raw deal by comparison with his better-adapted comrade. This is no place to enter into futile arguments as to who suffers most—the man who protests or the man who would like to but doesn't. Sufficient has been said to make it clear that moral superiority is not an attitude which becomes us.

The system of which Wing Cmdr. Bergin complains is not intended to encourage escape, but it does recognize the essential pig-headedness of human nature. At a certain point unwillingness converges to inability, for practical purposes, and it pays better to take what the man will give rather than break him because he will not give you all you want.—I am, etc.,

Cambridge

W. E. HICK

SIR,—I have been reading with interest Wing Cmdr. Bergin's letter. The cases in which he thinks he has failed in that by their "unconscious deception" they have got themselves discharged from the Service are in my opinion his most brilliant results, in that the square pegs have found for themselves the square holes for which by temperament and capabilities they are evidently suited. No work, I think, approaches in quality that which is done happily, with interest, with vim, and from free choice. Disgruntled workers are a potent cause of accidents, in that their minds are upon themselves and their grievances rather than upon their work, and thus attention may be lacking at a vital moment.

I cannot emphasize too strongly the misery I have seen caused by labour direction to unsuitable jobs. One girl I know of went out of her mind through being directed away from her home as a mobile worker, which would never have happened if she had been left quietly alone in her factory job (which was turning out war material) in her familiar surroundings. In another case a man used to an open-air life was directed to coal-mining. When I saw him he was a miserable nervous wreck. This state was due to his being coerced into uncongenial employment, and secondly, to his having seen an accident underground whereby two men were killed.

The tragedy of this war has been that men were forced into occupations for which they were never suited by either temperament or capabilities, and their nervous reserve becoming exhausted shows this by "the well-known features, etc." which Wing Cmdr. Bergin describes in other words, the square pegs forced at the round holes, and no amount of jamming them in by harsh discipline or fear will achieve more than a makeshift fit.

There are malingerers, we all know, but these of course are in a different category.—I am, etc.,

Bala

F. M. E. DAVIES.

Anaesthetic Risks

SIR,—I have read with interest the correspondence on the advantages and disadvantages of spinal anaesthesia. In your issue of Oct. 13 (p. 511) Dr. E. Falkner Hill writes a spirited letter in its defence, but his enthusiasm has led him into making a statement which appears to me questionable. "Inhalator anaesthesia acts by interfering with and to a greater or lesser degree damaging the cerebral cells."

We know, of course, that anaesthetic procedures which deprive the cortex of oxygen for even a comparatively short time do cause permanent damage to the cerebral cells, but does Dr. Hill mean that there is "a greater or lesser degree" of damage even when the oxygen requirements are fully met? If so, it would be interesting to know what scientific ground there is for this statement.—I am, etc.,

Dunfermline, Fife

A. C. DOUGLAS

Significance of the Erythrocyte Sedimentation Rate

SIR,—Under the heading "Any Questions?" (Sept. 1, p. 307) the subject of E.S.R. has again been raised. Certain aspects of this problem were fully discussed in the correspondence which followed the paper by Della Vida (1942). In the course of a recent study we have found that confusion largely centres round the following points.

1. *Absence of a Standard Method of Performing the Test.*—Many writers do not state the method they employ. Presumably in such cases the test has been performed according to the original Westergren technique, in which 0.4 c.cm. of 3.8% sodium citrate is added to 1.6 c.cm. of venous blood. This may not necessarily be the case. For example, Dunlop and Dick (1944) employ dry potassium oxalate as an anticoagulant in what they term the Westergren method. Confusion would be avoided by describing the tests as "original Westergren" or "Westergren oxalate."

2. *Employment of Different Anticoagulants.*—Della Vida (1942) and Muller (1943) have drawn attention to the fact that the rate of sedimentation is depressed by dilution of the blood. In a recent series of cases we obtained the following results:

Number of subjects examined	18
Mean second-hour reading (original Westergren method)	22.3 mm.
Mean second-hour reading (dry ammonium and potassium oxalate method)	25.8 mm.

Although the mean value for the oxalate series is greater than that for the citrate series, individual results in the former were not uniformly greater than in the latter. Thus the results for the second hour were as follows: oxalate series greater than citrate series, 12 cases; citrate series greater than oxalate series, 5 cases; both series equal, 1 case. Muller (loc. cit.) states that results are influenced according as potassium oxalate and potassium and ammonium oxalate mixture are employed. She cites the opinion of Keen, who found that the readings obtained with potassium oxalate were accelerated and supported the clinical assessment of activity in each case examined, whereas readings with the double oxalate mixture were diminished or within normal range.

3. *Lack of a Uniform Standard of Normal Values.*—There is no agreement as to what constitutes a normal sedimentation rate, even when the same method is used. Westergren adopted the following standard for the one-hour reading: normal, 3 mm.; doubtful, 4 to 6 mm.; probably abnormal, 7 to 12 mm.; certainly pathological, 13 mm. and upwards. Most writers accept as abnormal any reading greater than 10 mm., although Young (1944) regards values as low as 3 mm. in a male and 5 mm. in a female for the first hour as abnormal. Dunlop and Dick (1944), using a 200-mm. Westergren tube and dry potassium oxalate as anticoagulant, regard as abnormal any reading greater than 5 mm. for the one-hour reading.

Disregard of Physiological Variations.—The consensus is that the only physiological state which causes an appreciable increase in acceleration is pregnancy (Muller, loc. cit.; Wintrobe, 1942), although Obermer (1943) found that some healthy women, for reasons not known, consistently show an increased rate during menstruation. A perusal of Wintrobe's figures shows that, apart from pregnancy, an appreciable number of young adults give readings above the accepted range of normality. Using a mixture of dry ammonium and potassium oxalate as anticoagulant and a 100-mm. tube Wintrobe found that the rate of sedimentation varied from 0 to 6.5 mm. at the end of an hour in 86% of 137 healthy young adult males and from 0 to 15 mm. in 88% of 100 young adult females. He found that the differences were largely accounted for by variations in the haematocrit value, and that when this was corrected to a red-cell volume of 47 c.cm. per 100 c.cm. the rate in 72% of males and females was 0 to 6 mm. and in an additional 16% 7 to 10 mm. for the one-hour reading. There still remains, however, 12% of subjects with a reading greater than 10 mm. We found that 18 of 55 (original Westergren method) and 23 of 62 (dry potassium and ammonium oxalate method) healthy hospital nurses had a one-hour reading greater than 10 mm.

In a group of schoolboys aged 14 to 15 years tested by us 5 of 37 gave a first-hour reading greater than 10 mm. (dry potassium and ammonium oxalate method). On the other hand,

among adult male subjects, only 1 of 59 (original Westergren method) and 2 of 76 (dry ammonium and potassium oxalate method) had a one-hour reading greater than 10 mm. The subjects in all these groups were apparently healthy. All had been subjected to a thorough physical examination, although not in every case, at the time the raised sedimentation rate was recorded. Skiagraphic examination of the chest was carried out in each case (on the same day as, or within a few days of, the finding of the raised sedimentation rate), and in none was any abnormality noted. Even if one accepts the hypothesis that the raised rate was due to some occult focus of sepsis, the fact remains that a considerable number of healthy subjects are liable to exhibit accelerated rates—a finding which must always be borne in mind when considered in association with abnormal skiagrams. That an appreciable number of healthy persons exhibit accelerated rates is confirmed by the work of Edwards, Penman, and Blair (1945), who found that the normal sedimentation rate in apparently healthy hospital nurses can be surprisingly rapid. They found that when primary tuberculous infection occurred the sedimentation rate increased considerably. In cases showing a satisfactory response the rate returned to the normal level for the particular subject in about a month. It would thus appear from these results that, in the female subject at least, it is necessary to learn from serial readings the physiological rate for the individual before any conclusions can be drawn from a single estimation.

The opinion is still widely held that the sedimentation rate is constantly raised in cases of active tuberculosis. Kayne, Pagel, and O'Shaughnessy (1939) and Hollins (1942) have even suggested that the test would be of value in the mass investigation of the apparently healthy. Under this arrangement only those subjects showing an elevated rate would undergo x-ray examination. Berrington and Greenwood (1942) employed this method in a mental hospital, and formed the opinion that it is rare to find active tuberculosis with a normal rate. It is difficult to understand how they arrived at this conclusion, since in their scheme active cases with a normal rate would not be examined. When the results obtained by mass radiography are studied an entirely different picture is presented, as the following table shows:

Reference	No. of Subjects with Active Tuberculosis Examined	No. with Abnormal E.S.R.
Stiehm (1933)	69	33
Braeuning (1938)	75	33
Clive (1943)	102	84
Kahan and Close (1944)	138	27
Robinson (1944)	45	35
Abeles and Pinner (1944)	91	54

It may be argued that, since tuberculous foci may undergo reactivation with considerable rapidity, it is insufficient to claim as active a case showing a normal E.S.R. merely on the strength of changes seen on serial skiagrams. Recently we had the opportunity of performing gastric lavage on the same day as, or within a few days of, the performance of the E.S.R. in seven cases. The former examination gave a positive result in each instance. The one-hour E.S.R. reading was greater than 10 mm. in three cases only, and two of these were females.

In the male subject the test may be of limited value, although the information required by the physician in assessing a case can generally be obtained more accurately without its use. Since in the female subject the test carries an error of anything from 12 to 30% its employment is, for practical purposes, valueless. No other test having an error of this magnitude would be tolerated in practice. Those seeking guidance on the E.S.R. should follow the advice of Hilliard (1942), who "abandoned the use of blood sedimentation tests long ago."—We are, etc.,

D. G. MCINTOSH.
D. M. KEAY.

Dundee.

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"Perspex" in Orthopaedics

SIR,—In his letter (Oct 13 p 512) Mr A. MacGowan levels a great deal of criticism against the article on perspex in orthopaedics by Scales and Herschell (Sept 29, p 423). I would suggest that he has failed to appreciate that the authors do not advocate perspex as a complete substitute for plaster-of-Paris and that they have not recommended that it should be used for short term cases, surely the list of conditions given, including tuberculosis of the spine and anterior poliomyelitis, consists entirely of those requiring many months of treatment in some form of splint.

He complains that the authors of the article do not make use of the advantages they quote, with this complaint I disagree and instance the following. In the treatment of a case of tuberculosis of the spine with or without sinuses in a young child a 'perspex' bed has the following advantages over one made of plaster-of-Paris: it can be washed without deterioration; it needs no absorbent lining; it is non-irritant to the skin, and even Mr MacGowan must concede the point that it is reclaimable; in treating cases of anterior poliomyelitis 'perspex' has the additional advantages that it is light in weight and being waterproof, it can be worn when doing exercises in the pool.

To give a specific example where 'perspex' is of great value I have had some splints made of it for opponents polio paralysis, and have a patient with bilateral paralysis who, without the splints, found considerable difficulty in washing, using a tooth brush, and dressing himself, but when wearing the splints he is able to carry out all these actions easily and comfortably, and added to this the splints are inconspicuous—a factor of great importance, at least to the patient.

Surely no one suggests that "perspex" is a complete substitute for plaster of Paris or that it is the ideal plastic for all selected orthopaedic conditions, but let us at least recognize its advantages and acknowledge that Scales and Herschell have overcome several obstacles in its use—obstacles which some of the commercial experts considered were almost insurmountable. Further investigations in the use of plastics in orthopaedics are needed and are continuing at Stanmore—I am, etc.

Royal National Orthopaedic
Hospital, Stanmore

JOHN A. CHOLMELEY

Third-generation Syphilis

SIR,—There appeared a case report by Dr C. J. V. Hellwell in the *Journal of Aug. 11* (p 186) purporting to be one of third-generation syphilis. The boy appears to be a congenital syphilitic but evidence is lacking to indicate that his mother is Dr Hellwell based his case on the negative blood test in her husband, the statement that she never had syphilis but that her parents died of it. It is not unusual for a woman to be ignorant of ever contracting syphilis. There was no supporting evidence that her parents really died of the disease.

It is recognized that congenital syphilis occurs less frequently from wife to husband than husband to wife. The age of the infection in the sexual partner is an important factor. Such data as her present age and first sexual exposure were not included in the report.

The occurrence of third generation syphilis is recognized. Its frequency is unknown since the facts are not always obtainable. Basic necessary information was not included in the report to justify the conclusion—I am, etc.

C. C. WEDDERBURN, M.B., Ch.B.,

Medical Department, Kings of Jamaica

Venerical Diseases Officer

Infant Feeding and Duodenal Ulcer

SIR,—There is undoubtedly an increase in the incidence of duodenal ulcer at the present time, and it seems to be occurring at a more early age. The custom of feeding infants at four hourly intervals by day, and of giving no feed at all during the night, began to be taught and rigidly followed after the 1914-18 war. The hungry child very often spends the last hour of the period wailing lustily, while the conscientious parent parades the floor with an eye on the clock until the appointed hour arrives. This must mean that for several hours by day and for a longer period during the night the child's stomach is in a state of anticipatory peristalsis actively secreting hydrochloric acid and with probably an accompanying pylorospasm. In a child of such a habit this may provide the predisposing factors for the development of ulcer in later life. The remedy would appear to be more frequent feeding of this type of infant by day and permitting a feed during the night—I am, etc.

D. RICE

J. M. MORGAN

Housing, Health, and Unwise Spending

SIR—I would like to supplement Dr Frewen Moore's comments (Oct 13 p 408) on Dr H. Nelson's valuable paper on housing and health. It is not sufficient to enumerate the common types of unwise spending by the poorer classes; we must try to understand the reasons for it. Take for instance the family living in a three roomed back to back, or four roomed dwelling of the type still occupied by probably the great majority of the city working classes. On what can they spend their surplus earnings? The cramped squalor of the home precludes the pursuit of any hobbies or cultural or constructive interests of any kind. The more well-to-do family has a garden, spare ground on which to build a workshop, enough rooms and big enough rooms in which to entertain friends or indulge in relaxation. The urban working-class family lives under or on top of another family or is jammed up on each side with a number of similar families and they all have children. In addition to the crowding and the squalor there are therefore incessant noise and lack of privacy. The home in fact, a place to get away from. In such circumstances what can the wage-earner spend money on but cigarettes, cinema, betting, drink? Even to keep a bicycle may be impossible for want of place to house it. In my opinion it is of immense importance that this aspect of the life of our poorer classes should receive prominent attention in the planning of our future—I am, etc.

—Z.M.

E. H. WILKINS

Training for Released Service Doctors

SIR—Lieut-Col F. F. Hellier in his letter (Oct 6 p 477) raises a most pertinent point and one of great import to those in the Services about to be released.

I should like to give my personal experience of applying for a Class III appointment as a registrar in dermatology at a salary of £100 per annum. The necessary form of application was forwarded to the British Postgraduate Medical School and a personal visit made immediately I was demobilized. My qualifications and reasons for applying were stated as follows:

I was keen to become a dermatologist, and at the beginning of the war was hon. assistant dermatologist at the Royal United Hospital, Bath, following the appointment of medical registrar to that hospital. I had not started as a consultant in private and was still in general practice in a town 7 miles away.

(2) I wish to study at the same time for a higher qualification in order to be in a position to apply for hospital staff appointments.

(3) The lease of my house, from which I practised had been terminated by me in 1943, at the first option (10 years) as I did not intend to return to general practice. I have been unable to sell the practice and there is now only a nucleus which, without a house, appears difficult to sell.

I was informed that I was ineligible under the Government Scheme Class III (Registrarship) as I had been established before the war in general practice and had not sold my practice and would also have been ineligible had I started as a consultant in private. The only class open to me was Class II (14 days' refresher course for general practitioners).

Surely the Government policy is to assist in training men who may later prove useful members of the staffs of hospitals treating large numbers of the community over a period of years, and not to exclude men on technicalities from financial assistance with postgraduate study. The only course open to me now is to do postgraduate study at my own expense, and therefore for a short period (three months) due to financial limitations.

The above facts will, I think, be of interest to those in the Forces who may be trying to work out their post-war plans and are expecting financial assistance from this source.—I am, etc.,

C. D. EVANS,
Late Colonel, A.M.S.

Nutritional Macrocytic Anaemia: Correction

We apologize for a misprint in the letter on nutritional macrocytic anaemia by Dr. L. E. Glynn, Prof. H. P. Hims-worth, and Dr. A. Neuberger, published last week (Oct. 20, p. 550), by which the word "devoid" was omitted in the seventh line. The sentence should run: "It may therefore be of interest to your readers to know that recently we have found that rats on a diet devoid of methionine develop a macrocytic anaemia characterized by changes in the peripheral blood and in the bone marrow similar to those in human nutritional macrocytic anaemia. . . . The development of this anaemia is not prevented by large supplements of cystine or of iron."

Obituary

W. B. CANNON, C.B., LL.D., M.D.

A wide circle of physiologists the world over will feel a personal loss by the passing, on Oct. 2, of Dr. Walter Bradford Cannon, who for many years held the George Higginson Chair of Physiology at Harvard University. Though a world figure in science, Cannon was essentially a Harvard man, for there he graduated in 1896, and there, with characteristic fidelity, he remained with few interludes until his retirement in 1942, first as instructor in zoology, then in physiology, next as assistant professor of physiology, and finally from 1906 to 1942 as professor.

He was one of the now rapidly dwindling number of all-round physiologists whose inspiration, exerted through generations of pupils, will long continue to be felt, and few scientific men can hope to have both so wide and so beneficial an influence on the evolution of their subject as was his. He brought to his subject not only wide experience and knowledge, but also a broad philosophy, an artistic imagination, and an admirable clarity of expression. His initiation in 1898 (at the age of 27) in the technique of the opaque meal in x-ray study of the movements of the alimentary canal was by itself enough to ensure him an important place in the history of the medical sciences. The classical work of Cannon and his collaborators, now generally known, and summarized in his *Bodily Changes in Pain, Hunger, Fear, and Rage*, was an outstanding example of the value of imagination in research, and his book *The Wisdom of the Body* was a further revelation of his wide philosophical outlook on biological phenomena. The accepted theory of the humoral transmission of the nerve impulse has much of its factual foundation in the series of investigations by the Harvard School, led by Cannon.

In the interlude occasioned by the first World War he served in the British Military Service in 1917, and engaged in work on traumatic shock, partly in collaboration with the late Sir William Bayliss. He later became a lieutenant-colonel in the U.S. Army Medical Corps, and served with it till 1919. He was decorated C.B. in 1919, and awarded the Distinguished Service Medal of the U.S.A.

Many other honours and distinctions very properly fell to his lot. Among these were Croonian Lecturer, Royal Society, 1918; foreign member, Royal Society, 1939; Linacre Lecturer, Cambridge, 1930; Baly Medal, Royal College of Physicians of London, 1931; President, American Association for the Advancement of Science, 1940; honorary degrees of Yale, Liège, Strasbourg, Paris, and Madrid; foreign member of several learned academies; Harvard exchange professor, 1929-30; and visiting professor to Peiping Union Medical College, 1939.

He died at the age of 73, after a good deal of ill-health. His calm, happy personality will be remembered with affection by those whose privilege it was to know him.

C. L. E.

T. P. PUDDICOMBE, D.S.O., M.B., D.P.H.

Dr. Thomas Phare Puddicombe, who died suddenly at Great Torrington on Sept. 29, was born in 1877, the youngest son of Robert Puddicombe of Kilverleigh Manor, Beaford, North Devon. He was educated at West Buckland School, King's College, London, and St. Thomas's Hospital. He served with distinction in France from November, 1914, to May, 1919, in command of the 25th Field Ambulance, with the rank of lieutenant-colonel, R.A.M.C. He was thrice mentioned in dispatches and was awarded the D.S.O. Before this he had entered the Local Government Service in 1906 and saw service at Croydon as deputy medical officer of health and at Plymouth as senior medical officer before going to Essex in 1920 to fill the new post of deputy county medical officer of health in 1930. Thus when he retired in 1942 he had seen 35 years' service with local authorities, 22 of which had been spent with the Essex County Council.

Dr. W. A. BULLOUGH writes:

When we in Essex heard of his death our minds went back to the day he left us in March, 1942, when so many good things were said about him by all ranks in the service, from the chairman of his committee to the humblest member of the clerical staff of the Public Health Department. His own quip (he was full of quips and pleasantries) on this occasion was that he felt like a man attending his own funeral, because that was when most nice things were said about people. We feel some pleasure that we were able to say these things to his face and have not left them all to be said after he is dead. His geniality, kindness, sympathy, and consideration will long be remembered by those who came into contact with him, particularly a very wide circle of parents in Essex, who have much reason to be grateful to him in his capacity as mental expert for his tact and kindness. If there was a problem to be solved that involved the human element, official or unofficial, "Tay Pay" (as he was affectionately known) was the man to solve it, and he is gratefully remembered as a guide, philosopher, and friend by many in Essex. Those who were privileged to visit him in his bungalow in Rothesay Avenue, Chelmsford, saw the foundation of his character—a great home lover, one who was proud of his home and his garden. He was keen on indoor and outdoor sport—he founded and was the moving spirit in a Badminton Club in Chelmsford. Whatever the game, he played with enthusiasm and vigour. Truly he was a leader of men in more ways than one.

Personally, I was most indebted to him for his great loyalty. No matter how much we disagreed, one could always depend upon "Tay Pay" to be loyal to the extreme. His industry amazed me; quietly and methodically he got through an immense amount of work. And, above all, I admired and liked him for his straightforwardness. If he disagreed he said so, and that was the end of it. One always knew that what he said he meant. I always found him willing to do anything, and he had that inestimable characteristic which made him an ideal deputy—a complete absence of self. I never had any fear about the School Medical Service in Essex under his control, and he never let me down. In his capacity as mental expert I never found a flaw in his diagnoses and estimations.

Outside Essex he had many interests. He was a Fellow of the Society of Medical Officers of Health, and for many years represented the School Medical Group on the executive committee of the society. He was a member of the Central Association for Mental Welfare, and was also keenly interested in the Essex Rural Community Council, and was, in fact, chairman of the health committee for many years. He also gave much attention to the scheme for the preservation of rural England. He was greatly missed by the council when he left Essex. He told us that he intended to live the life of a country gentleman in the West Country when he retired and we felt that there was no one more fitted to do so. Some of us were privileged to spend short wartime holidays with him among his own folk. It is fitting, indeed, that he should have died in his own beloved Devon. To his wife and son, Capt. Robert T. M. Puddicombe, R.A.M.C., who arrived home on leave from Italy just too late to see his father alive, we extend our deepest sympathy.

Dr. GERALD QUIN LENNANE, who held the post of M.O.H. for the metropolitan borough of Battersea from 1906 to 1934 died on Sept. 12 after a long illness. He was born at Galway in 1869, and after qualifying in Dublin in 1891 went to sea as a ship surgeon, and then took the F.R.C.S.I. and the D.P.H. in 1900. In 1914, at the age of 45, he volunteered for a commission in the R.A.M.C., served in France, was mentioned in dispatches, and awarded the Military Cross in 1917. After

returning to civil life he was for 16 years examiner in hygiene at the R A M College, and Battersea Borough Council named a block of flats after him in recognition of his long and valuable service. Dr James Fenton in the course of a tribute in the *Medical Officer* has written: "It was Lennane's custom to get a touch with young men on their first taking up an appointment as M O H of a metropolitan borough and offer his advice and experience in any problems which might present themselves to the newcomer. This approach was always made in a kindly way, and was often associated with Lennane's well known hospitality. The only reward he wanted was the knowledge that he might occasionally be of some help. In debates at meetings of the Metropolitan Branch of the M O H Society and at his club he displayed an old-world courtesy which endeared him to his wide circle of friends. In Battersea he was highly respected by his councillors for the courageous way he tackled many public health problems."

We regret to record the death on Sept 14 of Dr. GEORGE HALL of Stockton-on-Tees, at the age of 66. He was born at Macduff, Banffshire, and educated at Banff Academy Grammar School and at King's and Marschal College, Aberdeen. At Aberdeen University he graduated M A in 1900, proceeding M B, Ch B in 1905. He had been a member of the B M A for nearly forty years, contributing an article on "Spontaneous inversion of the Uterus" to the *Journal* in 1908. Having travelled round the world after completing his studies he took up practice in Stockton. For 38 years he was in close touch with the Stockton and Thornaby Hospital, being appointed senior surgeon in 1918 and continuing on the honorary staff until 1944, after having served five extra years at the request of the hospital committee. He was chairman of the Stockton Division of the B M A from 1929 to 1931 and an important member of the committee of the North of England Cancer Research Campaign for many years. A colleague writes: "Not merely as physician and surgeon will George Hall be missed in the whole district but as a beloved friend. He was a humble, reticent, and tireless worker in the community, being held in high esteem and affection by colleagues and townspeople alike, countless of whom owe their well-being and very lives to his skill and unbounded devotion to duty. A gloom has been cast over thousands by his passing and he will be sorely missed by his patients and friends."

Mr. RALPH MARSH DE MOWERAY, FRCS, of Lymington, Hants, who died on Sept 24, had been for many years surgeon to the Lymington Cottage Hospital and the Milford-on-Sea War Memorial Cottage Hospital and consulting surgeon to the Fenwick Cottage Hospital at Lyndhurst. Born at Vinosington on Oct. 16, 1887, son of the Rev J H M de Mowbray, he entered St Thomas's Hospital in 1905 from Marlborough College and qualified in 1914 taking soon afterwards the FRCS. During the war of 1914-18 he served first for a year at the British Red Cross Hospital at Netley, and then for over three years, with the rank of captain, R A M C as surgical specialist and officer in charge of the surgical division of No. 34 General Hospital at Deolali India. Mr de Mowbray had also been house-surgeon, casualty officer, and resident anaesthetist at St Thomas's Hospital, and house-surgeon at the Royal Hants County Hospital, Winchester. He joined the British Medical Association in 1919.

Dr. DAVID JOHNSTON JONES who died at Llandudno on Sept. 24, aged 91, was educated in Edinburgh, London and Paris, graduating M B, C M E d in 1876, and M D in 1879. After serving as house-surgeon at the Liverpool Royal Infirmary he became senior assistant medical officer to the Kent County Mental Hospital, near Maidstone, and was then for a long time medical superintendent of the L C C Mental Hospital Banstead. Dr. Jones joined the British Medical Association in 1880. At the date of his death there were only three living members with as long a membership of the Association though 66 years is not a record, the late Sir James Crichton-Browne having remained in membership for 69 years.

Dr. WILLIAM McDUGALL who died on Sept. 29, had practised for 48 years at Wallington in Surrey. The son of a Highland minister, he went to school at Aberdeen and then to the University of Edinburgh where he graduated M B, C M in 1889. After a sea voyage and a house appointment in Carlisle, he settled in the remote township of Teneue, on the north coast of Scotland. His work there demanded journeys on horseback as far as forty miles from home over wild country, a single visit to a patient with pneumonia would sometimes take him two days and a night. After his first marriage he came south to a very different kind of practice in a village two or three miles from Croxson where something of a Scottish

community was forming round the Presbyterian church. In half a century Wallington grew out of recognition, and Dr McDougall, having started work alone, eventually became the senior partner of a firm of four. In 1913 he had joined forces with Dr A T Moon, FRCS, and in 1916-17 he was able to spend a year in the R A M C at the Connaught Hospital Aldershot. From the foundation of the Carshalton War Memorial Hospital, about 1923, he was a member of the active staff until he became consulting physician ten years ago. He was "writes a colleague, a first-class physician, painstaking to a degree. Restrained and even dour with strangers at first he had a friendliness and understanding which stirred the affection of his patients into a devotion deep and abiding. He was a man of unalterable integrity whose whole life was a service to his fellows, carried to the full and to the end. His rare and deep humour, his generosity to all in need, and the religion he lived so thoroughly, made him an example which his friends must always remember, and which must always influence them." Dr McDougall died at 79 years of age, having doggedly continued his work throughout the war. He leaves a widow and two sons and two daughters.

Dr. JAMES CECIL MOTTRAM, director of the research laboratories of Mount Vernon Hospital, Northwood, died on Oct. 4 at Northwood. He was born at Holt, Norfolk, on Dec. 12, 1880, only son of James Mottram, and was educated at the Beacon School, Sevenoaks, University College and Hospital, London, and St John's College, Cambridge. He graduated M B, Lond in 1903, and took the D P H Camb in 1906. After being as first assistant at the Ascot County Asylum and bacteriologist for the County of Worcester he became first assistant in the cancer research laboratories of the Middlesex Hospital. During the war of 1914-18 he served as lieutenant, R N V R, attached to the Royal Naval Experimental Station, Stratford, and advisory expert at the Camouflage School G H Q. After returning to civil life Mottram was appointed director of the research department of the London Radium Institute and continued in that post when the Institute joined up with the Mount Vernon Hospital at Northwood. He made numerous reports to the Royal Society, to the Royal Society of Medicine, the Linnæan Society, the Zoological Society of London and the Pathological Society on cancer radiology and animal coloration. The last named subject was, with fly-fishing and the study of trout and trout fisheries, Mottram's principal hobby. He wrote articles on animal coloration and on camouflage for the *Encyclopaedia Britannica*.

Dr. ERNEST LE CRONIER LANCASTER formerly a leading member of the profession in Swansea and well known as a specialist died at Lyme Regis Dorset, on Oct. 4, in his 81st year. After taking his B A, with first-class honours in 1881 at the University of Oxford in 1883 he went to St. George's Hospital for his clinical course graduating M B, B S in 1887. At St. George's he served as house-physician, resident obstetric assistant, and demonstrator in anatomy and pathology. He became physician to the Swansea Hospital, to the Aberavon and Port Talbot General Hospital and to the Swansea and South Wales Institute for the Blind and he held the rank of lieutenant-colonel, R A M C (T). Dr. Lancaster joined the B M A in 1892 was elected chairman of the Swansea Division in 1910 and president of the South Wales and Monmouthshire Branch in 1914. He was a past-president of the Swansea Medical Society, a J P for the County of Glamorgan, and for many years acted as honorary curator of the local museum. In retirement he undertook the same duty for Lyme Regis. Two branches of zoology attracted him most—the study of molluscs and shell-fish and the study of molluscs—and he was for many years an active member of the Conchological Society of Great Britain and Ireland and of the Malacological Society of London. His professional writings were several papers in the *Transactions of the Clinical Society* during the 'nineties, and a paper on heredity and disease published in these columns in 1910.

Dr. JAMES McDONALD TROUP, consulting physician to the Presbytera Hospital and the doyen of the medical profession in that city, died on July 31 in his 78th year. A native of Huntly, in Scotland, he was the youngest son of the Rev. Robert Troup, and after early education at Madras College went to St. Andrews University where he graduated M A with honours in 1887. He won the Guthrie Scholarship from St. Andrews to Cambridge, was 7th Wrangler in the Mathematical Tripos of 1890 and went on to King's College Hospital London with a senior scholarship. He took his M B, B Ch Camb in 1896, and was house-surgeon at King's to Watson Cheyne. In the following year he went to South Africa to an appointment at Grahams-town, and later for a time practised at Somerset East. He

settled in Pretoria in 1902, and during 43 years there his life was devoted to his patients; he soon gained a reputation for sound judgment and for skill in diagnosis and treatment; moreover, he was one of those practitioners whose advice and counsel were sought on many personal matters outside the strict range of his profession. The *South African Medical Journal* has published a number of tributes to Dr. Troup from colleagues, and a long appreciation of his character and gifts and his attitude towards the science and art of medicine by Dr. A. Piijper, written from 25 years' personal knowledge. One passage may be quoted here: "Troup had a persuasive manner and his authority was readily accepted. He was a marvellous diagnostician and had a horror of mechanized medicine, as it is called. Yet he used the laboratory to the utmost, but it was merely to confirm his ideas or to give him the needed quantitative data. If he had to subject a patient to more than one test he blamed himself. Difficult cases were first discussed with the pathologist, on equal terms. Working with Troup was a delight to the laboratory-man. Even in the early days large numbers of his patients had laboratory work performed, and this being unusual in those days, I once asked him how the patients took it and whether it did not detract from his status. He countered by saying that the opposite was the case: his patients realized the purpose and that their doctor was on the right track." Dr. Troup had been a member of the British Medical Association since 1897.

Universities and Colleges

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Lister Memorial Lecture

Sir Howard Florey, F.R.S., delivered the Lister Memorial Lecture at the Royal College of Surgeons on Oct. 11, taking as his subject "The Use of Micro-organisms for Therapeutic Purposes"; it will appear in a future number of the *British Medical Journal*. At the end of the lecture he was presented with the Lister Medal for 1945 which had been awarded to him for his distinguished contributions to surgical science.

A quarterly meeting of the Council of the College was held on Oct. 11, with Sir Alfred Webb-Johnson, Bt., President, in the chair.

A Diploma of Fellowship was granted to David Barrett Feather (Leeds Medical School).

Diplomas of Membership were granted to the following successful candidates: W. H. Lonsdale, E. C. Hutchinson, P. M. Jeavons, C. H. de Boer, Lucy M. Dunkerley, R. L. Greenwood, H. Wainstead, H. A. Lane.

Diplomas in Physical Medicine were granted jointly with the Royal College of Physicians of London to F. J. Bach and E. J. Crisp.

Diplomas in Child Health were granted jointly with the Royal College of Physicians of London to the following successful candidates: H. I. C. Balfour, H. Blair, Agnes A. Brash, E. H. Brown,

F. B. Cadman, A. Comfort, Nancy D. Cox, J. G. Dathan, L. J. S. Derham, Glenys M. M. Donaldson, F. R. M. Elgood, Elizabeth de C. Falle, I. W. Gallant, Susanna Gordon, Mona Griffin, J. R. Griffiths, Ursula Jerram, A. Kahan, Margaret Kemsley, Vivien U. Lutwyche, Helen M. C. Morley, Joan L. Noak, G. E. Paget, Margaret Pardee, H. E. Parry, P. E. Polani, Phyllis Poyner-Wall, L. S. Prasad, R. J. P. Pugh, Mary M. E. Rutter, Vivian M. N. Osborne, D. E. Yarrow, S. S. Yudkin, C. Zahra Neumann, H. L. Zondek.

A Leverhulme Research Scholarship was granted to Mr. P. B. Ascroft, F.R.C.S., for research on the pathology of head injuries.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

Dr. J. A. Nixon, Emeritus Professor of Medicine in the University of Bristol, will deliver the Dr. Alexander Black Lecture on "The Health and Safety of the Merchant Seaman" at the College (9, Queen Street, Edinburgh) on Friday, Nov. 2, at 4 p.m. The lecture is open to all graduates and senior students.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At the annual meeting of the College, held on Oct. 17, the following officers were elected for the ensuing year: *President*, Mr. J. M. Graham. *Vice-President*, Prof. R. W. Johnstone. *Secretary and Treasurer*, Mr. K. Paterson Brown. *President's Council*, Sir John Fraser, Bt., Dr. G. Ewart Martin, Mr. Francis E. Jardine, Mr. W. Quarry Wood, Mr. Walter Mercer, Prof. J. R. Learmonth. *Representative on the General Medical Council*, Mr. Henry Wade. *Convener of Museum Committee*, Mr. W. Quarry Wood. *Librarian*, Dr. Douglas Guthrie.

At a meeting of the College held on Oct. 17, with the President, Mr. J. M. Graham, in the chair, the following, having passed the

requisite examinations, were admitted Fellows: J. Boyes, A. I. Bremner, J. A. Chalmers, A. W. Chambers, Prudence Halton, J. P. Harpman, G. Hay, W. A. N. Inglis, E. M. Innes, Alberta M. Jean, Kathleen M. Long, R. N. Martin, D. Telford, N. Whalley.

The Services

Lieut.-Col. (Temp.) H. Rees and Major (Temp.) S. K. Dart, I.M.S., have been mentioned in dispatches in recognition of gallant and distinguished services in the field.

The following appointments and awards have been announced in recognition of gallant and distinguished services in North-West Europe:

C.B.E. (Military Division).—Brig. (Local) E. Bulmer, O.B.E. Brig. (Acting) J. T. McConkey, and Col. (Temp.) F. A. Bear, D.S.O., M.C., R.A.M.C.

O.B.E. (Military Division).—Cols. F. G. Flood, M.C., and R. Shaw, M.C., late R.A.M.C.; Cols. (Acting) J. P. Douglas, M.B. and F. McL. Richardson, D.S.O.; Cols. (Temp.) J. P. J. Jenkins, T.D., H. E. Knott, and G. G. Talbot, T.D.; Lieut.-Cols. (Temp.) J. C. Anderson, W. S. C. Copeman, R. Evans, F. N. Foster, T.D., E. Hutcheon, A. B. Kerr, T.D., and W. R. Logan, T.D., R.A.M.C. Cols. C. F. Abbott and C. G. Wood, Lieut.-Cols. D. Campbell, K. J. Coates, C. D. S. Leef, and J. Tanzman, R.C.A.M.C.

M.B.E. (Military Division).—Major R. B. Hunter, Majors (Temp.) D. J. Johnson, W. Michie, R. O. Murray, and R. O. G. Norman, and Capt. K. C. Burrow, R.A.M.C.; Majors W. A. McKibbin and E. Wolstein, R.C.A.M.C.

D.S.O.—Lieut.-Col. (Temp.) M. W. Gonin, R.A.M.C.

M.C.—Major (Temp.) J. L. Chisnall, Capt. R. D. S. Jarvis, G. D. H. McQuitty, I. Morris, and J. Sheehan, and Lieut. R. Major, R.A.M.C.; Capt. K. A. Campbell, R.C.A.M.C.

The following appointments and mentions have been announced in recognition of distinguished services during the liberation of prisoners from German concentration camps.

O.B.E. (Military Division).—Lieut.-Col. (Acting) F. S. Field, Lieut.-Col. (Temp.) J. A. D. Johnston, M.C., and Lieut.-Col. F. Lipscomb, R.A.M.C.

M.B.E. (Military Division).—Capt. P. O'Donnell and D. Perkin, R.A.M.C.

Mentioned in Dispatches.—Major H. A. Tuck; Majors (Temp.) E. M. Griffin, G. M. C. Smith, and D. J. Waterston, M.B. Capt. G. M. Baker, I. Gluck, J. Kraus, D. T. Prescott, and W. Winterbottom; Lieuts. S. Durrant and N. Winter, R.A.M.C.

Repatriated.—Major J. W. D. Bull, R.A.M.C.

Dalkeith Presbytery, in Midlothian, has sanctioned the erection of Newbattle Parish Church of a three-light stained glass window to commemorate the members of the R.A.M.C. who were stationed at Newbattle Abbey in the early years of the war.

Medical Notes in Parliament

On Oct. 18 the Parliamentary Medical Group met at the House of Commons and elected Dr. Haden Guest as chairman, Mr. Hugh Linstead as hon. secretary, and Sir Henry Morris-Jones as hon. treasurer. The Group decided to meet monthly. The next meeting will discuss demobilization. Dr. Haden Guest was re-elected the representative of the Group on the Central Medical War Committee.

The Parliamentary Medical Committee of the Labour Party under the chairmanship of Mr. Somerville Hastings, will work in close co-operation with the Health Group of the party.

Distribution of Medical Man-power.

Mr. LAWSON stated on Oct. 16 that the present ratio of R.A.M.C. medical officers in the Forces to personnel under their medical charge is 2.57 per 1,000. All effective medical officers whether engaged on administration, hygiene, hospital work, attendance on unit sick, are included in the ratio. The proportion of doctors of all kinds in this country to the civil population is 0.74 per 1,000. He added that circumstances in the Army and civil life are so different that a true comparison is impossible.

Sir GIFFORD FOX on Oct. 17 asserted that the present strength of medical officers in the R.A.F. was 2.27 medical officers per 1,000 men, which compared with one doctor per 3,500 of the civil population. He asked why it was necessary for the proportion of doctors in the R.A.F. to be eight times

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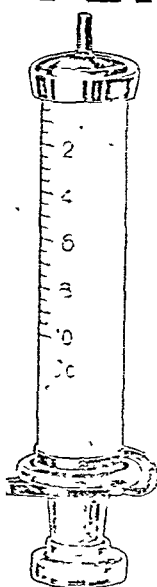
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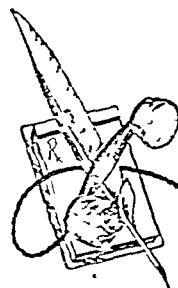
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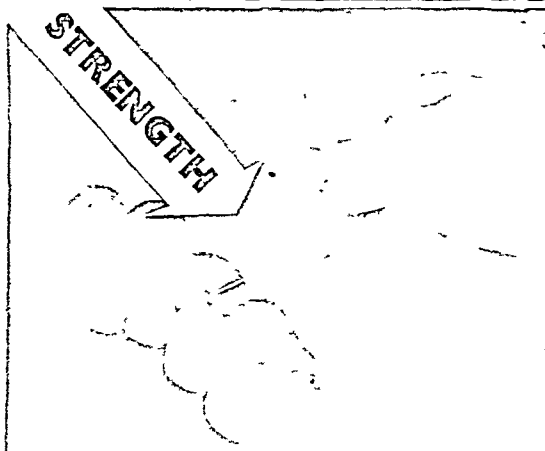
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In this area difficulties of staffing and pressure of other work limit us to the inoculation of children, and I know that in many other areas the position is similar. I, for one, would be content if I could get all the children, including those now partly inoculated, to complete the full course of injections.—I am, etc.,

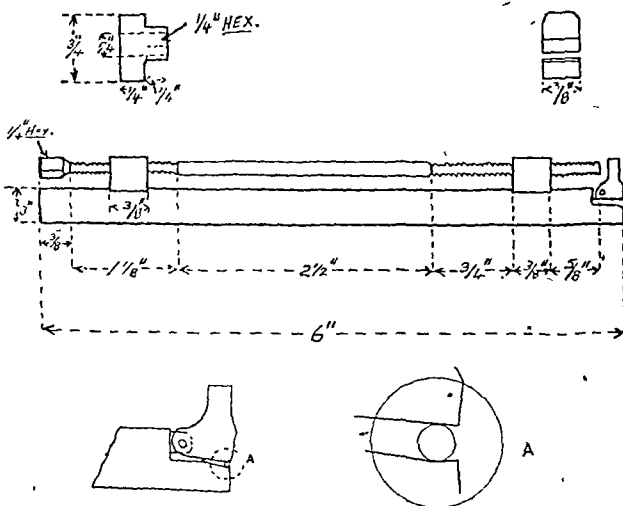
JAMES GRANT,
Medical Officer of Health.

Gateshead.

Staple Introducer for Recurrent Shoulder Dislocation

SIR,—Sir Heneage Ogilvie's description of the Johannesburg staple driver for the repair of recurrent dislocation of the shoulder prompts me to describe the staple introducer and operative exposure I have used over the past four years. The instrument was made for me in the R.A.F. workshops, Karachi, when I was orthopaedic specialist at No. 1 and No. 6 Base Hospitals there. We often had reason to be grateful for the skill and willing co-operation of the R.A.F. technicians in the early days of 1942. They also made for me a set of Smith Petersen nails of a standard equal to any commercial product.

The instrument is illustrated in the sketch. The staple is held in the hinged clamp, which is tightened and released by means of the longitudinal screw. The staples are conveniently made



from an ordinary stainless-steel table knife, which provides steel of the proper temper. For the exposure of the labrum and the neck of the scapula I have found it unnecessary to divide the coracoid. The exposure is through the delto-pectoral sulcus. The short head of biceps and coraco-brachialis are retracted medially to expose the subscapularis and the capsule, which are divided in the direction of the fibres of the former and not transversely. This gives adequate exposure even in the most muscular individual if attention is paid to perfect haemostasis. One transverse suture of catgut through subscapularis and capsule repairs these structures after the staple has been driven home.—I am, etc.,

Hairmyres Hospital, East Kilbride

J. S. MAXWELL.

Prevention of Burns in Children

SIR,—A recent case in the coroner's court refreshed my memory concerning the law with regard to the protection of open fireplaces in private houses where there are children under 7 years of age. I do not know whether this law applies to

open electric fires. With few exceptions manufacturers of these fires do not seem to give much thought to this matter. It would appear to me that the most suitable protective guard for such a fire should be included in the structure. A protective mesh is useless unless it is at such a distance from the element that a child's fingers can be prevented from touching it. I would suggest that the element be protected by a guard which is convex forward and the element placed at a safe distance from it.

I have in the last few months encountered five cases in children where either one or both hands have been crippled as a result of handling the hot element of an electric fire. The ages of the children have ranged from 1½ years to 8 years of age. Perhaps from a legislative point of view the Board of Trade could insist on such a guard being included in the specifications of all open electric fires and gas stoves.—I am, etc.,

Gloucester City General Hospital,

EMLYN LEWIS.

Deafness from Rubella in Pregnancy

SIR,—In the *Journal* of June 16, 1945 (p. 845), you published figures which I had collected on the subject of rubella during pregnancy causing deafness in the child. In view of the interest which is being taken in this matter, I give you my figures as they now stand.

Deaf children born in 1940-1: Boys 64, girls 38; total 102.

History of rubella during first 4 months of pregnancy: Boys 16 girls 20; total 36.

Some of these children have defects of the eyes and some have defects of eyes and heart. I have the birth weight of 19, fifteen between 5 and 6½ lb. (2.2 and 2.9 kg.); two 7½ lb. (3.4 kg.); one 4½ lb. (2.0 kg.); one 3½ lb. (1.5 kg.). In a few cases the intelligence has been questioned, but most of those with whom I am dealing at the moment show average and even above average intelligence. There are a further 11 cases in which, from the symptoms given, I suspect rubella, but it was not diagnosed.

Of the total of 102 children, 40 are left-handed or ambidextrous, 16 of these having left-handedness in the family; and 15 are right-handed but have left-handedness in the family.

Deafness is accounted for in 15 cases by meningitis and in 8 by heredity. In the remaining 43 cases in which deafness was not due to rubella in pregnancy there was the following disease history during the first three years of life: measles, 15; whooping-cough, 10; pneumonia, 9; bronchitis, 8; in one case the mother had mumps during pregnancy. In 5 cases instruments were used at birth.—I am, etc.,

London, S.E. 4.

SYLVIAN M. MARTIN.

"Cord Round the Neck"

SIR,—With regard to the controversy whether this condition can cause stillbirth, a case which I had a few years ago may be of interest.

The woman was about 28 years of age, and the whole antenatal period was quite normal. At the confinement the foetal heart was heard beating normally, and the presentation was a vertex. The descent proceeded uneventfully until the head was well down on the perineum, and then no further progress took place, although the uterine contractions were strong and regular at about three-minute intervals. As soon as the head touched the perineum the usual routine examination had been made for cord round the neck, when it was found that there were at least two loops of the cord in this position, but under such extreme tension that it was quite impossible to pull a loop over the head to relieve it.

As it seemed from previous examinations of the patient that the only cause of obstruction must be the cord, and as no further descent was taking place, there seemed no other course but to sever the cord and deliver as quickly as possible. This was done, and the baby delivered (without instruments) very soon afterwards. The cord was found to be abnormally long, being wound twice round the body and four times round the neck, making a total length of approximately 6 ft. (1.83 m.) from placenta to foetus. The child was not breathing, and I could not detect any pulsations in the foetal end of the cord. The usual methods of revival were tried, but unfortunately with no effect.

I decided at the time (and I have not yet had reason to alter my opinion) that death occurred shortly before delivery due to the abnormal position of the cord, which caused either

obstruction of the foetal circulation to the placenta or, by pressure on the neck, interference with the circulation to the brain, or possibly both conditions—I am, etc.,

Slough

H TUDOR EDMUNDS

Nomenclature of Ekblom's Syndrome, or the Fidgets

SIR.—The condition described by Ekblom (*Acta med scand* 1944, 118 197, 1945, *Suppl* 158, and your annotation of Jan 19, p 95) has been recognized by the laity since the 16th century at least. The *New English Dictionary* has

"Fidge, v. *Obs* (1) To move about restlessly or uneasily. 1577 Breton Some [dame] would fidge, as though she had the itch

Fidget, sb (1) A condition of vague physical uneasiness seeking relief in irregular bodily movements. App first used in the *fidgets* (s) (now always pl) as if the name of a malady or pathological symptom (sometimes in definite pathological sense see quotation 1876) 1876 Bartholow *Mar Med* Wakefulness from unrest of the peripheral nerves (fidgets) and similar causes, will generally be relieved by the bromides"

This previous notice does not detract from Ekblom's merit, as he is the first to describe the condition in medical literature and to recognize its clinical importance. I suggest that minor degrees occur normally in many if not in all people. It is not uncommon to see a person sitting at rest, perhaps reading who frequently changes the position of his legs, crossing and uncrossing them without being conscious of the movements. Here the afferent stimuli never become sensations but cause the movements from a lower nervous level. At a further stage the stimuli enter consciousness and are not troublesome, and finally they may reach a clinical intensity of disturbance.

You follow Allison in using the word jitters. This word is not given in the *New English Dictionary*, but in *Wyld's Universal English Dictionary* 1936, Appendix 'Jitters, n pl American slang the creeps, nervous fluster, trepidation. There are two objections to this word. (1) Some degree of panic fear is connoted by it, and this is a matter of diagnostic importance since panic fear distinguishes Freudian psychoneurosis from the fidgets. Fear of fidgets is merely a justifiable dread of a disturbed night. (2) Although I have the greatest admiration for the vividness of American usage I feel bound by the advice of H W and F G Fowler that American usage should not be employed by English writers—I am, etc.,

Sheringham Norfolk

F H STEWART

Diuresis by Suggestion

SIR.—I have frequently observed this phenomenon but have never seen it described, so it may be worth recording. When the ureters have been catheterized I ask my house-surgeon, or someone else present in the theatre, to count the number of drops from the catheter over a period of say, 30 or 60 seconds. The patient is then asked if he would like a glass of beer or perhaps a cup of tea. In the majority of cases there is a material increase in the rate of flow within 10 seconds whereas the selected drink does not materialize for at least 10 minutes. Does the renal epithelium flush with pleasure at the prospect of an appropriate stimulant?—I am, etc.,

New Milton Hants

A BASIL ROOKE

"Deck Ankles" and "Travellers' Oedema"

SIR.—The following experience may be of interest as illustrating a phenomenon possibly related to "deck ankles."

In July, 1945, I was a prisoner on a train when the Japanese transferred a mixed party of prisoners of war and civilian political prisoners from Haiphong Road Camp Shanghai, to Fengtai Camp near Peiping. We left Shanghai in the evening of July 8, and next morning about a dozen men showed me oedematous feet and ankles. By the morning of July 12 out of 314 prisoners 24 of us were suffering from this condition, ranging from slight oedema to gross oedema with inflammation. On the evening of July 12, after a short forced march, we were able to lie down on a brick floor and next morning the majority of us were somewhat better. The last cases cleared up five days later. After our release in Peiping we were taken by train on Oct 5 to Tangu, near Tientsin in comfortable first-class coaches, the journey taking only about six hours, but in the

course of this short journey oedema recurred in several of the former patients. Col W S Flowers, of the British Red Cross Shanghai, subsequently informed me that there had been further recurrences in ex-prisoners travelling home by air from China. On Feb 2 I left Shanghai in the repatriation ship *Highland Chieftain* among some 1,200 passengers, the majority of whom were ex-internees or political prisoners, the SMO Cap Seville, R A MC, drew my attention to the incidence of deck ankles.

It was of course, impossible to carry out any biochemical tests under the conditions of a Japanese prison camp but I think the following factors are worthy of consideration.

(1) We left Shanghai with an atmospheric temperature of 90° to 100° degrees in the shade and a humidity of about 100%. A large number of the men had been working hard for two or three days loading the train, and the water supply during the four days on the train was inadequate. No salt was supplied on the journey.

(2) There was a chronic insufficiency of vitamin B in the camp diet. There had been 6 cases of frank beriberi and many more manifestations of vitamin B deficiency before the camp was moved.

(3) Men were sitting in cramped positions for four days and were only allowed to leave their seats to go to the lavatories and for short walks on two of the stations. On the other hand I had one of the worst pairs of inflamed feet myself although I was allowed to walk up and down the train to attend my fellow prisoners.

(4) Our diet had been deficient in proteins especially animal proteins—I am, etc.

London SW 16

STEPHEN D STUPTON

Islam and Medicine

SIR.—In your note on the influence of Islam on medicine (*Nova et Vetera*, March 16 p 401) the statement that "for the next 500 years the Muslims alone played a vital part in the evolution of humanity. They resuscitated Greek medicine by translating Galen's *Anatomy*" requires some modification especially as it is immediately followed by a reference to Hunayn ibn Ishaq. Hunayn, more generally known as John Nisius was a Christian and as Prof E Browne shows in his Fitzpatrick lectures the earliest translators and transmitters of Greek medicine were Christians expelled from Byzantium or Nestorian schismatics. The great medical school of Jundi Shapur was largely the result of this expulsion.

Splendid as were the contributions by Arabs and Persians, both Christians and Jews played a most important role. In fact Campbell writes "Although we have called this space of time the 'Arabic Period' it can with justice be called the 'Jewish Period,' as the Jews were closely identified with the medical culture of Islam in general." Hunayn translated much of the Hippocratic writings and Galen primarily into Syriac and thence into Arabic, and it was through Hebrew translations that Arabic literature was brought into Europe though the great period of Jewish translators was somewhat later between the eleventh and thirteenth centuries. The whole question is fully surveyed by Friedenwald in his recent volumes *The Jews and Medicine* (Johns Hopkins Press 1943)—I am, etc.,

G A AUDEN

Physical Therapy in Mental Disorder

SIR.—Dr Harvey Baird (March 23, p 447) has raised an interesting point in his pertinent question regarding the accuracy of the diagnosis of schizophrenia. I have however always been under the impression that it was Watson (of Rainhill) and not Shaw Bolton who originated the theory of the efficiency of the supragranular layer in dementia praecox. Shaw Bolton may have been and in fact, probably was, the first to publish these histopathological findings, but I believe it was Watson's theory which he took with him from Rainhill to Wakefield. He had free access to Watson's records and histological specimens. I am of course, open to correction but I like honour to be given where it is due. This I do know—that Watson firmly believed that dementia praecox was the result of an innate anatomical deficiency and he had a great deal of substantial evidence to prove his claim—I am, etc.,

Leigh

WRIGHT LAMBERT

Obituary

Dr. RHODES HAYGARTH died suddenly on Feb. 27. Born at Keighley, Yorks, in 1870, his early education was at Keighley Trade and Grammar School and he graduated M.B., C.M. at Edinburgh with first-class honours in 1895. He settled at Cross Gates, Leeds, in 1898 and practised there until his retirement in 1934. For several years he was medical officer of health for the district of Garforth. He served as lecturer and examiner to the St. John Ambulance Association for many years. During the first world war he had charge of a V.A.D. hospital and superintended a number of wards at the Killingbeck Hospital, in addition to organizing the medical services for a local Government factory. Dr. Haygarth died at Grange-over-Sands, Lancs, where he had lived since his retirement. He was a man of great kindness of heart, and was much beloved by his many patients and by all who knew him. He leaves a widow and one son.

With the death of Dr. GILBERT E. MOULD on March 16 there passed away one who, for many years, had been a familiar figure in the medical and sporting circles of Sheffield and the districts around. A son of the late Dr. Mould, superintendent of Cheadle Royal and the leading authority on mental diseases in Manchester and the North-West of England, he devoted his life to this specialty. From Cambridge he completed his medical studies at St. Mary's Hospital in 1894. After holding resident posts there, he worked as assistant medical officer at various mental institutions, until he became head of The Grange, near Rotherham, where he remained to the end of his life. For several years he was physician for mental diseases to the Sheffield Royal Hospital, and later to the Rotherham Municipal Hospital. For his ripe experience and sound knowledge of mental diseases he was highly valued by the profession of the district. A keen sportsman, he was well known in the hunting-field, and his holidays were always spent fishing in Scotland. A kindly, sociable man, he had a wide circle of friends, by whom his loss will be deeply felt. Dr. Gilbert Mould joined the B.M.A. in 1897 and had been chairman of the Rotherham Division, which he represented at two Annual Meetings.

Dr. BENJAMIN RIGBY JOHNSTON, who died on March 17, was educated at Rossall School and in Dublin and Brussels, obtaining the L.R.C.P.I. and L.M. in 1884, also the M.R.C.S.Eng. and the M.D.Brussels in 1890. After various resident appointments in Dublin hospitals he became ship surgeon in 1886 to the Far East; he then acted as assistant at Birkenhead for a year or two, and in 1888 settled at Grasmere, where he practised continuously for about 58 years, dying in harness at the age of 84. He was buried in Grasmere Cemetery after a service at St. Oswald's Church. In spite of one of the wettest days of the year the church was packed for a very beautiful service conducted by the present rector, and a previous rector, the Rev. B. Phillips, travelled up from Northampton to give an impressive funeral oration. Dr. Benjamin Johnston had mercurious interests, especially literary and archaeological, being secretary to Dove Cottage and the Wordsworth Museum; also he helped, and identified himself with, every good activity in the village. His brother, Dr. G. Ainslie Johnston, and all the members of the family have been greatly comforted by the receipt of a very large number of letters, the great majority of which contain the words: "Dr. Ben was the most useful man in Grasmere for 58 years." So ends a life well spent.

We regret to announce the death on March 18 of ARTHUR MORRELL JOHNSON of Bury, Lancs, chairman of the Bury Division of the B.M.A. in 1924-5 and its representative at seven Annual Meetings of the Association. He was born in 1887 in Nova Scotia and was educated at Dalhousie University, graduating M.D., C.M. in 1911. After the 1914-18 war, in which he served in Gallipoli, Egypt and France, and won the Military Cross, he went into partnership with his uncle, the late Dr. J. W. Johnson, at Bury. He was appointed honorary assistant surgeon to the Bury Infirmary in 1920, was promoted full surgeon two years later, and became consulting surgeon in 1935 and was for many years chairman of the medical board. He maintained his interest in military administration and held the rank of colonel, A.M.S.T.A., receiving the Territorial Decoration in 1930 and the C.B.E. in 1939. Col. Johnson again went on active service in 1940 and was in the retreat from Dunkirk. After spending many hours on the beaches he was taken on board a ship and collapsed from exhaustion; on his recovery he went to Egypt to take charge of the 6th General Hospital, returning home to resume his civilian practice in 1942. He was one of the oldest serving members of the Bury Insurance Com-

mittee, of which he had been chairman. He joined the B.M.A. in 1917 and served at headquarters on the Protection of Practices Committee and the Naval and Military Committee.

Mr. EDWARD HARRISON, consulting surgeon to the Royal Infirmary, Hull, and at one time the leading surgeon in that city, died at Paignton, Devon, on March 18, aged 88. Educated at Cambridge and St. George's Hospital, he gained first-class honours in physiology in the Natural Sciences Tripos of 1878, and graduated M.B. in 1883 and M.D. in 1898. He had been a foundation scholar and prizeman of Clare College and was for several years examiner in anatomy for Caius and Clare Colleges. After taking the F.R.C.S. in 1886 he was elected to the honorary staff of the Hull Royal Infirmary, and was president of the East Yorkshire and North Lincs Branch of the B.M.A. in 1898. He was an honorary life member of the St. John Ambulance Association and consulting surgeon to the military hospital at Hornsea. A man of wide cultural interests, Mr. Harrison had been president of the Hull Astronomical Society and of the Literary and Philosophical Society; he also took a great interest in the Hull Philharmonic Society and was deputy organist at Holy Trinity Church.

Dr. FRANCIS JAMES COUTTS, of Leytonstone, who died on March 18, aged 79, at the Connaught Hospital, Walthamstow, where he had been honorary surgeon for 32 years, qualified in 1895 from University College Hospital. He took the M.D.Lond. degree in 1897, and the F.R.C.S.Ed. diploma in 1913. At U.C.H. he served as house-surgeon and house-physician. For half a century he was an honoured figure in the local medical profession, and there can be few families in the borough of Leyton who have not directly or indirectly benefited from his skill and kindness. He remained very active for his years, and when in 1940 he was bombed out of his house he moved across the road and continued work right up to the day he was taken ill. He retired from his hospital duties last Christmas and at that time was chairman of the medical committee. Recently he received a silver salver inscribed with all the names of the hospital's medical staff. His sudden death soon afterwards came, as a shock to the Leyton and Leytonstone public, and he will be greatly missed. His widow, Dr. Jane S. Coutts, retired from practice a considerable time ago; she was an anaesthetist at the Walthamstow Hospital during the war of 1914-18.

The late Dr. VALENTINE CHARLES ROBINSON was educated at Cambridge and St. Bartholomew's Hospital. He gained first-class honours in the Natural Sciences Tripos of 1923, qualified in 1929, and took the M.B., B.Ch. in 1937 and the M.R.C.P. in 1940. Before joining the staff of the Central Middlesex County Hospital he had been clinical assistant at the St. John Clinic, Pimlico, and chief assistant in the electrical department at Bart's. During the war he was a physician in the E.M.S. A colleague writes: The death of this unique and lovable person has been a grievous blow to everyone at the hospital. Doctors, nurses, ward maids, and his patients all found his combination of charm, sympathy, and humour something quite out of the ordinary. Though burdened by a succession of illnesses he managed to succeed in an astonishing number of interests. He was a fine clinician, infinitely patient and thorough in both history and examination, and his accurate and neat notes are well known. He was deeply interested in all his patients apart from their illnesses, realizing better than most of us the importance of their homes and habits; his kindness and patience made them hold a deep affection for him. His general knowledge was prodigious and there seemed no subject on which he was not well informed. This wide scholarship made him a versatile conversationalist, and his friends will treasure the long and interesting talks they had with "Robbie." He was the perfect companion, for he could listen with understanding and patience to people who knew much less than he did, and he made them feel more intelligent by drawing out the little learning they had. He was a skilful writer with a gift for expressing himself clearly even on the most abstract or controversial subjects. So original and stimulating were his letters that they were often kept and passed round among his friends. He was a very capable musician and got much pleasure from playing in amateur orchestras and quartets. He had a quick wit and his gaiety and sparkle were the more striking because of the contrast they made with his face, which was serious and almost melancholy. His lively mind was not satisfied by any ready-made set of ideas or by doctrines backed up by tradition instead of reason. His sincerity and honesty were such that he could discuss unorthodox religious ideas with the most rigid believer without giving offence, and he never ceased the vain search for a creed that would satisfy both his rationalism and his idealism. He will be profoundly missed by everyone who knew him, and his close friends find his death leaves an emptiness which nothing can fill.

Medical Notes in Parliament

Health Service Bill: Motion for Rejection

In the names of Mr. Churchill, Mr. Eden, Mr. Richard Law, Mr. Willink, Mr. Butler, and Earl Winterton the Conservative Party in the House of Commons tabled on April 8 a motion for the rejection of the National Health Service Bill. It runs: "That this House, while wishing to establish a comprehensive health service, declines to give a second reading to a Bill which prejudices the patient's right to an independent family doctor, which retards the development of the hospital services by destroying local ownership and gravely menaces all charitable foundations by diverting to purposes other than those intended by the donors the trust funds of the voluntary hospitals; and which weakens the responsibility of local authorities without planning the health services as a whole."

"Consultation" on the Bill

Mr. DE LA BÈRE on April 4 asked whether the Prime Minister, in view of the secrecy imposed on the British Hospitals Association during their recent discussions with the Minister of Health and the misunderstandings which such secrecy engendered, would give an assurance that the Government would discontinue this practice in connexion with the introduction of further measures of legislation. Replying for Mr. Attlee Mr. HERBERT MORRISON said that in the case mentioned the Minister of Health was not consulting the British Hospitals Association as such or expecting it to commit itself to any specific proposals. He was consulting a group of individual representatives from the association in order to obtain their personal expert opinion on certain points before the Government's proposals were submitted in the proper manner to Parliament. Such a consultation was naturally confidential, and Mr. Morrison saw nothing to be deprecated in it.

Mr. DE LA BÈRE asked whether Mr. Morrison appreciated how regrettable it was that these enlightened representatives were both gagged and muzzled. He asserted that the Government always sought to move the Closure, both in Parliament and with the general public, on all matters of truth. Mr. MORRISON said that seemed to be rather a mouthful of irrelevances. These confidential discussions were started by Mr. Willink, the previous Conservative Minister of Health. If Parliament was never to permit confidential discussions prior to the introduction of a Bill, the alternative was to bang the Bill down on the Table and say to all those interested, "There you are, take it or leave it." He thought it far better to consult people.

Mr. OLIVER STANLEY: Was not this the procedure which the Minister of Health adopted in this House, and did he not, in fact, gag them by asking them to come and see him, and then paying no attention to them?

Mr. MORRISON: If consultation proceeds on broad policy prior to the introduction of a Bill, it must be confidential. The right hon. gentleman may call it gagging if he likes—that is just Conservative language—but they must be confidential. That is what it amounts to. I am perfectly sure that the right hon. gentleman, in the course of his Ministerial life, has had heaps of consultations of precisely the same type.

Demobilized Doctors and the Health Service

Mr. SOMERVILLE HASTINGS inquired on April 4 whether the Minister of Health had any statement to make regarding the employment of demobilized doctors before the National Health Service Bill came into operation. Mr. BEVAN said he would be glad to consider whether there was any statement he could make which was likely to be of assistance to doctors leaving the Forces, but it would be appropriate that any announcement should follow and not precede discussion of the principles of the National Health Service Bill by the House.

Control of Nurses

Replying on April 4 to Mr. Haydn Davies, Mr. BEVAN said that, as was announced on Dec. 13, general controls on the movement of nurses and midwives would cease to operate on June 20. It had accordingly been decided that the Mental Nurses (Employment and Offences) Orders should be revoked and cease to operate on that date. Revocation of these Orders might cause temporary difficulties in retaining staffs in some institutions, but if the Orders were not revoked the mental nursing service would, after June 20, be the only branch of nursing subject to restrictions of that kind. That would be a

grave handicap to future recruitment to the service. After full consideration the Government concluded that the balance of advantage lay in withdrawing the Orders on June 20.

A similar announcement was made in the House of Lords.

Release of Doctors

Mr. BEVAN announced on April 4 that the number of doctors released from the armed Forces since VE Day was: Navy, 1,411; R.A.F., 1,054 (in both cases to March 15); Army, 5,907 (to March 25). The numbers serving at those dates were, respectively, 1,229, 1,602, and 6,371.

Medical Care in Rural Areas

On April 4 Lieut.-Col. HARE asked Mr. Bevan to ensure that every village without a resident doctor should have a visiting doctor who would hold a surgery once a week. Mr. BEVAN said a special fund was available from which assistance could be given to insurance doctors practising in isolated rural areas for such objects. He had, however, no power of direction in this matter, nor would it in any event be practicable to make such arrangements covering every village.

Smallpox on Incoming Ships

Mr. BEVAN stated on April 2 that the number of cases of smallpox landed in this country from the ships mentioned below and the reported vaccination history of each were as follows:

Empress of Australia—1 case. Vaccinated in infancy, and several times while in the Merchant Navy, but with no take.

Duchess of Richmond—4 cases. Vaccination: (a) infancy; 1940, slight take; July, 1945, no take; (b) infancy; May, 1941, September, 1941, and September, 1944, no take; (c) infancy; July, 1945, no take; (d) March, 1942; April, 1943; August, 1945.

Georgic—No case.

Batory—1 very doubtful case. Vaccinated in infancy and frequently during service, lastly in 1945.

Orontes—1 case. Vaccinated in infancy and in January, 1946.

Service personnel from the *Duchess of Richmond* were retained under medical supervision from arrival on March 1 to March 7; and from the *Georgic* from arrival on March 2 to March 4, when it was decided that a suspected case was not a case of smallpox. Three contact cases from the *Empress of Australia* were taken to hospital.

Hospital Beds

Mr. BEVAN stated on March 28 that the number of patients in Service hospitals in Great Britain was approximately 21,300 and the number of trained nurses 1,936. The figures for civil hospitals (not including mental, mental deficiency, and maternity hospitals and institutions) were approximately 282,100 patients and 30,900 trained nurses. The number of beds reserved in civilian hospitals and institutions in England and Wales for the Emergency Hospital Scheme was approximately 53,000. No part of this total reservation was set aside exclusively for military patients, but the latest available figures showed that of these beds 15,800 were occupied by Service patients and 10,700 by civilian patients who were the responsibility of the scheme, leaving approximately 26,500 vacant emergency scheme beds, the majority of which were unstaffed. The bed reservation figures for the Emergency Hospital Scheme were under constant review. If hospital authorities found it necessary to encroach upon the emergency reservation they were at liberty to do so in agreement with the responsible medical officers of the Ministry of Health. It was hoped to release a substantial number of beds after June 1, when it was expected that the Army's needs for civilian hospital services would be limited to exceptional cases which could not be provided for in military hospitals.

Nursing Vacancies

On March 28 Mr. BEVAN said that there were approximately 28,000 vacancies notified to the Ministry of Labour and National Service on March 11 for nurses of all grades in hospitals and similar institutions in Great Britain. During the six-month period ending Feb. 28 3,239 trained nurses were released from the Forces. The number still in the Services was 8,973.

Road Accidents

Mr. STRAUSS, replying on March 25 to a debate on road accidents, said the Ministry of Transport had been anxious to reintroduce driving tests as soon as possible, but in his view their usefulness could be exaggerated. Few accidents took place as the result of action by motorists who had been only six months on the road. Most of the accidents took place through motorists who had been driving for a long time. He hoped

that driving tests could be introduced in the autumn. No decision had been made on the classes of persons to whom they should be applied.

Doctors in Austria.—Replying on March 21 to Col. Stoddart-Scott, Mr. J. B. HYNDS stated that all posts in the medical faculty of Vienna University were filled except two. The University authorities were at liberty to offer these posts to Austrian doctors in the United Kingdom, but there was no general shortage of doctors in Austria.

Disabilities in Deaf Children.—Asked on March 28 how many deaf children were suffering from epilepsy, marked mental retardation, blindness, and impaired vision, Miss ELLEN WILKINSON said she had no information of the total number of these children in England and Wales. In one special school for the deaf which catered for such children there were 48 who were educationally retarded, 6 who were blind, and 5 who were partially sighted, and a few such children were in attendance at other schools for the blind and the deaf. It was hoped to provide for a group of these children in due course in another school for the deaf. With this additional provision the needs of the whole country would be met.

Notes in Brief

Accounts of income, and expenditure of the General Medical Council and of the Branch Councils and apportionments of the amounts payable to the General Council by the Branch Councils for 1945 were presented to Parliament on March 26.

Sir Ben Smith said on March 27 that there was no prospect of his bringing soap rationing to an end at an early date, nor of his providing extra supplies.

Deafness of any type or category due to war service is accepted for pension purposes. The question of a revision of categories does not therefore arise. Approximately 15,500 compensation awards have been made to persons suffering from disablement due to aural disease or deafness arising out of the war.

Mr. Isaacs has decided to establish a number of rehabilitation centres on the lines of the Egham one in various parts of the country.

A statistical inquiry has been finished into the system of priority permits for milk. Sir Ben Smith is seeking the advice of his medical advisers on certain aspects, but Dr. Summerskill says there does not appear to be serious or widespread abuse of the issue of permits.

Universities and Colleges

UNIVERSITY OF LONDON

The following members of the medical profession have been elected Fellows of University College, London:

Arthur John Gardham, M.S., F.R.C.S., surgeon, University College Hospital; John Collis Hawksley, M.D., F.R.C.P., physician, University College Hospital; Mrs. Elfrida Lilian Gwendolen Hilton (*née* Hill), M.B., B.S., D.M.R.E., F.F.R., radiotherapist, University College Hospital; and Robin Sturtevant Pilcher, M.S., F.R.C.S., professor of surgery, University College Hospital.

UNIVERSITY OF LEEDS

The following candidates have been approved at the examinations indicated:

M.D.—C. E. Astley, H. S. Capoor, J. H. Fodden, E. Leigh, M. M. Nagley, D. Taverner (with distinction), W. Whitaker.

FINAL M.B., Ch.B.—Helen Samson (with second-class honours), C. T. H. Barrett, E. H. Batt, Yvonne Dales, N. Goldberg, H. Hanson, Enid M. Jesse, Joan N. Leedham, A. Levy, N. Mellor, Doreen E. Newland, N. H. Silvertown, Sara I. Sunson, Elizabeth M. Stokes.

The following scholarships and prizes have been awarded: *Littlewood Prize*, Audrey Gillott, R. E. Rossall. *Infirmity Scholarship*, R. E. Rossall. *Birkett Prize*, Audrey Gillott. *Waddington Prize*, Margaret J. Barker. *Hardwick Prize* and *West Riding Panel Practitioners' Prize*, Henriette Lackner. *McGill Prize*, Yvonne Dales. *Scattergood Prize*, Mary M. Matheson.

UNIVERSITY OF WALES

The following candidates for the degrees of M.B., B.Ch. at the Welsh National School of Medicine have satisfied the examiners at the examinations indicated:

HYGIENE.—Margaret E. Davies, Clare G. M. Dillon, S. T. James, M. G. Jones, N. E. H. Jones, K. P. Williams.

PATHOLOGY AND BACTERIOLOGY.—D. R. Bowen, Elizabeth B. Butler, Joan P. Ciantar, A. C. Coulthard, G. C. Davies, H. C. Davies, Janet Dean-Jones, J. A. Emanuel, G. S. Foster, H. Harrop-Griffiths, C. Harvard, C. H. L. Howells, T. R. Hunt, Eluned K. Jones, H. T. Jones, Margaret E. B. Jones, W. R. King, J. B. R. Lewis, L. T. Lewis, Constance A. M. Llewellyn, Margaret I. Morgan, V. J. Parker, F. I. Powell, Myfanwy M. G. Prethero, L. T. Rees, G. G. Richmond, Prudence K. Roberts, S. Solomon, Heather Stoddale.

MEDICINE.—T. J. Anthony, A. H. Beynon, B. L. Crystal, Norah C. Curran, D. K. L. Davies, E. D. Edwards, E. M. L. Evans, D. B. Harries, J. M. Hughes, M. G. Jones, Nest Jones, Bernice G. Lewis, J. M. Lewis, Isobel F. A. Mitchell, Margaret Owen, Barbara M. Parker, Beryl P. Roberts, K. I. Roberts, S. L. Stone, W. D. C. Thomas, D. M. Watkins.

SURGERY.—A. J. Barry, D. K. L. Davies, A. S. Jones, M. G. Jones, R. L. H. Jones, J. M. Lewis.

OBSTETRICS AND GYNÆCOLOGY.—S. T. James, Bernice G. Lewis, B. F. Richards.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The Princess Royal paid an informal visit to the College on March 29. Her Royal Highness, who is an Honorary Fellow, inspected the war damage and the restoration work which is in progress, together with the plans for rebuilding the College. She was also shown the surviving Museum specimens being made ready for exhibition.

Surgery Lectures: An Amendment

Owing to the absence of Mr. J. B. Hunter in Jamaica on Government business, the lecture to have been delivered by him on April 24 will now be given by Mr. T. Holmes Sellors. The title of the lecture will remain the same—i.e., "Surgery of the Heart."

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At a meeting of the Faculty, with Mr. William A. Sewell, President, in the chair, George Howard Bell, M.D. (Glasgow), Leslie John Davis, M.D., F.R.C.P. (Glasgow), Thomas Ferguson, M.D., D.Sc., F.R.C.P.Ed. (Glasgow), Robert Hill, G.M., M.B., Ch.B. (Ayr), Alexander Adam Kirkland, M.B., Ch.B. (Dundee), and James Robertson Preston, M.B., Ch.B., D.P.H. (Glasgow), were admitted Fellows *qua* physician; and Thomas Hugh Crawford Barclay, M.B., Ch.B. (Glasgow), John Cunningham Liddle, M.B., Ch.B., D.L.O. (London), William Laird Milne, M.B., Ch.B. (Milngavie), and Alexander Walker Naddell, L.R.C.P.&S.Ed., L.R.F.P.S. (Glasgow), were admitted Fellows *qua* surgeon.

The Services

Air Marshal Andrew Grant, C.B., C.B.E., K.H.S., has been appointed Director-General of Medical Services, Air Ministry, in succession to Air Marshal Sir Harold E. Whittingham, K.C.B., K.B.E.

CASUALTIES IN THE MEDICAL SERVICES

Died.—Capt. P. G. Fennell, I.A.M.C.

Killed.—Capt. John Mockler, I.A.M.C.

Now officially presumed killed in action.—Capt. Archibald McLellan, R.A.M.C.

Previously reported prisoner of war, now reported died as prisoner of war.—W/Capt. M. G. Graham, R.A.M.C.

Previously reported prisoner of war, now reported missing presumed killed.—Surg. Lieut.-Cmdr. David Noel Ryalls, R.N.V.R.

Wounded.—Major F. Murray; Temp. Major I. Calvert-Wilson; Capt. H. W. Lees; W/Capt. E. D. M. Anderson, J. T. Anderson, M.C., I. H. Baum, R. D. Chalmers, J. D. Comline, G. R. Evans, M.C., R. S. Gibson, E. P. Jones, J. H. McBeath, D. R. I. Mason, D. W. Moynagh, M.C., J. M. B. Pooley, and A. C. Porteous; and W/Lieuts. J. D. Devitt and J. G. Searle, R.A.M.C.

Medical News

The annual general meeting of the Society for the Study of Inebriety will be held at the Medical Society of London (11, Chandos Street, W.) on Tuesday, April 16, at 4 p.m., when Dr. H. J. Norman will give the presidential address entitled "Discursive Thoughts on Alcohol and Drugs," and Dr. W. R. Bett will read a paper on alcoholism and crime in Ceylon.

The annual general meeting of the Food Group of the Society of Chemical Industry will be held on Wednesday, April 17, at 6.30 p.m. at the rooms of the Chemical Society, Burlington House, Piccadilly, W. It will be followed by an address by Dr. C. S. Hanes, F.R.S., on food and phylogeny. The summer meeting of the Food Group will be held in Scotland from May 30 to June 3; the honorary secretary is Mr. L. H. G. Barton, Society of Chemical Industry, 56, Victoria Street, London, S.W.1.

The meeting of the Middlesex County Medical Society arranged for to-day (Saturday, April 13) at Hillingdon County Hospital has been postponed until further notice.

The first post-war annual dinner of the University of Birmingham Medical Society will be held at the Botanical Gardens, Edgbaston, Birmingham, on Friday, June 14, at 7.30 p.m. All past and present students and members of the teaching staff are invited. Tickets 10s. 6d. (graduates) should be obtained from the secretary of the society, the Medical School, Edgbaston, Birmingham, 15. Applications should be made before May 18.

Dr. A. J. Swanton, who has been deputy coroner since 1930, was on March 28 appointed city coroner for Leeds.

Lord Woolton has accepted the office of president of the Health Congress which is to be held at Blackpool from June 3 to 7 next by the Royal Sanitary Institute. The congress will be divided into sections dealing with the following subjects, and presided over by those named: Preventive Medicine, Sir Wilson Jameson, M.D., F.R.C.P. Engineering and Architecture, Sir Reginald Stradling, D.Sc., F.R.S. Maternal and Child Health, the Marchioness of Reading. Veterinary Hygiene, Prof J G Wright, F.R.C.V.S. Food and Nutrition, Prof. S. J. Cowell, M.B., F.R.C.P. Housing and Town Planning, Mr. Norman H. Walls. There will also be conferences of medical officers of health, engineers and surveyors, sanitary inspectors, and health visitors.

Three surgeons from the Argentine are visiting this country. Prof. Egués, who comes under the British Council's auspices, holds the chair of clinical surgery in the University of Buenos Aires. Outside London he will visit Edinburgh, Manchester, Birmingham, and Oxford. Dr. Castro O'Connor, who is plastic surgeon to the Institute of Clinical Surgery, Buenos Aires, and studied with Prof. Florey at Oxford in 1932, and Dr. J. L. Curutchet, formerly surgeon to the Rawson Hospital, Buenos Aires, and surgeon director of the San Martín Hospital at Tabacal, who is specially interested in orthopaedics, are here under the auspices of the O'Connor Scholarship Scheme, but the British Council is helping with their programmes.

The Royal Medico-Psychological Association has changed the date of its May quarterly meeting; this will be held at the Retreat, York, on Friday, May 17, the council and committees meeting on the previous day. The subjects for discussion include child psychiatry and the history of the Retreat. Members who propose to attend should write without delay to Dr. A. Pool, medical superintendent of the Retreat. The annual meeting of the Association will be held at the Royal College of Physicians of Edinburgh on July 17, 18, and 19, with the president-elect, Prof. D. K. Henderson, in the chair.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales further rises occurred in the incidence of measles 270, whooping-cough 184, and scarlet fever 182, while a fall was recorded for diphtheria 58 and dysentery 43.

The rise in the notifications of measles was mainly contributed by London and Lancashire, with increases of 167 and 69, while the only decrease of any size was Norfolk 43. The feature of recent measles returns is the relatively large incidence in London, where one-third of the total cases have appeared during the past three weeks.

A small general rise in scarlet fever was reported, the only large local increase being Glamorganshire 33. The largest variations in the local trends of whooping-cough were an increase in Hertfordshire 62 and a decrease in Essex 33. Notifications of diphtheria fell in Yorkshire West Riding 22 and London II, but rose in Northumberland 11.

An outbreak of dysentery involving 24 persons was reported from Staffordshire, Stoke-on-Trent C.B. Of the 104 cases in Lancashire, 53 were from the outbreak in Chorley M.B. Other large totals were those of London 26, Leicestershire 25, Warwickshire 20, Middlesex 14, Essex 13.

In Scotland an increase of 26 in cerebrospinal fever resulted in the largest weekly total of recent months. Diphtheria returned to its recent level with an increase of 60 cases. Rises were also reported for measles 35, scarlet fever 28, and dysentery 25. The largest returns for dysentery were Glasgow 16, Edinburgh 11, and Renfrew County 13.

In Eire there were increases in primary pneumonia 30, whooping-cough 23, diarrhoea and enteritis 15; and decreases in scarlet fever 19, and diphtheria 7.

In Northern Ireland the only change was an increase of 23 in scarlet fever, due to isolated cases in several areas.

Statistical Review, 1941

The statistical review of the Registrar-General, which, except for a limited number of copies for 1939 and 1940, has not been published during the war, makes its reappearance with Part I (Medical) for 1941. Two important changes have been introduced. The system of using the 1901 population as a basis of standardized death rates is to be replaced by a new procedure for standardizing mortality for comparative purposes. For the first time the actual number of births occurring in a calendar year are shown, instead of those which were registered in that year.

Week Ending March 30

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,393, whooping-cough 2,092, diphtheria 478, measles 2,282, acute pneumonia 1,079, cerebrospinal fever 74, dysentery 356, paratyphoid fever 4, typhoid fever 8, smallpox 2. Deaths from influenza in the large towns numbered 50.

No 12

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 23

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	67	5	58	1	1	88	5	27	2	5
Deaths	..	..	..	..	..	..	..	..	..	..
Diphtheria	417	22	115	43	14	499	25	(4)	96	10
Deaths	..	..	..	..	..	..	..	..	..	..
Dysentery	332	26	74	1	—	420	69	205	2	1
Deaths	..	..	..	..	..	..	..	..	..	..
Encephalitis lethargica, acute	—	—	—	—	—	1	—	1	—	—
Deaths	..	..	..	..	..	..	..	..	..	..
Erysipelas	—	—	55	10	2	—	—	44	9	2
Deaths	..	..	..	..	..	..	..	..	..	..
Infective enteritis or diarrhoea under 2 years	—	—	—	53	—	—	—	—	12	—
Deaths	..	..	..	..	..	..	..	..	..	..
Measles*	1,875	597	571	33	1	25,507	1601	430	43	41
Deaths	..	..	..	..	..	..	..	..	..	..
Ophthalmia neonatorum	67	9	9	—	1	81	5	7	2	—
Deaths	..	..	..	..	..	..	..	..	..	..
Paratyphoid fever	4	—	2(B)	—	—	3	1(B)	—	—	—
Deaths	..	..	..	..	..	..	..	..	..	..
Pneumonia, influenza	976	60	35	21	3	866	45	7	9	6
Deaths (from influenza)	..	..	..	..	..	..	..	..	..	..
Pneumonia, primary	77	10	7	3	4	28	4	3	1	1
Deaths	..	..	..	..	..	..	..	..	..	..
Polio-encephalitis, acute	82	339	58	20	13	—	41	250	41	10
Deaths	..	..	..	..	..	..	..	..	..	..
Polio-encephalitis, acute	1	—	—	—	—	1	—	—	—	—
Deaths	..	..	..	..	..	..	..	..	..	..
Polio-myelitis, acute	8	—	—	1	—	4	—	—	1	—
Deaths	..	..	..	..	..	..	..	..	..	..
Puerperal fever	—	3	7	—	—	—	5	6	—	1
Deaths	..	..	..	..	..	..	..	..	..	..
Puerperal pyrexia†	142	5	18	—	—	173	11	14	4	—
Deaths	..	..	..	..	..	..	..	..	..	..
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	..	..	..	..	..	..	..	..	..	..
Scarlet fever	1,325	104	192	12	37	1,522	53	201	21	34
Deaths	..	..	..	..	..	..	..	..	..	..
Smallpox	—	—	13	—	—	—	—	—	—	—
Deaths	..	..	..	..	..	..	..	..	..	..
Typhoid fever	—	6	—	1	9	—	8	—	7	7
Deaths	..	..	..	..	..	..	..	..	..	..
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	..	..	..	..	..	..	..	..	..	..
Whooping-cough*	2,190	192	122	48	4	1,453	68	172	49	12
Deaths	..	..	..	..	..	..	..	..	..	..
Deaths (0-1 year)	478	69	73	35	16	387	53	44	42	20
Deaths (excluding stillbirths)	6,197	972	846	257	163	4,996	705	600	261	149
Annual death rate (per 1,000 persons living)	..	..	..	..	..	..	..	..	..	..
Live births	8,198	1199	1024	346	270	6,366	739	833	351	245
Annual rate per 1,000 persons living	..	..	..	..	..	..	..	..	..	..
Stillbirths	245	32	42	—	—	220	20	35	—	—
Rate per 1,000 total births (including stillborn)	..	..	..	..	..	..	..	..	..	..

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ One case removed from a troopship.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Atiology Westcent*, London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association. TELEPHONE: EUSTON 2111. TELEGRAMS: *Medisecra Westcent*, London.

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Penicillin for Styes

Q.—*An otherwise healthy child aged 2 suffers from recurrent styes. No local treatment has been applied except penicillin cream to one particularly severe sty, and this was effective. I am advised that as the infection is apparently staphylococcal a single penicillin injection would probably clear up the condition. Is this correct?*

A.—A single injection of penicillin, however large the dose, will not clear up anything (with the possible exception of gonorrhoea). For the treatment of any staphylococcal infection intramuscular injections would have to be continued three-hourly day and night for at least several days. Such treatment is certainly not indicated in the case described, both because it is extravagant and troublesome and because it might well fail. Blepharitis calls for local treatment, and the application of penicillin cream, continued patiently for a week whether any styes appear or not, will probably eradicate the infection.

Asthma at Menopause Age

Q.—*A female patient aged 43 was diagnosed some nine months ago as a case of spastic bronchitis. The patient's chest condition this winter has appeared even more "moist" than last winter. Her breathing, especially at night, is noisy, and there is some dyspnoea on exertion. She does not smoke. I note a reference to menopausal rhinitis in the issue of March 2 (p. 341). May an approaching menopause in my patient, though there seems little definite evidence of this, have any bearing on her condition?*

A.—The history of noisy breathing at night is suggestive of asthma; if the sputum is purulent it is probable that a bronchial infection is an important factor. The menopause is not likely to be the cause of the condition. The patient should be investigated by skin tests in regard to sensitivity to dust, feathers, etc. It might be worth while trying the effect of removing all feathers and dust, etc., from the bedroom. In brief, the full investigation of an asthmatic should be undertaken.

Rhinitis after Alcohol

Q.—*For nearly ten years I have suffered from allergic rhinitis with recurrent polyp formation. Half an hour after taking any wine, spirits, or beer, acute rhinitis develops. Is it possible to desensitize myself against this? And if so, what method should I use?*

A.—Since the allergic rhinitis occurs with different varieties of alcohol, the offending agent must be the alcohol and not the grain or fruit from which the particular variety of alcohol is made. It is unlikely that the reaction is allergic in the narrow sense, for there is no evidence that alcohol can act as a haptene or change the body proteins in such a way as to give rise to drug allergy. It is much more likely that the alcohol dilates the vessels of the polypi and nasal mucosa, and this in turn gives rise to a reflex rhinorrhoea. It would not be possible to desensitize, as vasodilatation is the normal physiological response to alcohol. Inhalation of amphetamine ("benzedrine") or carbon dioxide (Bray, G. W., *Recent Advances in Allergy*, 3rd edit., 1937, p. 309) might give relief. It is also believed that alcohol may pave the way for allergy by increasing

the permeability of the gastro-intestinal mucosa to proteins ingested at the same time. For this there would seem no remedy except abstinence.

Arsenic and Horse-nettle

Q.—*An epileptic woman aged 27 has been taking for nine years 1½ oz. (14 ml.) of the following prescription, three times a day: liq. arsenicalis 1 dr. (3.5 ml.), pot. brom. 5 dr. (17.5 ml.), sod. bicarb. 4 dr. (14 ml.), tr. belladonnae 2 dr. (7 ml.), ext. Solanii carolinense 14 dr. (49 ml.), aqua ad 12 oz. (340 ml.). What is ext. Solanii carolinense? Why does she not develop arsenical poisoning?*

A.—Ext. *Solanii carolinense* is an extract of the American horse-nettle, which grows in the Southern States, and presumably in Carolina. The liquid extract (1 in 1) has been employed in epilepsy, the dose being 15 to 60 min. (0.9 to 3.5 ml.). It contains a toxic principle, solatubine, which seems to be the same as the saponin-like substance, solanine, found in various species of *Solanum*. There is also said to be an organic acid, solanic acid. The American horse-nettle is sometimes called "apple of Sodom."

The second question, why the patient does not develop arsenical poisoning, is answered by saying that the patient does not receive enough arsenic trioxide for that to happen. Calculation shows that her daily intake is not more than 5 mg., or about 1/12 gr., and this is an amount likely to develop resistance to arsenic when taken regularly. The single toxic dose is 100 mg., or 1½ gr.

Death in an Ambulance

Q.—*When a patient dies while being transported by ambulance what is the correct procedure?*

A.—If a patient should die while being transported by ambulance the driver should take the body to the nearest hospital, or to the hospital to which the patient was travelling, for verification of the fact of death. The hospital may or may not take the body into their mortuary, or may direct the driver to the city mortuary. It is the duty of the driver to notify the police, who in turn will notify the coroner, if in England, or the fiscal, if in Scotland, who will take the necessary steps concerning the disposal of the body. If the body is taken to a hospital mortuary it is customary for the hospital authority to notify the police.

Rectal Prolapse

Q.—*What is the best treatment for rectal prolapse with a large sphincter and moderately severe pruritus ani? Cauterization and injections of sclerosing fluid have been tried with no success.*

A.—If the prolapse is large and very troublesome and thorough palliative treatment has been a failure, then the patient should be submitted to operation. The most favoured operation at present is simple amputation of the prolapse from below with suture of the divided ends of the bowel. Operation gives the most satisfactory results and does not carry any risk.

Infection by Epidermophyton of Sabouraud

Q.—*A patient has had for twenty years or more a dry, scaly condition between the fifth and fourth toes, worse in the summer, with occasional cracks of the skin which are not very painful. What is the condition and how can it be cured?*

A.—The condition as described above is probably caused by infection with the epidermophyton of Sabouraud. The diagnosis can be verified by microscopical examination of the epidermis. This is a useful preliminary to treatment, since all interdigital lesions are not necessarily due to a ringworm fungus. In spite of the introduction of many new applications, Whitfield's ointment and Castellani's fuchsin paint are still the best topical applications. The long history in this case is against the prospect of easy or rapid cure.

Splenectomy

Q.—*What are the indications for splenectomy, and what is the rationale in each instance for this line of therapy?*

A.—The only absolute indication for splenectomy is rupture of the spleen; in more medical conditions the recommendation

of splenectomy usually has to be qualified. It should also be noted that with modern methods of investigation and treatment, ensuring accurate pre-operative diagnosis and adequate preparation by transfusion, etc. the risk of operation has been greatly diminished.

Splenectomy practically always arrests the symptoms of familial acholuric jaundice, and should be recommended when ever the anaemia, jaundice or cholelithiasis is bad enough to bring the patient under medical attention. Splenectomy is of no value in other congenital haemolytic anaemias such as sickle-cell anaemia and Mediterranean anaemia. In acquired haemolytic anaemia the effect of splenectomy is always problematical and the more the blood picture departs from that of acholuric jaundice the less likely the operation is to be successful. Patients with frank megalocytosis hardly ever do well. In acute haemolytic anaemia not responding to transfusion the patient should always be given the chance of benefiting from splenectomy, but not too much should be promised.

Splenectomy is the only effective remedy for thrombocytopenic purpura, but there is a small proportion of failures and the relief is not always permanent. As thrombocytopenic purpura may remit spontaneously, splenectomy is not usually advised unless the purpura is established and chronic, or the symptoms are urgent and endanger life.

The third commonest indication for splenectomy is splenic anaemia. In most if not all, cases of splenic anaemia the disease begins in the liver and the splenomegaly is merely a symptom of portal hypertension. Operation is justifiable only if the spleen itself is producing ill effects such as local pain and dragging thrombocytopenia, or extreme leucopenia. Splenectomy cannot be expected to prevent haematemesis in splenic anaemia, as this is usually due to oesophageal varices. Similar considerations govern the removal of the spleen in Gaucher's disease, sarcoidosis and some of the Hodgkin's group of reticulososes. It is legitimate to remove the spleen when it is acting as a painful tumour or producing severe leucopenia or thrombocytopenia.

The only absolute contraindications to splenectomy are osteoclerosis and myelofibrosis, where the spleen enlarges to take over the functions of the bone marrow, though it must be confessed that the enlargement is often sadly excessive and unproductive.

Pelvic Measurements of Western Women

Q.—*Mary W. Hamilton in the 'Fortnightly Review' (Dec 1945) states that the pelvic measurements of Western women are getting smaller with each generation particularly in the towns. Can you tell me whether this assertion is founded on any accurate observations?*

A.—With the development of civilization and particularly the growth of large industrial centres, with the shift of population from the country to the towns, there can be little doubt that the incidence of contracted pelvis increased. This was mainly due to rickets, or at least was a manifestation of poor living conditions, overcrowding, inadequate diet, etc. The difference between urban and rural dwellers is still to be seen in some areas. Thus H. R. MacLennan (*J. Obstet. Gynaec. Brit. Emp.*, 1937, 44, 245) reported that, whereas contracted pelvis—mainly due to rickets—was very prevalent in Glasgow and other industrial areas it was rare in the country areas of Scotland. The effect of civilization, or rather unhealthy living conditions, is also shown by the frequency of contracted pelvis among negroes in American cities.

Nevertheless, the living conditions and the general health of even the poorer classes in the Western countries are rapidly improving, and have been improving for a few generations. The general physique of women is better, rickets is becoming comparatively rare and contracted pelvis is less common. Although a few "black spots" remain, this is true even for large congested areas, such as London. We no longer have to deal with cases of gross pelvic contraction—such as confronted obstetricians at the end of the last century. The size of the pelvis is largely a reflection of the general physique of a woman. With the improvement which has come about during the last few decades it would be difficult to substantiate the statement quoted above.

The article mentioned is not available for study, but perhaps the author was referring to characteristics other than the size

of the pelvis. It is alleged, as a result of comparison between the ease of labour in primitive and in Western peoples, that the drift from "Nature" has affected the shape of the pelvis and the mobility of its joints. The unnatural postures and work of modern women are said to make the inlet less round. However, these comparisons are difficult to interpret, for other factors such as the size of the foetal head in different races, the efficiency of the uterus and the psychological approach to labour enter into consideration. This aspect of the case is dealt with by Kathleen Vaughan in *Safe Childbirth* (1937, Looe—Bailliere, Tindall and Cox).

New Antibiotics

Q.—*The bacteriological and biochemical literature is full of the results of experimental work in the field of antibiotics. Are there any antibiotic substances other than the sulphoamides and penicillin worthy of a place in routine clinical therapeutics? Must our specific therapeutic attacks end where we have proved an infection to be caused by sulphoran-de and penicillin resistant organisms?*

A.—The answer to the first part of this question is Yes—tyrothricin and streptomycin. The former is on the market, and it is to be hoped that the latter will eventually be available in England. At present supplies of streptomycin are very meagre even in the U.S.A., which is the country of its origin. There are several other antibiotics which give promise of therapeutic value for particular purposes. The numerous papers to which the questioner refers are chiefly accounts of early stages in the work which has to be done before such a substance can establish itself in therapeutics. To show that it has an antimicrobial action is only a beginning; it is then necessary to study its toxicity and other features of its behaviour in the body. It may also be a long process to work out a method by which a substance can be adequately purified. Finally, the manufacturer has to face the hazards and difficulties of production on a commercial scale, and only after this can adequate clinical trial be begun. It is five years since the outstanding therapeutic properties of penicillin were recognized yet even now supplies of it are limited. Progress even in times of peace with further antibiotics which merely extend the scope of such treatment cannot be expected to be much more rapid.

"BAL"

Q.—*Now that BAL is off the secret list I would like to know if it was issued to any of our Services or A.R.P. during the war. Some American doctors told me that it had been issued to American troops.*

A.—BAL was issued to the medical services and to the Ministry of Health for hospital use. The ointment was never a personal issue to British Forces, though production of personal outfits was in hand at the cessation of hostilities. British troops were, however, provided with eye shields which, like the respirator, afford complete protection to the eyes not only against lewisite but also against other gases in the form of spray or droplets. BAL was a personal issue to American troops in the Pacific area and S.E. Asia but eye shields were not used by the U.S.A.

Altitude and High Blood Pressure

Q.—*What effect has high altitude or blood pressure? Should patients suffering from high blood pressure leave such altitudes—for example in Iraq?*

A.—For permanent residence altitudes below 5,000 ft. (1,524 m.) have very little effect on the circulatory system. From 5,000 to 10,000 ft. (1,524 to 3,048 m.) circulatory effects begin to appear, and from 10,000 to 15,000 ft. (3,048 to 4,572 m.)—e.g., in Chile and Bolivia—the circulatory effects become important and a number of special conditions attributable to altitude are found among the higher age groups of the population—e.g., Monge's disease.

I think the questioner's interest is undoubtedly in the 5,000 to 10,000 ft. altitudes. Here there will be an increased red cell blood count, leading to increased blood viscosity, this adds considerably to the work of the heart and is often accompanied by a rise in blood pressure, in fit individuals this should not amount to more than 15 mm. Hg. There is also a loss of buffer substances from the blood, which makes respiration very unstable to exercise. Altitude is an added stress to high

blood pressure, and altitudes above 10,000 ft. (3,048 m.) are undesirable in such cases. Altitudes less than 5,000 ft. (1,524 m.) are unlikely to be a serious factor aggravating the condition. Between 5,000 and 10,000 ft. the morning basal resting pulse should be a guide to indicate whether the condition is sufficiently serious to warrant the patient going to a lower altitude. If this is more than 20 beats per minute above the normal expected at sea level for a patient of the build, age, and habits of the case under consideration, this should be grounds for going to a lower altitude if possible.

INCOME TAX

Replacement of Instruments and Books

A. C., who is in the public health service, has been refused a request for an allowance of the cost of replacing out-of-date medical textbooks.

* The expenses rule applicable to the earnings of employment is a stringent one. To be allowable the expenses under Schedule E must be incurred "wholly, exclusively, and necessarily in the performance of the duties" of the employment. The difficulty in such a case as this arises out of the word "necessary." The courts have held that expenses of the kind specified cannot be regarded as necessary unless the maintenance of the asset—i.e., the medical library—is required as a condition of the employment.

Newcomer to the United Kingdom

R. W. came to this country in February, 1945, to take up a salaried appointment. Should he not be taxed for the period to April 5, 1945, as if the income for that period were the income for a full year?

* Yes—i.e., the full year's "personal" and any other allowances should be set against the income for the period in question. If tax has been paid on the basis that only a proportion of the allowances was given, R. W. is advised to take the matter up with the inspector of taxes. (It is assumed that R. W. ranks as a British resident for 1944-5; that carries with it liability to tax on income arising abroad but received in this country.)

Pensioner: Deduction of Tax

G. C. B. has two sources of income falling under "pay-as-you-earn," and tax is deducted at 10s. in the £ from the income arising from one of the two sources. Can this be correct?

* Each taxpayer is entitled to certain allowances—the "personal allowance," the "relief in respect of earned income," and so on. If all these allowances are given from one source of income, the fact that other sources are taxed at the standard rate would be correct. G. C. B. should have received a "coding notice" showing what allowances have been made in connexion with that source of income which is taxed at less than 10s. in the £; and reference to that notice should show whether he is receiving *all* his allowances from that source.

Whether within "Pay-as-you-earn"

"D. X." has returned to his partner on demobilization on the following terms: "D. X." receives a basic salary plus a proportion of the profits. He pays his own expenses for car, telephone, surgery, and maid. Does he come under "pay-as-you-earn"?

* On these facts it is assumed that "D. X." works in the practice as an employee and not as a partner, and on that assumption he is within "pay-as-you-earn." His "coding" should take into account the probable amount of his expenses, as well as the personal allowances he can claim. It is advisable to get in touch with the local tax office suggesting that if they insist on the application of "pay-as-you-earn" in these circumstances, then an allowance for expenses amounting to a specified sum (giving some details) should be incorporated in the coding.

Additional Emoluments: Expenses

"ORTHOPOD" is a specialist in a Service hospital but looks after some civilian patients and receives money for so doing from the county council. Can he deduct expenses incurred in running a car, subscribing to professional journals, etc.?

* If the work done for the county council is the result of an appointment under the council, the fees received would presumably be emoluments of an employment assessable under Schedule E, and these expenses would not be allowable. That is probably the case; but if "Orthopod" can persuade the local tax authorities that the fees are of such a nature that they are chargeable under Schedule D, then he can claim a reasonable expenditure on professional journals. If the car is used (apart from private purposes) only, or almost exclusively, for travelling between his residence and the hospital the expense is not allowable under either Schedule D or Schedule E.

LETTERS, NOTES, ETC.

Interstitial Mastitis

Mr. JAMES PHILLIPS (Bradford) writes: With reference to the question and answer on this subject (March 23, p. 458) may I suggest that the advice to treat by "masterly inactivity" a patient who has an "area of typical interstitial mastitis" in the left upper quadrant of a breast is fraught with danger? During a long surgical life it has been my misfortune to have to deal with quite a number of cases in which the result of acting in this way has been the loss of the patient's life. In one instance the victim was a hospital matron and the surgeon one of her "chiefs." I well remember an early morning visit from a doctor friend who burst into my consulting room and exclaimed, "Phillips, I have killed my wife!" He went on to explain that two years earlier he had been asked to look at his wife's breast; had decided that her condition was mastitis and told her that there was nothing to worry about. Of course the patient who is given this verdict must either accept it unquestioningly and forget about her symptoms or else wonder whether there can possibly be the beginning there of a malignant growth. The doctor's wife, having complete confidence in her husband's ability, was able to adopt the first alternative and only on that morning had she casually remarked that the condition of the breast was altering. On examination a fully developed cancer with evident metastases was disclosed. Had this patient been less certain of the correctness of her husband's verdict or had he suggested to her that she should be "kept under periodic observation in view of the possibility of a malignant change" it does not require a vivid imagination to picture the ever-present—though largely subconscious—awareness that some day, instead of the "no need to worry" verdict, there might be an intimation that an extensive operation was required in order to deal with a condition in which the prospects of cure were far from certain. Contrast such a patient's mental state with that of a patient from whom I removed a breast for simple mastitis and who, whenever I see her, beams and tells me that the operation removed from her mind a never-entirely-absent dread lest a cancer was going to develop in her breast. At the age of 46 at least 3 out of 4 "indurations" in the breast, in my experience, prove to be malignant.

Proctalgia Fugax

Dr. E. GALLOP (London, S.W.1) writes: I have sometimes thought that this condition could be cured by a local anaesthetization of the rectum, but I have not seen a case for years and I have had no opportunity of trying. Perhaps one of your contributors will. The procedure is simple. A suppository of novocain, or one of its many analogues which a pharmacist can easily dispense, is pushed well into the rectum. I should expect the pain quickly to disappear and recurrences to be infrequent. If there is one it could be treated in the same way, and I fancy there would soon be an end to them.

Nicotinic Acid Amide in Diabetes

Dr. W. GORDON writes to say that his letter on this subject published in the *Journal* of Feb. 9, 1946 (p. 218), brought him several replies. He was then in the course of moving house and the letters have been lost. If his correspondents will send him their addresses again to 49, St. Margaret Street, Rochester, Kent, he will immediately reply.

The Source of a Quotation

Dr. A. F. FOSTER-CARTER (Frimley) writes: The views expressed by Dr. Clifford Allen (March 23, p. 449) are so admirable that I risk a charge of pedantry by drawing attention to a minor inaccuracy. However, I would like to point out that Isaac Newton was not the author of the remark "There, but for the grace of God, etc." The *Dictionary of National Biography* ascribes the saying to John Bradford (1510?-1555) on seeing some criminals being taken to execution. It has also been attributed, but probably wrongly, to Richard Baxter (1615-1691), on seeing a drunkard in a ditch.

Long Run of B.M.J. for Disposal

Dr. R. S. CREED, New College, Oxford, will give, in return for cost of packing and transport, an unbound set of the *Journal*, believed complete, from July, 1923, to December, 1945, to a library or institution requiring it. Applications should be sent to him as soon as possible.

New Year Honours

By an oversight the name of Col. Charles Girdlestone Terrell, M.B., Ch.B., lately Member of the Assam Legislative Assembly, Medical Officer, Indian Tea Association, Assam, was omitted from the Medical New Year Honours published in the *Journal* of Jan. 12 (p. 60). He was appointed O.B.E. (Civil Division).

Another omission from our New Year Honours List has been brought to our notice. Squad. Ldr. (then Fl. Lieut.) Geoffrey Hugh Templeman, M.B., Ch.B., R.A.F.V.R., was appointed M.B.E. (Military Division).

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IRITIS IN THE RHEUMATIC AFFECTIONS

BY

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The designation of 'rheumatic iritis' has almost followed 'scrofulous ophthalmia' into oblivion. In an attempt to assess the frequency of iritis in the rheumatic affections 815 patients suffering from various forms of "rheumatism" were examined for evidence of active or past iritis. As these patients were seen at clinics for the treatment of rheumatic affections or in the wards of general hospitals slit lamp examination could not be carried out and only exceptionally was a mydriatic used. The eyes were inspected through a loupe under focal illumination, posterior synechiae or inflammatory pigment deposit were taken as evidence of past iritis. Evidence of iritis was also sought in a control series of in patients in the general wards. As it is possible that there may be a sex difference in the incidence of iritis—as there undoubtedly is in some of the rheumatic affections—the findings are best considered for the two sexes separately.

significant (Chance 1/21, but if deviation which is in the expected direction is allowed for the chance is 1/42). In both men and women, age—assuming that with increasing age there is an increase in the tendency toward iritis in the general population—would affect the computations only slightly.

Spondylus Arthropoietica—The 8 cases observed in women showed no instance of iritis, while the 45 men had three with iritis. This incidence in men is significant when compared with the control series (Chance 1/56, without allowing for direction the effect of age would increase significance, as the group with ankylosing spondylitis is younger than the control group. Similarly, because of the lower incidence of iritis in the female

TABLE I—Incidence of Iritis in Patients Suffering from Various Rheumatic Affections and in a Control Series (Males)

Age Group (Years)	Control Series	Rheumatoid Arthritis	Gout	Infective Arthritis	Bursitis	Capsulitis etc.	Indefinite
0-5	—	—	—	—	—	—	—
6-14	—	—	—	—	—	—	—
15-20	2	—	—	—	—	—	—
21-30	27	—	—	—	—	—	—
31-40	55	—	—	—	—	—	—
41-50	78 (1)	—	—	—	—	—	—
51-60	73 (1)	—	—	—	—	—	—
61-70	75	—	—	—	—	—	—
71-80	43 (1)	—	—	—	—	—	—
81 and over	7	—	—	—	—	—	—
	379 (3)	57	3	63 (3)	48 (2)	31	25

Numbers in the vertical columns = number examined of affection named. Numbers in parentheses indicate the number found suffering from iritis.

TABLE II—Incidence of Iritis in Patients Suffering from Various Rheumatic Affections and in a Control Series (Females)

Age Group (Years)	Control Series	Rheumatoid Arthritis	Gout	Infective Arthritis	Bursitis	Capsulitis etc.	Indefinite
0-5	—	—	—	—	—	—	—
6-14	—	—	—	—	—	—	—
15-20	16	—	—	—	—	—	—
21-30	24	—	—	—	—	—	—
31-40	51	—	—	—	—	—	—
41-50	53 (1)	—	—	—	—	—	—
51-60	50	—	—	—	—	—	—
61-70	42	—	—	—	—	—	—
71-80	48	—	—	—	—	—	—
81 and over	12	—	—	—	—	—	—
	316 (1)	90	4	264 (12)	8	92 (3)	65

Frequency of Iritis in a Series of 815 Cases of Rheumatic Affection

The following summary table based on Tables I and II brings out the salient findings

Incidence of Iritis in 815 Cases of Different Forms of Rheumatic Affection

	Male		Female		Total	
	No of Cases	No Showing Iritis	No of Cases	No Showing Iritis	No of Cases	No Showing Iritis
Rheumatoid arthritis	68	3	264	12	332	15
Acute and subacute rheumatic fever	57	—	90	—	147	—
Still's disease	3	—	4	—	7	—
Fibrositis	25	—	65	—	90	—
Osteoarthritis	31	—	92	3	123	3
Infective arthritis	4	—	7	—	11	—
Spondylitis ankylopoietica	45	3	8	—	53	3
Gout	5	—	8	—	13	—
Bursitis, capsulitis, and allied conditions	6	—	14	—	20	—
Scatica	5	—	—	—	5	—
Indefinite conditions	6	—	8	—	14	—
Total	255	—	560	—	815	—

These findings suggest that the only three conditions that call for consideration are rheumatoid arthritis, spondylitis ankylopoietica, and osteoarthritis.

Rheumatoid Arthritis—The occurrence of 12 cases of iritis in 264 women with rheumatoid arthritis when compared with the one case in the control series of 316 (Table II) is statistically significant. The chance is somewhat less than 1/1000 that one would draw, from a homogeneous population having the pooled frequency of the two samples, two samples differing by this amount or more. In contrast the occurrence of three cases of iritis in 68 men with rheumatoid arthritis (Table I) is just

control group the significance becomes enhanced when the male and female cases are considered together.)

Osteoarthritis.—Of the total of 123 cases 92 were females and 31 males. The three instances of iritis observed were all in women (of whom one was suffering from long-standing diabetes). Statistically, the incidence of iritis in this group is significant as compared with the control group of women, there being 27 chances to 1 against such an incidence as a chance phenomenon. The odds become reduced to 14 to 1—and therefore non-significant—if the total of 123 cases of osteoarthritis in the two sexes is regarded as one group showing three cases of iritis.

Type of Iritis Observed

Iritis in the Control Cases (Tables I and II)

The three men (in a series of 379) who showed iritis were 49, 55, and 72 years of age respectively. The first patient was dying from carcinoma of the lung; in the second the Wassermann reaction was positive; both these patients showed iritis in both eyes. In the man aged 72 the iritis was confined to the right eye and the patient was suffering from haematuria. The one woman (in a series of 316 controls) who showed iritis suffered from indefinite symptoms, and the inflammation was confined to the right eye. In none of these patients was the iritis active.

Iritis in the Patients with Rheumatic Affections (Tables I and II)

Rheumatoid Arthritis.—In a total of 332 cases with rheumatoid arthritis (264 women and 68 men) there were 15 patients showing iritis. The ages of these patients ranged between 23 and 82 years. In only one case was the iritis acute (in a woman aged 37), and in only three cases was the condition bilateral (in a woman aged 49, and in two men aged 23 and 65). In three patients there was a possibility of an aetiological factor other than rheumatoid arthritis. One woman aged 43 gave a history of iritis in the left eye at the age of 34 following an attack of mumps. She had been suffering from rheumatoid arthritis since the age of 23, and the attack of mumps precipitated not only the iritis but a considerable flare-up of rheumatoid arthritis. In another woman, aged 41, there had been repeated attacks of iritis in the left eye; she was suffering from rheumatoid arthritis confined to the right hip, and had previously had tuberculosis of that joint. There was nothing in the appearance of the iris reaction to suggest tuberculosis. In a man aged 65 there was a history of bilateral iritis which came on at the age of 38, after he had received an injection of antidyentery serum in the Army in 1918. There was a simultaneous reaction in the joints, and he had been told that he was suffering from serum arthritis and iritis. The second attack of iritis, confined to the left eye, occurred at the age of 40. Some years later—probably as long as ten years after—he showed evidence of rheumatoid arthritis. Now, at the age of 65, he has rheumatoid arthritis confined to the smaller joints.

In only two of the 15 cases was the iritis severe. In the youngest patient, a man aged 23, the rheumatoid arthritis was exceptionally severe. It had begun at the age of 15, and iritis had developed at 19. Now, at the age of 23, he is bedridden and little more than an ossified skeleton, as there is severe involvement of the spine in addition to the other joints. He has no perception of light and the tension is -2 in each eye, the eyes having shrunk through repeated attacks of severe plastic iridocyclitis. In the second patient, a woman aged 49, severe rheumatoid arthritis set in at the age of 20, but the eye trouble appears to have come on before then, and to have relapsed frequently. She is certifiably blind from chronic iridocyclitis. The striking features in the remaining 13 cases are the unilateral distribution of the iritis and its mildness. In five of these 13 cases the patient had experienced more than one attack of iritis, but none of them showed any evidence of cyclitis.

Though it is difficult to be emphatic on this point, because the histories were not always reliable, it appears that with one possible exception the iritis did not precede the development of rheumatoid arthritis, and the impression was gained that iritis is more apt to develop in long-standing cases than in cases of shorter duration. Though the two most severe cases of iritis (or rather iridocyclitis) occurred in patients severely affected,

the severity of the condition, as distinct from duration, did not seem to be directly related to the tendency towards iritis.

Ankylosing Spondylarthritis.—The three cases of iritis observed all occurred in men, their ages being 26, 35, and 38 years, respectively. In the youngest of these patients an attack of iritis in the left eye had occurred at the age of 15. The second attack developed three years later, and subsequently, at the age of 20, the first signs of ankylosing spondylitis developed. He has since had one further attack of iritis, also confined to the left eye. In the second patient there was a history of vague polyarthritis at the age of 23. His condition had then been diagnosed as rheumatic fever. His first and only attack of iritis occurred at the age of 28. This was followed by a flare-up in the joint condition, which still presented difficulty in diagnosis. It was not until the age of 34 that a definite diagnosis of ankylosing spondylitis involving hands and feet was made. In the third patient there had been a well-established ankylosing spondylitis for some years when iritis developed in the right eye at the age of 35, and in the left eye two years later. In none of these patients was there any evidence of ciliary involvement.

In these three patients the iritis was therefore a pointing sign in one case. Their spondylitis was of moderate severity, and in none was there any evidence of gonococcal infection. Some of the remaining patients with ankylosing spondylitis who did not show iritis were affected as severely as, or more severely than, these three men.

Osteoarthritis.—Iritis was observed in three of the 92 women with osteoarthritis. Their ages were 52, 73, and 80 years. All the three patients had unilateral iritis, and in one case—the patient aged 73—there was a history of long-standing diabetes. In no case was the iritis severe or associated with a cyclitis.

Incidental Ocular Findings

Among the patients with rheumatoid arthritis the following apparently incidental ocular findings were noted: senile cataract, four times; loss of eye through accident, three times; glaucoma, twice; and one instance each of Argyll Robertson pupil, rosacea keratitis, filamentary keratitis, mustard-gas keratitis, interstitial keratitis, corneal opacity, and vascularized nodule on the cornea. The osteoarthritis group showed three cases of cataract, while one of the patients with Still's disease had a leucoma. Congenital cataract was seen once among children with rheumatic fever and once among the patients suffering from fibrositis.

Review of Literature

Spondylarthritis Ankylopoietica

The monograph literature on spondylarthritis ankylopoietica speaks of the occurrence of iritis in the course of the affection as an established fact. Thus Ehrlich (1930) mentions that 65 instances of iritis occurred in a series of 753 patients with spinal-column affections (of which 493 were cases of spondylitis deformans and 260 [and possibly only 152] of spondylitis ankylopoietica). Krebs (1938) likewise implies that iritis is a not uncommon association of spondylarthritis ankylopoietica, and instances the case of a young ophthalmologist who developed iritis and choroiditis some few years before showing the signs of spondylarthritis. Gilbert Scott (1942) notes that there were 20 cases of iritis in "some 300" patients with ankylosing spondylitis. References in the same strain abound in the earlier literature. Thus Wehrsig in 1910 stressed the "surprising frequency" of iritis in "Wirbelsäuelungsteifung," whilst isolated instances are noted in a number of case reports (Leri; Fraenkel; Siven; Anschütz). More recently Fischer and Vontz (1932) noted the occurrence of iritis in three of their 100 patients, while Wolff (1935) observed it six times in 15 cases.

These general observations were considerably clarified in 1933 by the simultaneous publications of Heuser, Marbaix, Kunz, and Teschendorf.

1. Heuser.—In recording a case of bilateral severe iridocyclitis with secondary glaucoma Heuser drew attention to the associated spondylarthritis ankylopoietica (which he regarded as gonococcal in origin) and also to the incidental observations of orthopaedic surgeons as to the association of the two affections.

2 Marbaix—This observer likewise stressed the association of the two affections in a patient under his care. Marbaix's patient, in contrast to Heuser's, became blind as did the patients of Van Lint (1933) and of L. Coppez (1933) who added their case reports to those of Marbaix.

3 Kunz—A more detailed study came from Kunz. On routine examination two patients with 'rheumatic iritis' were found to suffer from ankylosing spondylitis. Other cases of possible 'rheumatic iritis' were then systematically x-rayed for evidence of the vertebral lesion and five more were discovered. Of these seven cases five showed active iritis and two evidence of old iritis and they constituted 'about half the number of 'rheumatic iritis' cases seen during the few months in which they were collected. There was only one woman in this group of seven. The iritis itself was either mild (in one case) or led to seclusion of the pupil (in three cases). In no instance was there any cyclitis. As for the spondylitis, in two cases it was obvious clinically, while in two more there was only x-ray evidence of the affection. The iritis seemed to coincide with the onset of the spondylitis in 'some cases' but mostly came on later—sometimes after many years. Many long-standing cases of ankylosing spondylitis showed no evidence of iritis. Kunz added another case to his series in 1935.

4 Teschendorf—This observer, a radiologist, collaborated with Kunz, and his account includes two additional cases. He stresses that in six of the nine cases the x-ray picture showed the typical bamboo spine, though three of these patients were not conscious of the spinal-column lesion.

The ophthalmological literature of the subsequent years contains a number of case reports.

(a) Kraupa (1933), in recording four cases, holds that the iritis reaction—which did not tend to lead to synechiae—suggests a gonococcal origin of both the affections.

(b) Smaltno (1934) added two cases—one showing acute iritis with hypopyon and the other recurrent iritis. He stressed the tendency to recurrences, and believed these to be part of the clinical picture of ankylosing spondylitis, as they came during exacerbations of the spinal-column affection.

(c) Strelb (1935) reported a case in which both the iritis and the ankylosing spondylitis responded well to operation on the parathyroids—a therapeutic procedure advocated some years ago by Opin.

(d) Schley (1935, 1937)—Of 105 patients with iritis 32 showed a localized reaction ('tuberculous or syphilitic') and 73 a diffuse superficial reaction ('rheumatic iritis'). There were no spinal column lesions in the first group, but only 23 of the 73 in the second group showed normal x-ray pictures of the vertebral column, in 10 ankylosing spondylitis was seen, and in the remaining 40 spondylosis deformans—and in none of these 40 cases was the blood sedimentation rate raised or was there other evidence of an inflammatory origin of the spinal-column lesion.

(e) Ascher (1936), in reporting four cases and noting a fifth under the care of a colleague (Ludwig) gives a survey of the 27 cases reported up to then by oculists. All but one were men. Of 11 patients whose occupation was known, only two were manual labourers. Of 24 whose ages were known, the spondylitis set in early in four instances (one instance at each of the ages of 7, 11, 19, and 20 years). The iritis was noted as mild in five instances, but there were also three bilateral and two unilateral cases of secondary glaucoma: four patients lost the sight of both eyes and one patient of one eye.

(f) Babel (1940) notes iritis running a mild course in a case of ankylosing spondylitis.

(g) Novoa Recio (1941) stresses the value of gold therapy for the iritis no less than for the ankylosing spondylitis.

(h) Franceschetti and Brocher (1944) note two illustrative cases—one of acute iritis in ankylosing spondylitis of gonococcal origin and the other of recurrent unilateral iridocyclitis with hypopyon in a patient with a non-specific ankylosing spondylarthritis. They also quote Mylius (1942) as observing a severe course of iridocyclitis as well as mild cases and as claiming as high an incidence of iritis as 50%.

Rheumatoid Arthritis

There is little concrete evidence as to the occurrence or frequency of iritis in rheumatoid arthritis. An early observation by Burt (1908) drawing attention to recurrent acute iritis in a case of rheumatoid arthritis does not seem to have been followed by other reports. Berens, Rothbard and Angevine (1942) found uveitis in two out of 83 patients with rheumatoid arthritis. They do not speak of iritis exclusively. 'To make certain that only true cases of uveitis were reported, it was necessary that keratic precipitates, cells in the anterior chamber, and other clinical signs be present'. Bauer, as quoted by these observers, found uveitis in seven out of 150 patients with rheumatoid arthritis. Cecil and Angevine are also quoted as observing three instances of uveitis in 200 cases. Dawson

(1935) speaks of having seen a number of cases of iritis in rheumatoid arthritis, four of which were particularly intractable, and two of them ended in blindness. The occurrence of iritis in rheumatoid arthritis is also indicated by Novoa-Recio (1941) and by Franceschetti and Brocher (1944).

Rheumatic Fever

The monograph literature gives iritis as an occasional occurrence in rheumatic fever (Coburn, 1931, Wilson, 1940). Coburn reports it as having occurred once in a series of 162 cases in which 'frequent return of iritis was observed with rheumatic recrudescences'. In contrast Berens and his associates (1942) did not observe iritis in their series of cases [? number], nor did Rudolph (1945) see it in 150 (presumably adult) men in a military hospital. In 17 out of 28 cases of rheumatic fever Pillat (1935) found small fresh or old choroidal lesions, they were mainly peripheral in position but in two cases looked like milky tubercles. Pillat's findings remain a unique observation. (In 11 of Pillat's 17 cases with positive findings Loewinstein found tubercle bacilli in the blood stream.)

Gout

Whether gout is an affection that has disappeared or one that has been forgotten is a matter of opinion. It is however clear that Sydenham's 'totum corpus est podagra' is hardly applicable to-day, and much that went in the older literature as gouty iritis had as little validity as had the designation of rheumatic iritis. The frequency of iritis in patients known to be suffering from gout does not appear to have been determined. It is of some interest that large series of gout reported in the recent literature make no mention of iritis as one of the complications observed, though others are noted. These reports (by general physicians) cover 116 cases studied by Williamson (1920), 37 cases by Cohen (1936), 93 cases by Hill (1938), 62 by Kinel and Haden (1940), and 100 by Brochner Mortensen (1941). Case reports on the occurrence of iritis in gouty subjects still leave open to question whether there is such a thing as gouty iritis or merely iritis in the gouty. Some hold that gouty iritis is a clear-cut entity characterized by sudden onset, intense conjunctival and episcleral hyperaemia, and but few changes in the iris and little tendency to synechia (Krickmann, 1907, 1910; Wood, 1936). A more convincing feature is the fact that it occurs during an acute attack of gout, and the iritis responds to general treatment such as dietetic balance and colchicum in a parallel manner to the gout (Savin, 1938). The fact that uric acid crystals have been found in the eye in gouty scleritis (Garrod 1866), gouty acute glaucoma (Nivazi and Vefik 1929) and gouty iritis (Wood 1936) is not, as Graham (quoted by Savin, 1938) points out, conclusive evidence of the gouty nature of these particular cases for an inflammation due to any cause would tend to precipitate into the affected tissue the excess of uric acid present in the blood stream. Though final proof is lacking, it would seem that gouty iritis is a clinical entity (Savin).

Discussion

On the basis of the present study and the findings in the literature it may be accepted that iritis is a concomitant lesion in ankylosing spondylitis and in rheumatoid arthritis. In osteoarthritis, gout, and rheumatic fever the position is not clear. That it may be a pointing sign in ankylosing spondylitis is suggested by cases recorded by Wolff (1935), by Krebs (1938) and in the present study.

Ankylosing spondylitis and rheumatoid arthritis are not the only forms of rheumatic disease that have ocular complications nor is iritis the only ocular manifestation of the rheumatic affections. There is a growing and substantial literature on the occurrence of iridocyclitis with a peculiar band-shaped opacity of the cornea in Still's disease (e.g., Holm, 1935, Zeeman, 1940, Blegvad, 1941, Wong 1941, Kurnick, 1942) while scleromalacia perforans (Van der Hoeve 1934, Verhoef and Kins, 1938, Smolero, 1943, Tyrrell, 1945) appears to be associated with rheumatoid arthritis. Moreover, rheumatoid arthritis seems to be part of the Sjögren (1940) syndrome. To stress these clear cut associations is not equivalent to reviving the old conception of 'rheumatic eye disease'. Such emphasis serves two useful purposes.

In the first place, it has a clinical significance in the always difficult task of assessing the causal factor in any particular

case of iritis and iridocyclitis, though obviously the significance of the "rheumatic" factor needs further clarification. Secondly, it has some theoretical value, which extends beyond the question of the rheumatic affections in the narrower sense, for it raises the issue of the association of ocular inflammation with joint inflammation generally. It is recognized that iritis may occur in a whole series of acute infectious diseases with joint manifestations. Apart from gonorrhoeal iritis there are the lesions seen in typhoid, dysentery, "influenza," tuberculosis, and, judging by a recent report (Reed and Goldfain, 1938), also in brucellosis. These lesions, though they may be pyogenic, are not usually so, and their nature is not too clear. Nor is the nature of rheumatoid arthritis and ankylosing spondylitis elucidated, though they are generally regarded as infectious in origin. More consistently than the other arthritides they show no organisms or purulent reactions, and in this they resemble the intraocular inflammations; for iritis, cyclitis, choroiditis, and optic neuritis are not the reactions to organisms in the tissue. The association of iritis with joint affections in general and the rheumatic arthritides in particular raises two issues: (1) Is there a physiological parallelism between the eye and the joint in the reaction to exciting agents?; and (2) What is the nature of the inflammation which produces the non-pyogenic joint reaction and the non-pyogenic intraocular inflammation?

The rheumatologist is perhaps better versed in the problem of the non-pyogenic inflammatory reaction than is the ophthalmologist, but the problem covers common ground for both. Like the oculist, the rheumatologist recognizes inflammation due to the gonococcus, and to a lesser extent the spirochaete; and parallel to the rheumatologist's quest for non-bacterial exciting causes of inflammation is the oculist's recognition of iritis in metabolic disorders (diabetes, and possibly gout), endocrine disturbances (the iridocyclitis of the menopause), neurotrophic disorders (the heterochromia and atrophy of the iris in sympathetic-cord lesions), and chemical factors (the iritis of an ammonia burn of the conjunctiva). It may also be that both the rheumatologist and the oculist deal with fundamentally similar problems because their interest centres in what is possibly a physiologically similar mechanism. The interior of the eye is highly, but not absolutely, protected from abnormalities in the blood stream and from pyogenic invaders by the barrier mechanism in the ciliary body, and it is possible that the blood-aqueous barrier is paralleled by the blood-synovial-fluid barrier located in the synovial membrane. That this is not altogether an idle speculation is suggested by the experimental findings of Angevine and Rothbard (1940). These observers found that, out of 40 rabbits which had received an intravenous injection of relatively avirulent Group A haemolytic streptococci, joint lesions developed in 26 and intraocular lesions in 17 animals. The primary sites of damage were the synovial villi and the iary processes respectively.

Summary

Iritis was observed three times in a series of 123 patients with osteoarthritis, three times in 53 patients with ankylosing spondylitis, and 15 times in 332 patients with rheumatoid arthritis. No cases of iritis were seen in 313 patients suffering from various other forms of rheumatic disease. Assessed against a control series the finding as regards osteoarthritis is not significant, while that relating to rheumatoid arthritis is highly significant.

The iritis observed in the patients suffering from rheumatoid arthritis was mild and unilateral in all but two cases. There was a history of recurrent attacks, always confined to the same eye, in over one-third of these patients. The two patients who suffered from bilateral iridocyclitis were both certifiably blind, one (the youngest patient in the whole series) having no perception of light in either eye.

A review of the literature shows little appreciation of the frequency of iritis in rheumatoid arthritis. In contrast the occurrence of iritis in ankylosing spondylitis is well established. That iritis may be a pointing sign in ankylosing spondylitis is suggested by one case in the present series and two similar observations noted in the literature. Iritis in rheumatic fever appears to be rare; in gout no cases of iritis were observed in the present series, and none were noted in several recent surveys of large numbers of gouty patients, but there seems to be no reason to doubt the validity of gouty iritis as a clinical entity.

Iritis, like rheumatoid arthritis and ankylosing spondylitis, is regarded as an inflammatory reaction. Since neither organisms nor pus are normally recovered from both the inflamed eye and the

rheumatic joint, both these inflammatory reactions have been ascribed to indirect bacterial activity as well as to a whole series of non-bacterial exciting factors. There is undoubtedly some parallelism in the reaction of the eye and the joint to a noxious agent. The problem of intraocular inflammation is similar to that of inflammation of the joint.

We are indebted to Lord Horder and Sir Frank Fox, of the Empire Rheumatism Campaign, for the readiness with which they placed the facilities of their organization at our disposal. Dr. A. C. Elkin, of the West London Hospital; the Physicians to the Red Cross Clinic, Peto Place; Dr. J. Barnes Burt, of the Royal Mineral Water Hospital, Bath; Prof. B. W. Windeyer, of Middlesex Hospital; and the Physicians to the Rheumatic Unit at St. Stephen's Hospital, have all greatly helped by facilities to examine their patients, as have the medical superintendents of the following London County Council hospitals: Hackney; Queen Mary's, Carshalton; Lambeth; South-Western; St. Alfege's; St. Benedict's; St. Luke's; St. Pancras; St. Francis; and St. John's; as also Dr. J. N. Deacon, of Redhill Hospital, Edgeware. We are particularly obliged to Dr. Francis Bach, Dr. J. L. Hamilton-Paterson, and Dr. Kenneth Stone for the trouble they have taken and for much helpful advice. We are also indebted to Dr. J. A. Fraser Roberts for assessing our findings statistically.

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The Medical Research Council has issued as No. 253 of its Special Report Series a survey by Dr. B. S. Platt entitled *Tables of Representative Values of Foods Commonly Used in Tropical Countries* (H.M. Stationery Office; 9d.). The compilation of a table of food values for use in Nyasaland and areas consuming similar foods was the foundation from which the present tables have been built up. They are the first published results of the Nyasaland survey undertaken to determine the relation of economic, sociological, and agricultural matters to nutrition, as well as the correlation of health with the nutritive value of the diet.

PREVENTION OF TRANSFUSION REACTIONS DUE TO Rh FACTORS

BY

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During the past few years there have been many reports of intra-group haemolytic blood transfusion reactions caused by Rh antibodies (Levine and Stetson, 1939, Wiener and Peters, 1940, Boorman *et al.*, 1942, Diamond, 1942, Wiener *et al.*, 1942, Dameshek and Levine, 1943, Mollison 1943, Beck *et al.* 1944, Callender and Paykoc, 1946, Callender *et al.* 1945, Diamond, 1945, Drummond *et al.* 1945, Plaut *et al.* 1945). The importance of routine determination of the Rh type of patients requiring transfusion has been widely stressed. The Rh antibodies differ from the inter group agglutinins of the ABO system in that, with very rare exceptions (Diamond, 1942), they do not occur naturally, but are formed by the Rh-negative subject in response to sensitization, either from an Rh positive foetus *in utero* or from a transfusion of Rh positive blood. Hence it is most unusual for first children to show signs of haemolytic disease or for Rh negative patients to suffer haemolytic reactions during a first blood transfusion although antibodies may be formed rapidly enough to curtail the useful life of Rh positive cells given in a first transfusion.

It is fortunate that sensitization to the Rh factors occurs only in a minority of subjects at risk. The chance of an Rh-negative woman forming antibodies against the blood of her Rh positive foetus has been variously estimated as between 1/20 and 1/40 (Haldane 1942), but these figures are based on data for the incidence of neonatal haemolytic disease obtained before the discovery of the Rh factors (Darrow, 1938). In the case of Rh negative recipients of Rh positive blood transfusions, little is known beyond the fact that sensitization is by no means invariable. Callender and Paykoc (1946) found anti-Rh agglutinins in 1 of 17, and Moloney (1945) in 1 of 18 Rh negative patients who had received multiple blood transfusions. Callender and Paykoc's patient was a woman, but as she had not been pregnant the antibody must presumably have been formed in response to transfusions of Rh-positive blood.

No doubt can exist that in an ideal transfusion service the Rh type of every recipient should be determined before transfusion, and that only blood of the appropriate type should be given. The difficulties in establishing such a service are, however formidable. Special grouping laboratories have been set up for this purpose in several American cities (Barton, 1944, Butler *et al.* 1944, Diamond, 1945, Young and Karlier, 1945), but the procedure is so cumbersome and expensive that it has so far been found necessary to restrict Rh typing to special groups of recipients. Diamond's laboratory performs 300 Rh tests and 50 anti-Rh determinations each week, it is obvious that special laboratories of this kind are warranted only in large centres where they can serve a whole group of hospitals. Furthermore, so long as the approximate percentage of patients susceptible to sensitization remains unknown the justification for such an elaborate system is doubtful.

Aim and Method of Present Investigation

The present investigation was undertaken with the following aims: (1) to discover if a blood transfusion service could be run in a medium-sized hospital with an average clinical laboratory, so as to eliminate the likelihood of haemolytic transfusion reactions due to Rh antibodies, (2) to determine the rate of formation of Rh antibodies in an unselected series of patients receiving multiple blood transfusions. For this purpose it was decided to confine Rh typing to two categories of patients: (a) those who had received a previous transfusion of Rh positive or unknown blood, (b) those with an obstetric history suggestive of a possible sensitization to the Rh factors.

The accompanying special application form (see Fig.) was distributed to all wards and departments and blood was issued only after receipt of the completed form accompanied by citrated and clotted samples of the patient's capillary blood.

The ABO group was determined in all patients. In the case of patients falling into Category *a* or *b* the Rh type was determined by means of an anti Rh, (anti D) serum, and blood of the appropriate type was issued. In all other instances Rh positive blood was issued, except in a small number at times when Rh negative blood happened to be in greater supply than Rh positive. The homologous group was given to Group A and Group O recipients, and Group O blood to Group B and Group AB recipients. Rh negative blood was usually available at the local blood bank, and a special effort was made always to have in the hospital store at least one bottle of Rh negative blood of Groups A and O. In only one or two cases were Rh-negative donors specially bled.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE

APPLICATION FOR BLOOD FOR TRANSFUSION

This form, completed by the Sister or the Nurse-in-Charge, and accompanied by samples of the patient's blood taken from the ear lobe or finger, must be sent to the Clinical Laboratory before any blood transfusion is given.

Patient's Name	Sex	Age	Ward
Name of H.P. or F.S.			
Disease			
(1) Has patient ever had a previous blood transfusion? (If so give details)			
(2) Has patient had a baby (or babies) suffering from oedema (it does not mean severe jaundice, or profound anaemia)?			
(3) Has patient had repeated miscarriages or stillbirths?			
If answer to any of the three questions is "Yes" on a P. card must be given unless the clinical pathologist has been personally consulted. After every blood transfusion on the bottle(s) should be returned to the Clinical Laboratory.			
Date	Signature		
NOTES FOR LABORATORY USE			

When a patient in Category *a* or *b* was found to be Rh-negative a sample of venous blood was obtained and the serum examined for evidence of anti Rh agglutinins. The incomplete antibody (Race, 1944, Wiener, 1944) was not sought for. It must be stressed that antibodies were looked for before a repeat transfusion, and not after a potentially sensitizing transfusion. It was thought that this would give a more useful answer to an inquiry concerned with conditions obtaining in routine transfusion practice.

After each transfusion a careful inquiry was made into the possible occurrence of reactions. When any reaction was reported, such as rise of temperature, rigor, discomfort, or pruritus, another specimen of venous blood was obtained, and the cause of the reaction investigated with the help of the pre- and post-transfusion samples of the recipient's blood, and the blood remaining in the transfusion bottles.

Every care was taken to make the series representative of the entire transfusion work of the hospital. The only patients excluded were infants suffering from definite haemolytic disease.

Results

This report covers a period of 17 months in a hospital of 800 beds. During this time 232 patients (110 male, 122 female) were given a total of 292 transfusions for which 620 standard bottles of blood were used. The total number of transfusions given in the hospital was somewhat larger, the probable difference amounting to about -10%. Multiple transfusions given to any individual patient within a period of seven days are classified as a single continuous transfusion, as it is unlikely that antibodies developed immediately after the first transfusion.

During the 17 months 58 patients (34 male, 24 female) received either more than one transfusion or second transfusions after a potentially sensitizing transfusion given before the start of this inquiry. Of these, 48 (83%) patients (27 male, 21 female) were Rh positive and 10 (17%) patients (7 male, 3 female) were Rh-negative. The figures closely approximate those found in the general population, and tend to show that the sample was a representative one. Among the Rh-negative

patients, two (1 man, 1 woman) developed antibodies; six did not develop antibodies; and two were not tested.

Case 1.—Mrs. A., aged 33. Tuberculous peritonitis. Two normal pregnancies four and eight years previously. No stillbirths or miscarriages. May 15, 1944: Given a transfusion of unknown blood. No reaction. Sept. 7: Application for blood for further transfusion. Found to be Group A Rh-negative. Anti-Rh agglutinin present at titre 1:4. Given two bottles of Rh-negative blood. Further transfusions of Rh-negative blood on Oct. 4 and Dec. 12. No reactions to any of these.

Case 2.—Mr. B., aged 23. Infected compound fracture of femur. Jan. 4, 1944: Given two bottles of unknown blood. No reaction. Jan. 13: Given two bottles of unknown blood. No reaction. June 21: Application for blood for further transfusion. Found to be Group O Rh-negative. Anti-Rh agglutinins present. Given one bottle of Rh-negative blood without reaction.

The Rh type was also determined in three women in Category b (obstetric cases) who were about to have first blood transfusions. One was Rh-positive and two were Rh-negative. No antibodies were present in any of their sera, and no reactions followed the giving of appropriate blood.

Reactions

A total of 17 (5.8%) reactions occurred among the 292 transfusions. These are classified in the following table. It was

The Reactions Classified

Slight or moderate rise of temperature (1-3° F.: 0.5-1.6° C.)	6
Mild or moderate rigor	7
Jaundice	2
Urticarial rash	2
Total	17

noticeable that, although special inquiry was made in each case, no reaction was said to be accompanied by backache. No patient was upset by the reaction for more than an hour at most; and several reactions produced no subjective symptoms. In no case was incompatibility of the blood or the presence of irregular antibodies found on subsequent investigation. The reactions were ascribed to various causes such as pyrogens, a too rapid rate of transfusion, or allergy.

Discussion

No claim can be made that sensitization of two Rh-negative patients among 10 who had received Rh-positive or unknown blood represents the true rate which might be found in the general population; for this was only a small sample, although it was unselected. Furthermore, the incomplete antibody, now known to occur fairly frequently, was not tested for; had this been done the percentage of sensitized patients might have been higher. It is of interest that strong antibodies were circulating in the blood of the patients as long as four and five months respectively after their sensitizing transfusions. The inference may be drawn that both patients would have suffered haemolytic reactions had they been given Rh-positive blood for their subsequent transfusions.

Although it is true that the sensitization rate of 2 in 10 Rh-negative patients is probably not an accurate guide, it might serve as a rough indication of the actual problem facing an average hospital transfusion service. On the basis of a 15% incidence of Rh-negative subjects in the general population, it can be assumed that there were 35 Rh-negative patients among the total of 232 transfused. Of these, 7 would have been sensitized if the rate of 2 in 10 observed in this inquiry were generally applicable.

In an ideal transfusion service it is clearly desirable to prevent the occurrence of any sensitization. In particular, women in the child-bearing period may be sensitized, and so produce in subsequent pregnancies children suffering from haemolytic disease. This is certainly a grave risk, although it can affect only a small number of women, and several undoubted instances have been recorded. There is, however, only one possible way of attaining complete prevention—namely, to determine the Rh type of every recipient before transfusion and to administer blood of the correct type. At present, in the great majority of hospitals, sufficient laboratory facilities do not exist to allow universal Rh typing at a moment's notice; nor is there an unlimited supply of Rh-negative blood.

If, therefore, it be admitted that transfusion sensitization cannot at present be avoided in all cases, it is essential at least to attempt to prevent reactions due to sensitization. This inquiry has shown that the rate of occurrence of haemolytic reactions can be decreased by adopting the procedure outlined. In a total of 292 transfusions no reaction was attributable to sensitization by Rh antibodies; although there were at least two patients who had in fact been sensitized and would probably have suffered haemolytic reactions in the absence of precautions.

If all Rh-negative patients in this series had received the correct type of blood for each transfusion, it is estimated that 92 standard bottles of Rh-negative blood would have been needed. By following the procedure described above, however, only 30 bottles were actually used, which shows that tenuous stocks of Rh-negative blood can be employed economically, and that a comparatively small panel of known Rh-negative donors can supply the needs of a moderately large hospital.

Summary

During a period of 17 months, in a hospital of 800 beds, a scheme has been operating designed to prevent haemolytic transfusion reactions due to Rh antibodies.

232 patients received 292 transfusions; of these, 58 had more than one transfusion.

No haemolytic reactions occurred during the period of the investigation.

Of 10 Rh-negative patients who received multiple transfusions two were found to have developed Rh antibodies.

My very warm thanks are due to the Galton Serum Unit, Cambridge, and in particular to Dr. R. R. Race, for constant help and advice during the course of this investigation.

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The annual general meeting of the Central Council for District Nursing in London was held at the County Hall. The Council now comprises 84 district nursing associations in the metropolitan area, among which grants to the amount of £23,894 were distributed during 1945. These included a public assistance subsidy of £12,000 from the London County Council, and a further sum from the Council of £7,446 on account of the new 50% Government grant for the salaries of nurses. London Parochial Charities contributed £3,842. It was stated that the King Edward's Hospital Fund for London is to entrust the Central Council with the distribution of its annual grant of £2,500, with an addition of £250 for administrative expenses. This grant was originally designed to help to relieve the pressure on the out-patient departments of hospitals. Under the Act of 1907, which incorporated the fund, the interpretation clause cites "nursing institutions" as available for support from the capital income. The L.C.C. public assistance patients visited by district nurses for the purpose of general nursing during the year numbered 6,197, and 152,696 visits were paid; in addition 98,029 visits were paid to 1,442 cases for the administration of insulin. It was mentioned in the report that after July 1 of the present year training in the administration of gas-and-air analgesia will form part of the midwife's course, and proficiency therein will be a necessary part of her final qualification. It is believed that with the help of the College of Midwives some arrangement may be made for early training of midwives in the use of this analgesia, for which there is said to be an increased demand in London. Another point brought out in the report is the great influence of the district nurse in encouraging recruits to the nursing profession. Her special type of work makes a great appeal to young women. Sir Harold Kenyon is the new chairman of the Central Council, in succession to Sir William J. Collins.

SPONTANEOUS HYPOGLYCAEMIA ASSOCIATED WITH EPILEPSY; SUBTOTAL PANCREATECTOMY

BY

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Reports of cases of spontaneous hypoglycaemia treated by partial pancreatectomy are uncommon in this country, although American literature contains numerous accounts of the surgical treatment of pancreatic hyperactivity. The case herewith reported is of interest in that the symptoms of hypoglycaemia were associated with epilepsy, which confused the clinical picture in the earlier stages of the illness. Although, most unfortunately, the patient succumbed from pulmonary infarction, he lived long enough to demonstrate the remarkable improvement which followed subtotal pancreatectomy.

Case History

In 1922 the patient, then aged 41, had his first fit. He had just begun his morning's work when without warning he fell on his face unconscious. He understood that he lay quite still, was uncertain if he bit his tongue, but remembered having "wetted his trousers." He was taken home unconscious. His doctor said that his heart was in a bad state and that he smoked excessively. During the same day he had three further fits, with twitching movements all over the body, and believed that he remained unconscious for some seven hours in all.

A doctor again examined him that evening and the following day. He then referred him to one of the larger London teaching hospitals. Here his skull was x-rayed in three positions and a blood test taken. Bromide and luminal (phenobarbitone) were prescribed. Following this the fits recurred, but gradually they became less frequent. After some five years of treatment he enjoyed an interval of about two years with freedom from fits, and so gave up attending the hospital for three months. Cessation of treatment was, however, followed by a recurrence of the fits, and so he resumed his attendance at the hospital and continued the treatment until the outbreak of war, when he was transferred to the Metropolitan Hospital with a diagnosis of epilepsy.

On Oct. 19, 1939, he first attended the general medical out-patients department of the Metropolitan Hospital. He was seen by the house-physician, who considered the symptoms to be compatible with the diagnosis of idiopathic epilepsy. The patient was therefore treated with phenobarbitone, gr. 1 (65 mg.) b.d. On April 19, 1941, he stated that he felt well and was working, and had remained free from fits for two years while taking the tablets.

On Jan. 24, 1942, he first reported the occurrence of peculiar attacks unlike his fits. He had had six of these attacks in the previous two weeks, four occurring on the same day. In the attacks he saw "something terrible coming towards him"—so terrible that he was unable to describe it. He felt, however, that it concerned the Germans, and explained that he had been a prisoner of war for nine months in the 1914-18 conflict, which had greatly upset him, as, though he had often thought that he might be killed, he had never contemplated being a prisoner. After this feeling of "terrible fear" he experienced a peculiar sensation in the stomach, but found that if he gripped the bench hard this might pass off, leaving him very weak; otherwise he would collapse suddenly without further warning. After these attacks, for 24 hours he felt choking in the throat, was unable to speak easily, and wished to cry. He then stated that these "attacks" had been occurring for the past eighteen years as well as the fits, which he had previously described. At first they had occurred at intervals of two or three months, but in the last six months more frequently, and he noted that he tended to have several attacks one month and then a period of freedom. These attacks would occur at any time of day, but were more frequent before midday. He himself had noticed no relation between the attacks and the times of his meals or of his work. His work involved heavy manual labour, and his wife had often said that he should not go to work without more food. He continued on phenobarbitone, but on July 11, 1942, reported seven of these attacks occurring on one day, and was therefore referred by the house-physician for a further opinion.

On July 15 he was first seen by one of us (N. G. H.), and a tentative diagnosis of hypoglycaemic attacks was considered. Admission

was arranged to the West End Hospital for Nervous Diseases for further investigation.

Habits.—The patient was a french-polisher. He drank on the average one pint (568 ml.) of beer and smoked 1/2 oz. (14 g.) of tobacco daily. His usual meals were as follows: 6.30 a.m.: A cup of tea and one piece of bread-and-jam. 9.30 a.m.: Breakfast at work—a cup of tea, and a sandwich of bread and bacon. 1 p.m.: A meat or fish dish with bread, followed by pudding or a sweet. 3.30 p.m.: A cup of tea and a piece of cake. 6 p.m.: 1 pint of ale. 7 p.m.: His main meal—e.g., a chop and vegetable, followed by a sweet or pudding.

Condition on Examination.—He was admitted to the West End Hospital on Aug. 10, 1942. Weight 8 st. 11 lb. (55.7 kg.). He previously highest known weight having been 9 st. 4 lb. (59 kg.). He was well developed and his general nutrition good. He appeared younger than his age. Full neurological examination proved normal. With the exception of some slight emphysema and a few rheas in the chest, a comprehensive examination also proved normal. The B.P. was 140/90 and the pulse rate 65-80 and regular. On examination the urine was normal.

Investigations.—The C.S.F. showed a pressure of 140 mm., no cells, a slightly raised protein of 70 mg. per 100 ml., no excess of globulin, and a normal colloidal gold curve. The Wassermann and Meinicke flocculation tests in both blood and fluid were negative. Skiagrams of the skull and pituitary fossa were normal. Skiagrams of the suprarenal region showed no abnormality.

Blood-sugar examinations on Aug. 12 (patient on normal full diet previously) gave the following results. Glucose-tolerance curve:—Fasting, 53 mg. per 100 ml. After 30 g. of glucose: 1/2 hour, 109 mg.; 1 hour, 133 mg.; 1 1/2 hours, 32 mg.; 2 hours, 32 mg. per 100 ml. (Urine specimens fasting and at 1 and 2 hours contained no sugar.)

Aug. 18.—The patient was ordered a diet containing 400 g. carbohydrate a day. Food was taken every two hours by day, and, if waking, in the night.

Aug. 19.—Glucose-tolerance curve:—Fasting, 52 mg. per 100 ml. After 50 g. glucose: 1/2 hour, 80 mg.; 1 1/2 hours, 65 mg.; 2 hours, 72 mg. per 100 ml.

Aug. 31.—Blood sugar on waking in morning, 39 mg.; 2 hours after midday meal, 75 mg. per 100 ml.

Sept. 7.—At 6.30 a.m. the patient had a full breakfast of cereal, milk, and sugar, 2 slices of bread-and-butter and jam, and tea. At 9.15 a.m. he developed an attack, and the blood sugar was found to be 56 mg. per 100 ml. Glucose (50 g.) was then given, and half an hour later the blood sugar was 72 mg. per 100 ml.

A blood count on Aug. 24 showed: Hb, 102%; red cells, 5,760,000; C.I., 0.97; white cells, 7,200. Blood sedimentation rate (Westroble, 100 mm. col.), 2 mm. in 1 hour. An electro-encephalogram taken on Sept. 1 (by courtesy of Dr. Dennis Hill) showed the following results: Dominant rhythm, 10 per second—voltage 50 microvolts; regularity good; no abnormal rhythms; stable on hyperventilation. Conclusion: within normal limits.

While the patient was in hospital a number of severe hypoglycaemic attacks were observed, which were not relieved by a diet of 4,000 calories over a period of five weeks. In view of this and of the results of the clinical investigations, and also of the progressive nature of the illness, it was decided to explore the pancreas for an islet adenoma, and, if such were not found, to perform a subtotal pancreatectomy.

Operation (McN. L.).—On the morning of the operation the blood sugar was 66 mg. per 100 ml. The patient's blood was Group A. An upper transverse abdominal incision was made an inch below the ninth costal margin. The rectus muscles were divided by diathermy and the abdomen was opened. The stomach was displaced upwards, and the lesser sac was opened by an incision through the gastro-colic omentum, and the mesocolon was divided. By this means efficient exposure of the pancreas was obtained. A careful search failed to reveal an adenoma, so it was decided that a subtotal pancreatectomy should be performed. A splenectomy was carried out in order to obviate troublesome haemorrhage from the splenic vein, which is normally partially embedded in the pancreas. The tail and body of the pancreas were then mobilized, and about three-quarters of the gland removed with a diathermy knife and immediately fixed for histological examination. The raw surface was oversewn with mattress sutures. After insertion of a rubber drain the abdominal wall was closed in layers. After the operation the patient was somewhat shocked, but recovered from the anaesthetic. His condition steadily improved until the following day, when he suddenly collapsed and died, twenty-five hours after the operation. The blood sugar the morning after the operation rose to 130-140 mg. per 100 ml. (The details of this reading were destroyed by enemy action.)

Necropsy (Dr. Carnegie Dickson).—The abdominal wound was reopened and the intestines found to be distended with flatus. There

was only a slight accumulation of blood-stained fluid in the flanks and in the bed of the spleen. No evidence of fat necrosis was seen. Careful investigation of the mesentery of the bowel, retroperitoneal tissues, and elsewhere showed no accessory pancreas in which an adenoma might have developed. No adenoma was found in the remaining part of the pancreas. The liver was normal apart from moderate fatty degeneration and some venous congestion. Both kidneys showed some cloudy swelling; otherwise there was nothing of note. Both suprarenals were normal. The lungs showed a very patchy congestion, some of which was due to areas of multiple infarction. There was no acute pneumonic consolidation. The pituitary gland and thyroid both appeared normal. The heart and aorta were normal. *The Brain:* The leptomeninges showed a very distinct degree of fibrous thickening over the hemispheres, especially over the vertex, where the convolutions were distinctly narrowed and atrophied. Exaggeration of the sulci in the region of the thickened leptomeninges was as pronounced as in many cases of advanced general paresis.

Histology.—An extensive series of sections of the pancreas stained for islet tissue showed nothing suggestive of hyperplasia or tumour. Complete histological examination of the other organs, including the brain, was not possible owing to the destruction of the specimens by enemy action.

Discussion

The normality of the pancreas in this case is noteworthy. The very full pathological examination, including the search for accessory pancreatic tissue, excluded the possibility of an islet adenoma having been missed at operation.

A lesion of the hypothalamus in the region of the paraventricular nuclei might explain the picture, as Barris and Ingram (1936) have shown in cats that this may cause permanent hypoglycaemia and increased sensitivity to insulin. A similar mechanism is possibly the basis of obesity and hypoglycaemia following some cases of encephalitis.

Hypoglycaemia itself may also produce lesions in the brain consisting of widespread degeneration and necrosis of the nerve cells with corresponding glial proliferation. It has been thought that this is due to the failure of the vital oxidative processes from lack of glucose, probably reinforced by vasomotor disturbances. In the 6 cases described by Lawrence, Meyer, and Nevin (1942) this mainly affected the cerebral cortex, caudate nucleus, and putamen, and to a less extent the cerebellum. It is therefore unfortunate that it was not possible to examine the brain in detail.

The epilepsy of late onset was possibly associated with the hypoglycaemia, as a low blood sugar may induce fits in a patient not normally epileptic, while resistant cases of epilepsy are sometimes found to have low blood-sugar levels.

Whatever the aetiology of this case, however, the severity of the attacks and their failure to respond to dietetic treatment (Whipple and Frantz, 1935) would almost certainly have caused a fatal coma, and so operation was fully justified.

We would like to thank Dr. Worster-Drought for his advice and Dr. Carnegie Dickson, Mr. Martin, and Miss Wilson for the pathological investigations; and Dr. Dennis Hill for the electroencephalogram.

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While a number of Citizens' Advice Bureaux and voluntary organizations in London have had cause to be grateful for the information circulars issued by the London Council of Social Service, there must be a large public which is unaware of them and will be glad to know that they are to be more widely available. The circulars are published at three-weekly intervals, and their aim is to keep the reader informed of social needs and developments—that is, to pass on the varied knowledge the council acquires through its research and information department. They contain, for example, summaries of new regulations and Acts of Parliament, notes on new and existing social services, and comments on new trends in public opinion and social policy. They will be of value, therefore, not only to social workers, but to M.P.s, local government officers, and staff managers generally. The annual subscription is £1 1s, and membership forms can be obtained from the London Council of Social Service, 7, Buxley Street, London, W.C.1.

OCCURRENCE OF OVULATION AND CAUSES OF STERILITY IN METROPATHIA HAEMORRHAGICA

BY

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This note records evidence of ovulation in a typical case of metropathia haemorrhagica and suggests that the sterility associated with this condition can be due to causes other than an anovulatory cycle.

Case Report

The patient, aged 40, has five children, the youngest 11 years old. She was admitted for menorrhagia and metrorrhagia of three years' duration, a temporary remission of symptoms having followed curettage two years ago. Since the onset of irregular periods her cycle has been 7 to 8 days' bleeding, usually excessive, the intervals varying from 28 to 35 days, while periods of bleeding up to six weeks' duration have occurred latterly. Subtotal hysterectomy revealed a cystic right ovary about 3 cm. in diameter, the left ovary being normal.

Pathological Findings.—Macroscopic section showed moderate symmetrical enlargement of the uterus due to myohyperplasia, with a thickened haemorrhagic endometrium about 6 mm. in thickness in the fresh specimen. Two small intramural fibroids were also present. Rather more than half-way down the posterior wall a small endometrial polyp-like structure projected about 4 mm. into the uterine cavity, and a portion of endometrium and myometrium including this small mass was sectioned. The gross morbid anatomical characteristics were thus consistent with the clinical diagnosis of metropathia haemorrhagica.

Histology.—The curettage made two years ago followed a fortnight of continuous bleeding and the scrapings were post-menstrual, showing no progesterone activity. In the present specimen (see Fig.)



Photomicrograph showing mass of degenerate chorionic villi and adjacent oestrogenic endometrium. Stained Heidenhain's iron haematoxylin.

the myometrium showed no abnormality, apart from the fibromyoma, while the endometrium presented an extremely interesting picture. It was of "mixed" type, a very few glands showing early secretory activity, while the majority were in the oestrogen phase, some with cystic dilatation. In glands where secretory activity is evident this is often limited to a few cells, the remainder presenting an even and regular luminal border. What appeared macroscopically to be an endometrial polyp proved to be a mass of degenerate chorionic villi, lying mostly outside the endometrium and projecting into the uterine cavity. The penetration of trophoblast into the endometrium was limited to a depth of approximately 0.5 to 1 mm. Decidual reaction was pronounced in the stroma, and the hypertrophied decidual cells showed the intermingling with numerous lymphocytes which is characteristic of early pregnancy. In general, the stromal picture was in marked contrast to the glandular picture.

Discussion

The endometrial glands in the above case present evidence of a prolonged oestrogen phase, although the partial onset of

secretory activity shows the influence of progesterone at this time. The mass of chorionic villi is proof of ovulation, though in the preliminary trimming of the block the ovum was lost.

Those cases of irregular and excessive uterine bleeding in which no local abnormality is detected are now regarded as determined by ovarian dysfunction, and are placed together under the term "metropathia." The histological picture in the endometrial glands of a large group of such cases is one of prolonged oestrogen activity and has been interpreted as evidence either of an excessive oestrogen phase or of an anovulatory cycle. In cases where examination of the pelvic organs has been made a cystic ovary has usually been found, and the underlying pathology has been considered to represent the repeated onset of a cystic degenerative process in the ripening follicle, before ovulation. Increasing attention has been paid to ovarian dysfunction of this type as a cause of sterility (Mazer and Zisermann, 1932; Mazer, Israel, and Kacher, 1937; Jeffcoate, 1935; Mason, Black, and Gustavson, 1938).

The present case shows that ovulation may occur in clinically and pathologically typical metropathia haemorrhagica, while the histology demonstrates a second possible cause for sterility in this condition. It shows that in addition to infrequency or total absence of ovulation, with its relative or absolute reduction in the chances of fertilization, nidation may be incomplete, and this inability of the fertilized ovum to embed itself may be due to the partially or completely unprepared state of the endometrium. In the later phases of a normal cycle pregestational changes take place both in the glands and in the stroma of the endometrium; but in this case stromal change was fairly well developed while glandular response was scarcely apparent. The importance of adequate concentrations of corpus luteum hormone for implantation of the ovum has been emphasized by several authors. Browne *et al.* (1939) state: "A short corpus luteum phase has been observed in some patients with sterility in whom no other cause for infertility has been detected." Allen and Corner (1929) first demonstrated the necessity for progesterone in the implantation of early embryos, and their observations have often been confirmed. The present specimen shows that in habitual abortion where the probable cause is inadequate progesterone production the administration of that hormone during the latter half of the cycle is probably soundly based on the pathogenesis of the condition. Progesterone is commonly stated to produce the pregestational changes in the endometrium, and these changes affect both the uterine glands and the stroma. The stromal reaction is marked in this case, but the glandular one lags far behind. In his monograph Hamblen (1939) calls attention to the evidence that "mixed" endometria probably represent partial inability of the endometrium to respond to the pregestational principle, but evidence is presented here that the response of the endometrium to progesterone can be unequally distributed as between the glandular elements and the stroma, as otherwise the two reactions must be assumed to be separately conditioned, and of this there is as yet no evidence.

Summary

A case is described of metropathia haemorrhagica in which the presence of chorionic villi shows that ovulation had occurred.

The suggestion is made that sterility in this condition may be due not to the absence of ovulation but to inability of the fertilized ovum to embed itself in an endometrium wholly or partially unprepared for its reception.

I am most grateful to Mr. H. A. Hamilton for allowing me to use his clinical findings, and to the medical superintendent, Farnborough County Hospital, for permission to publish this case.

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Before the war Mrs. R. G. Edwards raised a fund to provide the best means of combating primary tuberculosis in children by early treatment. It has been decided to devote this fund to the construction at Papworth of a home to be known as the Edith Edwards Children's Home.

TREATMENT OF SULPHONAMIDE-RESISTANT GONORRHOEA BY PENICILLIN

BY

ROBERT LEES, M.D., F.R.C.P.Ed.

This communication is based on observation of a large series of cases treated in the C.M.F. and a smaller number treated in the U.K. It has already been recorded by Campbell (1944) and Bell (1945) that a high proportion of cases of gonorrhoea in our Forces in Sicily and Italy proved resistant to routine methods of treatment with sulphonamides. On further investigation it was found that a considerable proportion of gonorrhoea cases were rendered "sulphonamide-resistant" by use of a dosage scheme which employed 4 or 5 g. of sulphapyridine or sulphathiazole a day for two days. Other cases were rendered sulphonamide-resistant by self-treatment, or by irregular dosage, or by taking a small number of tablets to obscure the diagnosis and thus evade the penalties of venereal infection. Prolonged treatment with high dosage of sulphathiazole or sulphadiazine (6 to 8 g. daily for 10 days), even when reinforced with non-specific "shock" and fever therapy with intravenous injections of typhoid vaccine, failed to produce more than 70% of cures. This must be ascribed to a high proportion of sulphonamide-resistant strains of gonococcus in the population, but no evidence could be found to support the popular theory that the Italian prostitutes were habitually taking small doses of sulphonamides which, although insufficient to cure gonorrhoea, were enough to minimize the signs and symptoms of the disease.

The high incidence of V.D. in the Allied Forces in C.M.F. with the low percentage of cure in gonorrhoea led to the accumulation in hospital of very large numbers of chronic and resistant cases of gonorrhoea, and on arrival in Italy in March, 1944, I found there were over 2,000 such cases. Hospital accommodation was overtaxed; the men were urgently needed for the battles of Cassino and Anzio; accommodation had to be provided for battle casualties.

A series of 1,737 cases of sulphonamide-resistant and chronic and complicated cases of gonorrhoea were treated with penicillin. Many had been treated for weeks or even months without cure, and several had genito-urinary complications of gonorrhoea such as prostatic-vesiculitis and epididymitis. No case of metastatic complication of gonorrhoea was included in this series. The worst cases were chosen. The treatment was done with such amounts of penicillin as were available after the needs of war wounds and urgent medical and surgical cases had been met. The diversity of the dosage scheme is to be explained by the shortage of penicillin and the desire to obtain the maximum number of cures with the minimum consumption of the drug. Supplies were available irregularly at that time. It was also urgently necessary to return key-men to full duties as quickly as possible. These factors governed and modified this therapeutic experiment.

Dosage.—Penicillin was given in every case as 10,000 units dissolved in sterile distilled water or saline and injected intramuscularly at intervals of three hours. No pain or abscess formation resulted from the injections.

Results

The results are analysed according to dosage:

Dose	No. of Cases	% Cured
100,000 units	344	92.0
60,000 "	1,333	94.3
50,000 "	100	92.0
30,000 "	50	80.0
Total treated by various doses	1,737	93.9

Results of re-treatment with penicillin of the cases (6.1%) noted above as failures are available in 73 cases, and all but one were cured. Such cases were re-treated as soon as possible by penicillin in the same individual dose (10,000 units at three-

hour intervals), but the duration of treatment was prolonged until a larger total had been given, as follows:

120,000 units	..	..	..	..	..	..	..	14 cases
150,000	"	..	..	..	..	..	..	23 "
200,000	"	..	..	..	..	..	..	34 "
240,000	"	..	..	..	..	..	..	2 "

Subsequent experience with subjects not in this series has shown that all cases of gonorrhoea are not cured by re-treatment even with 240,000 units given as 15,000 units or 20,000 units at intervals of three hours. In all such resistant cases it was our custom to cultivate the organism, identify it, and test its resistance to penicillin *in vitro*. In no case was a penicillin-resistant strain of gonococcus found. Such cases are probably explained by persistence of gonococci in a closed focus of infection such as a prostatic abscess or a sealed-off infection of a seminal vesicle.

Notes on a number of patients treated with 50,000 units indicate that this amount is below the optimum dosage. For example, Case 207 relapsed with acute epididymitis twelve days after penicillin treatment, and Case 200 had gonococci in the para-urethral ducts on completion of the five injections of penicillin. Cases 295, 296, 298, and 299 showed gonococci on the third, fourth, ninth, and fifth day, respectively, after penicillin treatment. These cases were all cured ultimately with local treatment and sulphonamides.

Disappearance of sulphonamide resistance seemed to occur in several instances after unsuccessful penicillin treatment. Several patients who had been treated (perhaps badly) with sulphonamides and had acquired a chronic "sulphonamide-resistant" state were not cured by penicillin in the doses employed. But subsequent re-treatment with sulphathiazole produced a rapid and permanent cure. This procedure is not advised in preference to re-treatment with larger doses of penicillin, and success was by no means invariable.

Synergic Effect of Penicillin and Sulphonamides.—A small series of cases were treated with sulphathiazole, 5 g. a day, and 30,000 units of penicillin on the fifth day. The results were not good, and we could not confirm the published reports that there was a marked synergic effect and that 100% cures could thus be achieved quickly. It was considered that such schemes of treatment were unlikely to have much future value, and the experiment was not pursued.

Speed of Action.—The speed of action of penicillin is of some importance in deciding the precautions necessary, such as isolation of patients and sterilization of fomites. In this series it was the practice to take a urethral smear before the fourth injection was given—that is, after the patient had received 30,000 units and nine hours had elapsed since penicillin treatment began. This was also done after 60,000 units and after 100,000 units had been given. Typical results are those recorded (by Major Priest) in one series of 186 cases: after 0,000 units, 16 gonococcus-positive; after 100,000 units, 3 gonococcus-positive. Two of these cases showed gonococci in slides for 12 to 24 hours after treatment, but the organism disappeared without further treatment. The gonococci were swollen and atypical in appearance and did not grow in cultures.

Effect of Higher Dosages of Penicillin.—A smaller series were treated at a later date with 20,000 units of penicillin every three hours until 100,000 units were given. In a series of 204 cases cure was achieved in 97%. This scheme of five doses is much more convenient than ten doses, for treatment can be completed within twelve hours. Ambulatory patients spent one night in hospital and returned to work next morning, injections being given at 5 p.m., 8 p.m., 11 p.m., 2 a.m., and 5 a.m.

The results of treatment with four doses, at four-hour intervals, of 25,000 units were less satisfactory. In a series of 200 cases the rate of cure was 92%.

Gonococcal Ophthalmia.—One case of ophthalmia was observed in which the patient had infected his eye, and as the organ was completely sulphonamide-resistant it was feared that the eye infection might be intractable. Treatment was given by 100,000 units of penicillin, administered as ten doses of 10,000 units at three-hour intervals. In addition drops of penicillin solution in a strength of 1,000 units per ml. were instilled into the conjunctiva after preliminary washing with

sterile normal saline. The patient made a very rapid and complete recovery.

Gonococcal Prostatitis and Epididymitis.—Many cases of subacute prostatitis and of acute epididymitis were treated according to the dosage scheme of 100,000 units in ten injections. The results were very satisfactory; resolution of the inflamed organ took place rapidly, and was usually complete within ten days without additional treatment.

Observation and Test of Cure.—Cases were followed for three months. Urethral and prostatic smears were taken frequently during the first two weeks, but thereafter observation was, of necessity, at longer intervals and irregular. Before acceptance of cure the patient had anterior urethroscopy, and often a large curved sound was passed in addition. Reinfection was probable in several cases, but every case that had a return of gonococci has been classified as a failure. Cultural methods could not be employed as a test of cure.

Summary

A series of 1,737 cases of sulphonamide-resistant gonorrhoea were treated with penicillin and 93.9% were cured.

The highest percentage of cures in this series was obtained with 100,000 units given as ten intramuscular injections of 10,000 units at intervals of three hours.

Equally good results were obtained in a small additional series of 204 cases with 100,000 units given as five injections of 20,000 units at three-hour intervals.

Less satisfactory results were obtained in a third series of 100 cases treated with four injections of 25,000 units at intervals of four hours.

The lower limit of effective dosage (94.3% cure) was obtained with 60,000 units given as six doses of 10,000 units at three-hour intervals.

Treatment with 50,000 units and 30,000 units produced poor results.

Treatment with sulphathiazole followed by 30,000 units of penicillin did not give satisfactory results in a small series of cases, and the experiment was not pursued.

Seventy-five cases which had failed with primary treatment with penicillin were re-treated with higher dosage of penicillin, and 74 were cured. Subsequent results with cases not in this series suggest that this observation is unduly optimistic. Cases have been observed of persistence of gonococci after 240,000 units given as 15,000 units at three-hour intervals.

Genito-urinary complications of gonorrhoea such as epididymitis responded rapidly to and were completely cured by 100,000 units of penicillin.

This research was made possible only by team work, and a large number of V.D. specialists in C.M.F. co-operated—too many to mention by name. These officers were enthusiastic workers and spared no pains to ensure that the work was done well and records were kept. Lieut.-Col. J. Jeffries and Lieut.-Col. S. H. Bentley and Major Scott Thomson of No. 1 Penicillin Control Team gave invaluable advice and assistance, and organized distribution of the drug. Much of the work was done in tented hospitals with very insufficient assistance, and the R.A.M.C. orderlies who gave the injections deserve the highest praise, for no mishap occurred. I am also indebted to Major-Gen. W. C. Hartgill for his support and for permission to publish these observations.

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Lord Samuel, president of the British Institute of Philosophy, the Provost of Oriel (chairman), and the Master of Balliol (deputy chairman) have issued an appeal for support for the Institute, which came of age on April 6. Founded under the late Lord Balfour, its council has been throughout composed of leading representatives not only of philosophy but also of science, of politics, and of industry and commerce. For twenty-one years the Institute has been active in promoting the purposes for which it was founded—to serve as a link between philosophers and the everyday world, and to spread such general understanding as can be reached of the universe and of man's place in it. There have been continuous courses of lectures and popular addresses, and a journal—*Philosophy*—is issued once a quarter. The annual subscription is one guinea, which includes receipt of the journal, and there is no entrance fee. Further information and forms of membership may be had from the Director of Studies, British Institute of Philosophy, University Hall, 14, Gordo Square, London, W.C.1.

TREATMENT OF LEWISITE SHOCK WITH
SODIUM SALT SOLUTIONS

BY

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AND

G. E. P. BOX

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Lewisite poisoning in animals presents a picture of initial haemoconcentration. Due to plasma loss to the soft tissues, followed by a haemolytic anaemia (Cameron and Courtice: awaiting publication). The early picture is indistinguishable from that of shock due to other causes and, as it is readily produced and its severity easily controlled, we have used this method in preliminary studies on the efficacy of sodium salt solutions in the treatment of shock.

Rosenthal (1942-5) has stated that the administration of sodium salt solutions has reduced the mortality in mice suffering from shock caused by thermal burns, trauma, and haemorrhage, the oral or intraperitoneal route being more effective than the intravenous route. Fox (quoted by Rosenthal, 1943) has followed up this work clinically, giving isotonic sodium lactate in large quantities (5-11 litres in 24 hours) by mouth to patients suffering from thermal shock, and all his patients got well. Allen (1943) and Prinzmetal *et al.* (1943) have also reported good results when using physiological salt solutions for the treatment of shock due to thermal burns in dogs and mice respectively. In view of this success in the treatment of shock by large volumes (5-10% of the body weight) of normal saline, it was decided to test the efficacy of such a therapy in lewisite shock.

In the present tests four species of animal were used—viz., mice, rats, guinea-pigs, and rabbits. Subcutaneous injection of lewisite oxide (L.O.) was found to produce uniform and repeatable mortalities in all species. Two methods of assessment were employed. (1) Massive dosages of L.O. given, to produce 100% mortalities rapidly (6-12 hours). Therapies which significantly prolonged the median survival time were tested by method 2. (2) Dosages to produce a high proportion of deaths were given and the percentage mortalities of the treated and untreated groups were compared.

Mice

Mice weighing 20 g. were used throughout. The L.O. was injected subcutaneously in 0.2 ml. of water. As Rosenthal's mortalities are given only for acute mortalities (i.e., the first 48 hours) from shock, our stated mortalities are also acute mortalities. By this means it was hoped that deaths from secondary complicating factors would not complicate the picture.

EXPERIMENT A—Results of Dosage of Lewisite Oxide 9 mg./kg. at Z hours

Quantity of 0.9% Saline given Intraperitoneally (ml.)	When given (minutes)	Median Survival Time in Hours (5 Mice per Group)	Conclusions
Nil		5.9 (25 mice)	
0.5	Z - 30	8.1	(1) 2 ml. saline given. In 30 minutes L.O. produced a significant increase in median survival time (P = 0.03)
0.5	Z	5.7	(2) So d.d. 4 ml. given 2 hours after L.O. (P = 0.05)
0.5	Z + 30	9.3	(3) In general, 4-ml. doses of saline were better the later they were given. 2-ml. doses were better the earlier they were given
0.5	Z + 60	9.3	(4) In general, saline given before L.O. was good (P = 0.05). and 2 ml. saline given before L.O. was good (P = 0.05)
0.5	Z + 120	6.2	(5) All dosages of saline, whether given before or after the L.O., increased the survival time. Saline given at the same time as the L.O. did not
1.0	Z - 30	6.8	
1.0	Z + 30	8.3	
1.0	Z + 60	6.6	
1.0	Z + 120	8.2	
2.0	Z - 30	10.5	
2.0	Z - 30	7.1	
2.0	Z + 60	6.9	
2.0	Z + 120	7.2	
4.0	Z - 30	8.9	
4.0	Z - 30	4.8	
4.0	Z + 60	8.3	
4.0	Z + 120	13.5	

EXPERIMENT B—Dosage of Lewisite Oxide 9 mg./kg. at Z hours

Total Quantity of 0.9% Saline Injected Intraperitoneally (ml.)	How Injected	Median Survival Time in Hours (5 Mice per Group)	Conclusions
2.0	2 ml. at Z + 30 min.	6.4	The following methods of administration of saline significantly increased the median survival time: (1) 1 ml. at 1/2 and 1 hr.: P = 0.001 (2) 4 ml. in 3 doses: P = 0.01 (3) 4 ml. in 4 doses: P = 0.05 (4) 6 ml. in 3 doses: P = 0.05 (5) 2 ml. in 5 doses: P = 0.05 The 4-ml. and 6-ml. therapies are better when given in divided doses over a long period.
2.0	1 ml. at Z + 30 and Z - 60 min.	20.0	
2.0	0.7 ml. at Z - 30, 60, and 90 min.	12.3	
2.0	0.5 ml. at Z - 30, 60, 90, and 120 min.	13.2	
4.0	4 ml. at Z - 30 min.	11.2	
4.0	2 ml. at Z - 30, Z + 60	12.0	
4.0	1.3 ml. at Z + 30, 60, and 90 min.	15.8	
4.0	1 ml. at Z - 30, 60, 90, and 120 min.	14.1	
6.0	6 ml. at Z + 30	12.9	
6.0	6 ml. at Z - 30, Z - 60	12.6	
6.0	2 ml. at Z - 30, 60, and 90 min.	13.2	
6.0	1.5 ml. at Z - 30, 60, 90, and 120 min.	10.0	
Nil	—	6.7 (3 mice)	

EXPERIMENT C—Dosage of Lewisite Oxide 10 mg./kg. at Z hour 2 ml. of Salt Solution given Intraperitoneally at Z + 30 minutes

Strength of Solution	Solute	Median Survival Time in Hours (5 Mice per Group)	Conclusions
Nil	Nil	3.61 (3 mice)	(1) In general, the chloride ion is more effective than the sulphate ion (2) In general, the sodium ion is more effective than the potassium ion (P = 0.001). The equimolecular mixture of sodium and potassium ions was intermediate in effectiveness (P = 0.05, cf. potassium solutions) (3) The weaker solutions (N and N/4) are more effective than the stronger (4N) (P = 0.001)
4N	NaCl	2.04	
N/4	"	4.79	
N/4	"	5.01	
4N	KCl	0.741	
N/4	"	0.87	
N/4	"	5.75	
4N	Equimolecular mixture of NaCl and KCl	1.05	
N/4	"	2.69	
N/4	"	2.40	
N/4	Sodium sulphate	1.38	
N/4	"	1.29	
N/4	"	3.55	
N/4	Potassium sulphate	0.63	
N/4	"	0.79	
N/4	"	1.55	
N/4	Equimolecular mixture of NaSO and KSO	0.63	
N	"	1.05	
N/4	"	4.47	

EXPERIMENT D—Dosage of Lewisite Oxide 10 mg./kg. at Z hours

At Z - 30 minutes 2 ml. of the following fluids were given intraperitoneally (30 mice per group):

Normal saline	Median survival time, 5.7 hours
Distilled water	" " " 5.0 "
Unreated .	" " " 4.1 "

Hence (1) The normal saline caused a significant increase in the median survival time (P = 0.02). (2) The water did not cause a significant increase in the median survival time (P = 0.07).

EXPERIMENT E—Dosage of Lewisite Oxide 9 mg./kg. at Z hours. Results from the Intraperitoneal Injection of 0.9% Saline

Total Dose of Saline	Temp of Saline	How Injected	Median Survival Time in Hours (5 Mice per Group)
2 ml.	39°C	2 ml. at Z - 30 min.	8.3
	17°C	"	8.1
	39°C	1 ml. at Z - 30 and Z + 60 min.	7.9
	17°C	"	5.2
4 ml.	39°C	4 ml. at Z + 30 min.	5.5
	17°C	"	5.0
	39°C	1.3 ml. at Z - 30, Z + 60, Z + 90 min.	9.1
	17°C	"	4.8
Nil	—	"	5.2 (25 mice)

Here (1) if a single dose is given, 2 ml. is effective but not 4 ml., and it is of little importance whether the saline is warm or not; (2) if divided doses are given, 2 ml. and 4 ml. are equally satisfactory, but only the warm saline is effective.

From these preliminary experiments it was concluded that, in mice, for the treatment of shock caused by the subcutaneous injection

of L.O., warm (39° C.) normal saline given either as one 2-ml. dose 30 minutes after the L.O. or in two 1-ml. doses 30 and 60 minutes after the L.O. was the best of the therapies tested. Its effectiveness in reducing the percentage mortality from the acute shock of lewisite poisoning was next tested. The quantities used were: 2 ml., given 30 minutes after L.O.; 1 ml., given 30 and 60 minutes after L.O.; 1 ml., given 60 minutes after L.O. (Rosenthal's technique). 1 ml. sodium lactate, given 30 and 60 minutes after L.O., was also assessed, as Rosenthal had reported sodium lactate to be as effective as sodium chloride.

The results obtained are summarized in the following table:

Experiment	Dosage of L.O. (mg./kg.)	Therapy		No. of Mice Used	Deaths in 48 Hours	
		Amount of 0.9% Saline	Time of Admin after L.O.		No.	%
F	4	1 ml.	60 min.	50	11	22
G	4	1 ml.	Nil	50	21	42
	4.5		30 and 60 min.	50	22	44
	4.5		Nil	50	42	84
H	4.5	2 ml.	30 min.	50	19	38
	4.5		Nil	50	33	66
	4.5		30 and 60 min.	20	8	40
I	4.5	1 ml. N sodium lactate	30 and 60 min.	20	5	25
	4.5		Nil	20	19	95
	4.5		Nil	20	19	95

Hence all these therapies produced a significant reduction of the mortality, the sodium lactate being as good as sodium chloride.

Rats

Rats weighing 150 g. were used and the lewisite was produced by the subcutaneous injection of 4.5 mg./kg. of L.O. In mice it has been found that 10% of the body weight (i.e., 2 ml.) of saline was effective when given 30 minutes after intoxication. In rats, therefore, we gave 10% of the body weight (i.e., 15 ml.) of 0.9% saline intraperitoneally 60 minutes after the injection of the L.O. The following 21-day mortalities were obtained:

Untreated group of 50 rats: deaths in 21 days	..	..	47 (94%)
Treated group of 50 rats: deaths in 21 days	..	..	9 (18%)

Guinea-pigs

A preliminary experiment was carried out to determine the optimum conditions for the administration of the 0.9% saline. 500-g. pigs were used, and to each of them 8 mg./kg. L.O. was given subcutaneously at Z hours. Results:

Total Quantity of 0.9% Saline Injected	How Injected	Median Survival Time in Hours (10 Pigs per Group)
12 ml.	12 ml. at Z + 40 min.	4.6
	12 ml. at Z + 80 min.	4.4
	6 ml. at Z + 40 and Z + 80 min.	2.6
25 ml.	25 ml. at Z + 40 min.	7.5
	25 ml. at Z + 80 min.	3.1
	12 ml. at Z + 40 and Z + 80 min.	1.9
50 ml.	50 ml. at Z + 40 min.	5.0
	50 ml. at Z + 80 min.	4.2
	25 ml. at Z + 40 and Z + 80 min.	2.9
Nil		4.5

From this experiment it was concluded that 25 ml. of 0.9% saline given intraperitoneally 40 minutes after the injection of the L.O. was the best method of administration tried.

A second experiment was then performed, giving 4 mg./kg. L.O. to 500-g. guinea-pigs followed by 25 ml. of 0.9% saline intraperitoneally 40 minutes later. A significant ($P=0.02$) reduction in mortality was produced, as follows:

60 guinea-pigs untreated: deaths in 21 days	..	..	31 (52%)
60 .. treated with saline: deaths in 21 days	..	..	20 (33%)

Rabbits

When given intraperitoneally, large quantities of normal saline would appear to be ineffective in rabbits intoxicated with L.O. and, indeed, in themselves to be harmful:

Number of Rabbits (2 kg.)	Dose of L.O. at Z hr. (mg./kg.)	Treatment	Deaths in 48 Hours
5	6	6 x 50 ml. N saline at Z + 4, 8, 12, 24, 28, and 32 hours	4
5	6	Nil	4
5	Nil	6 x 50 ml. N saline at Z + 4, 8, 12, 24, 28, and 32 hours	2

The effect of a normal solution of sodium lactate was next examined. Preliminary trials suggested that 2-kg. rabbits were least distressed when two 75-ml. doses were given by mouth with an interval of two hours between doses. Rabbits were therefore injected subcutaneously with L.O. (4 mg./kg.), and to half of them, two hours later, 75 ml. of normal sodium lactate was given by mouth, followed by a similar quantity in a further two hours. The resulting mortalities were:

25 2-kg. rabbits, untreated: deaths in 21 days	..	..	22 (88%)
25 .. treated	..	..	14 (56%)

This reduction in mortality is significant at $P=0.01$.

Discussion

Rosenthal, using mice, Fox, in humans, Allen, using dogs, and Prinzmetal *et al.*, also using mice, have already reported favourably on the efficacy of sodium salt solutions in the early treatment of shock due to various causes. Large quantities (5 to 10% of the body weight) must be given, and Allen has suggested that shock is a condition of tissue thirst, which can be adequately satisfied only by giving large quantities of physiological saline. Indeed, he intimates that the reason that physiological saline has failed in the past in the treatment of shock is that a sufficient volume has not been given; the presence of haemoconcentration after the administration of saline is not an indication of the uselessness of saline therapy, but merely means that the amount given was insufficient.

Our experiments have shown that large quantities of sodium salt solution do reduce the mortality from shock due to lewisite oxide, but that different species do not respond with equal facility. The order of efficacy of sodium salt solutions in the treatment of shock in the four species tested descends as follows: rats, mice, guinea-pigs, and rabbits. This is also, in our experience, the descending order of the ability of the different species to tolerate large quantities of sodium salt solution.

Rosenthal's work intimates that there is a loss of fluid and sodium to the shocked tissues; our results support this view. We have not had the opportunity of confirming the suggestion that the shocked animal is hypersensitive to potassium, but we agree that the beneficial effect of the sodium administration can be offset by the simultaneous administration of potassium.

Summary

The efficacy of sodium salt solutions in the treatment of shock produced by the subcutaneous injection of lewisite oxide has been assessed in four species of animals—mice, rats, guinea-pigs, and rabbits. It is concluded that large quantities of sodium chloride or sodium lactate solution do reduce the mortality from lewisite shock, but that different species do not respond with equal facility.

Our thanks are due to the Chief Scientific Officer, Ministry of Supply, for permission to publish these results, and to our colleagues at Porton for their advice and criticism.

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PENICILLIN: INCREASED STANDARD OF PURITY

The Ministry of Health makes the following announcement. Preparations of penicillin were added to the Schedule to the Therapeutic Substances Act by provisional Regulations in August, 1944. As a result of fuller experience of these preparations it has become necessary to replace the provisional Regulations by new ones. This has now been done by the Minister of Health, the Secretary of State for Scotland, and the Minister of Health and Local Government Northern Ireland. The new Regulations provide for: (1) An increased standard of purity for preparations to be used for parenteral injection, by exclusion of the crude filtrates permitted under the provisional Regulations, and the requirement that penicillin shall be issued only in the form of a dry salt or other dry substance, or in some form approved by the licensing authority. (2) An increase in the minimum potency to 300 units per milligramme for preparation in solid form, and to 2,000 units per cubic centimetre [ml.] for preparations in solution.

Medical Memoranda

Congenital Polycystic Disease of the Liver and Kidneys

The interest of the following case lies in its presentation, with symptoms of hepatic rather than of renal origin. Although the persistently low specific gravity of the urine is evidence of impending renal failure, the symptoms caused by the unusually large cysts which were revealed on laparotomy were superimposed on the more usual clinical picture, and the hepatic condition was serious enough to cause pressure symptoms and transient jaundice. This case was atypical also in the absence of a family history, there being a marked heredo-familial tendency in the occurrence of this condition (Oppenheimer, 1934).

CASE RECORD

A housewife aged 50 was admitted to the London Hospital, complaining of pain and swelling in the upper abdomen, particularly on the right side. One year before admission she suffered from congestion of the lungs and was confined to bed for three months; she was short of breath, coughed up a moderate amount of white frothy sputum, and her legs became swollen. At the end of this illness the blood pressure was high.

Five months after this the upper part of her abdomen, on the right side, became swollen. In a few days the whites of her eyes became yellow and she began to pass black stools and malodorous amber-coloured urine. A week later, at 9 p.m., after a short period of nausea she vomited 14-2 pints (0.85-1.14 l.) of dark-red gelatinous material. She vomited again at 1 a.m. and 7 a.m., the vomitus amounting to about 4 pints (2.27 l.) in all. After two days she still felt extremely weak, and the fronts of her legs became discoloured as if bruised. This discoloration gradually disappeared. Some days later she was admitted to the local hospital, where x-ray investigations were carried out, and a Casoni test gave a positive result. She began to experience a cramping pain in the right hypochondrium, which was relieved by lying down; it recurred at irregular intervals until operation. Her stools and urine became normal in colour and her jaundice disappeared.

During the interval of about four months between her discharge from the local hospital and admission to the London Hospital she felt weak and generally unwell, with intermittent diarrhoea. She had had no previous illnesses related to the condition under discussion, and her family history contained no other record of congenital abnormalities.

On examination the patient was rather ill-looking though well nourished. Her tongue was moist with slight greyish fur. There was no jaundice, anaemia, or any enlargement of the lymphatic glands. Pulse 82, regular, full; no appreciable thickening of arterial wall. Apex beat not palpable; some evidence of cardiac enlargement; heart sounds one and two heard in all areas; third heart sound audible in mitral area. B.P. 215/175. No abnormalities were present in the respiratory and nervous systems. Abdomen: Generalized swelling of upper right quarter; movement during respiration poor; tenderness and some rigidity over the epigastrium and hypochondrium; kidneys and spleen not palpable; liver greatly enlarged, two distinct masses palpable. No ascites. Urine: Specific gravity consistently low (1006), otherwise normal.

Special Investigations.—(1) Casoni test—negative. (2) Intravenous pyelogram: The right kidney began to excrete in 5, the left in 15 minutes. Excretion and concentration poor on both sides. Neither ureter well seen. The pelvis of the right kidney did not appear to be typical of a congenital cystic kidney.

The patient had never been out of the country, and had never kept a dog or lived in close contact with animals. This, together with the negative result of the second Casoni test, made a diagnosis of hydatid cyst doubtful, and it was decided to perform a laparotomy.

Operation.—The liver was greatly enlarged and contained numerous cystic spaces. Both kidneys were enlarged and nodular and contained several cysts, the largest about the size of a walnut. The largest of the liver cysts was situated in the right lobe. This cyst was drained by a cannula inserted through the centre of the anterior surface of the lobe. About 10 oz. (284 ml.) of fluid was withdrawn and the liver was closed by continuous suture. The aspirated fluid was slightly turbid and contained a few small brown coagula. No hydatid hooklets were found.

Post-operative Progress.—The wound healed well. While in bed she was greatly relieved from the cramping pain in the right hypochondrium, although in the convalescent home she complained of pain of moderate severity when she stood upright. Her blood pressure was 160/100 on discharge, as compared with 215/175 on admission.

COMMENT

Congenital polycystic disease of the liver and kidneys is comparatively rare, and is usually manifested in the fourth or fifth decade. In Moschowitz's (1906) series of 85 cases of congenital cystic liver 75 had the associated disorder of the kidneys. However, congenital cystic kidneys are said to have associated congenital cystic liver in only 19%. Associated cysts have been reported in other organs, notably the pancreas, but also in the spleen and ovary, and even in the lung. Many cases have unrelated congenital anomalies; thus polydactylism, spina

bifida, meningocele, hypospadias, anomalies of the bladder, ureters, and renal pelvises, acrania with anencephaly, omphalocele, atresia ani, and haemangioma of the skin have all been reported (Moolten, 1943).

Moolten points out that the disease may follow one of two typical courses, depending on the involvement of the viscera, the limiting factor being the quantity of functioning renal tissue left. He reports the case of a child being born with gross involvement of the liver and kidneys, and which died at 14 days. This he contrasts with the type of case under review, in which death ensues not until the fourth, fifth, or sixth decade, from progressive renal failure. Death is only rarely from hepatic failure, although there may be portal obstruction leading to ascites and splenomegaly.

We would like to thank Sir James Walton and Mr. J. T. Fathi for their encouragement and advice in the publication of this case.

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P. R. MORGAN.

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Bicuspid Aortic Valve Diagnosed during Life

The case which is here recorded presents an example of the only available method of diagnosis of an aortic valve containing two cusps instead of three.

CASE REPORT

The patient was admitted to St. Bartholomew's Hospital (Hill End, St. Albans) feeling unwell and suffering from excessive perspiration. At this time he was 15 years of age. The past history is significant. He had been seen by me at the King George Hospital at the age of 2, when the classical systolic thrill and systolic murmur of patent interventricular septum were present. He subsequently went to school and remained in reasonably good health, although he had been noticeably subject to breathlessness when playing games with his school-fellows.

On admission to St. Bartholomew's the temperature, pulse, and respiration were 103° F. (39.4° C.), 120, and 30 respectively. He was pale and slightly cyanosed, and looked ill. There was no clubbing of the fingers. The heart presented the following physical signs: the apex beat was rather forcible and was 1/2 in. (1.25 cm.) outside the midclavicular line; a systolic thrill was felt over the third and fourth interspaces to the left of the sternum; the first sound was replaced by a long harsh blowing systolic murmur, which was best heard in the position of the above thrill, but it was conducted to the apex and to the aortic and pulmonary bases; the second sound was heard everywhere, and was normal in character. The spleen was palpable. Petechiae appeared over the upper chest and over the shoulders a few days after admission, but no other evidence of embolism was observed. The blood culture was positive, giving a growth of *Str. viridans*. He was given penicillin by intramuscular drip, the dose being 250,000 units daily, the total course of treatment extending over four weeks. The effect of this was that, although slight fever persisted for a further period of five weeks, rarely above 99° F. (37.2° C.), the patient ultimately became afebrile and was able to get up and about.

The significant clinical event was a diastolic aortic murmur which became audible after the patient had been in hospital for about four weeks. This murmur was distant, high-pitched, and rushing, and was best heard at the pulmonary base and down the left border of the sternum, although it was present over the aortic base. After he had remained afebrile for four weeks he suddenly developed a right hemiplegia and quickly died.

The post-mortem examination revealed the following essential points: general enlargement of the heart; great thickening of the left ventricle; ventricular septal defect; aortic valve bicuspid and showing vegetations on the posterior cusp; extensive haemorrhage into the left internal capsule, apparently from a ruptured mycotic aneurysm.

There was thus no evidence of aortic valve disease either at the age of 2 or when he was first admitted with his subacute bacterial endocarditis. Infection of the aortic cusp distorted it and produced incompetence. In this way the bicuspid aortic valve, although otherwise undiagnosable, was suspected during life, and was demonstrated post mortem.

COMMENT

The above case provides the more obvious example of the development of infective endocarditis in a congenital heart. Many cases of bicuspid aortic valve occur without any associated congenital defect, and in these the additional diagnostic indication present in the patient here described is absent. When infection of an uncomplicated bicuspid aortic valve occurs the diagnosis is suggested by the appearance of the signs and symptoms of subacute bacterial endocarditis in an individual, usually young, who has been previously carefully examined and in whom there was no evidence of heart disease of any kind. In such a case the sudden appearance of aortic regurgitation, together with infective symptoms, is extremely suggestive of a bicuspid valve.

GEOFFREY BOURNE, M.D., F.R.C.P.,
Physician to St. Bartholomew's Hospital.

Reviews

DEVELOPMENT OF PUBLIC HEALTH ADMINISTRATION

Government in Public Health. By Harry S. Mustard, M.D., LL.D. (Pp. 219. \$1.50 or 8s. 6d.) New York: The Commonwealth Fund; London: Oxford University Press. 1945.

"In the past the benefits of modern medical science have not been enjoyed by our citizens with any degree of equality. Nor are they to-day. Nor will they be in the future unless Government is bold enough to do something about it." These words are from President Truman's address to Congress (Nov. 19, 1945) when he introduced his National Health Programme. Dr. Mustard's book is concerned with the history of the influence of "government" on the development of public health in the United States. This publication was sponsored by a committee of the New York Academy of Medicine, on medicine and the changing order. One would hardly have expected that it could have much appeal outside the United States, but Dr. Mustard's treatment of his subject is "national rather than local, general rather than specific, and in terms of trends rather than of events," and the English student of public health administration who reads this book will find much of benefit and interest. The style is compact, workmanlike, and racy, carrying the attention along with effortless ease, and there are so many quotable passages that one regrets the limitations of a short review.

The history of public health in the United States has many lessons for other lands. The struggle between the three "areas" of government—Federal, State, and local (of which the first two have no real equivalent in this country)—resulting in a gradual strengthening of Federal influence; the anomalies of central organization—the fact, for example, that provision for maternal and child health is controlled by the Department of Labor, and completely separate from the Public Health Service; the almost insuperable difficulties besetting any attempts at reform; though the details are often distinctively American, it is easy to appreciate that all these things have had their counterparts in our own history. Perhaps it is a pity that we have experienced nothing similar to the upheaval which followed when the Division of Maternal and Infant Hygiene began operations in 1922, and State health departments first felt the impact of feminine psychology:

"The smugness that existed in many State health organizations was shattered, if not rudely, at least abruptly; precedents, taboos, and sacred relics were brought smashing down; a type of emotionalism, with which male administrators knew not how to cope, arose to plague them. Slovenly programs, and some not so bad, were boldly and openly attacked in one place or another by women's groups, which seemed not averse to calling names, and giving details."

At its best, public health in the U.S.A. is far ahead of this country, but Dr. Mustard is concerned with its shortcomings, and on these he lays stress. It will surprise many who do not realize the vastness of the country to find that nearly forty-eight millions of Americans live in "unincorporated" rural territory—36.4% of the total population. Nearly one-third of the counties, and some 33,000,000 citizens, of the United States are without any Government-supported health services.

This balanced and far-sighted review, by an expert in his subject who is also unusually gifted as a writer, can be recommended to all who are interested in the history of the development of public health administration.

PRACTICE OF MEDICINE

A Textbook of the Practice of Medicine. By Various Authors. Edited by Frederick W. Price, M.D., F.R.C.P. Seventh edition. Oxford Medical Publications. (Pp. 2,034; illustrated. 42s.) London: Oxford University Press. 1946.

The appearance of a seventh edition of "Price's Medicine" at the end of a devastating war must be heralded as another triumph of British co-operative enterprise, and the editor and his contributors, who burned their midnight oil behind the black-out curtains to bring it about, are to be congratulated on their achievement. It will be welcomed by the army of post-graduate students now returning from war to peacetime medicine, for there can be few to deny that Price is the authoritative

text of British medicine. Of the 27 contributors about a third are of emeritus status; but age does not seem to have impaired their accessibility to new ideas, and the book shows as yet no signs of that disintegration of the personality which sometimes overtakes textbooks with advancing years. Hurst's important contribution shows all his vigour and flexibility, and we are reminded once again of his unique place in British medicine. It will be hard to fill the gap his death has made. The seventh edition is fortunately no longer than the sixth, and the editor has clearly insisted on dynamic reconstruction rather than mere hypertrophy; but at more than 2,000 pages it is literally a weighty tome. It is therefore to be hoped that the undergraduate student will use it as a reference book, in which he studies the diseases of which he has personal experience, rather than as a systematic account of medicine through which he is condemned to labour.

Advances since the last edition have been mainly on the therapeutic side, as, for example, penicillin, the newer sulphoamides, the proper appreciation of mepacrine in malaria, thiouracil in exophthalmic goitre. On the clinical side, the chief advance is the recognition of the Rh factor in the blood groups and the consequent explanation of the aetiology of haemolytic disease of the newborn. But if these are the major advances, there are a host of minor ones, as shown by the detailed list of alterations in the preface. It would be impertinent to pretend to criticize this edition line by line without having lived with it and worked with it for months, as we have learned to rely on previous editions. At first glance, however, it appears as reliable and comprehensive as ever, and only those who do not realize how long it takes to see a book through the press these days will grumble that it does not contain the final harvest of knowledge of penicillin. The editor and the publishers have performed a great service for post-war medicine—have performed it so successfully, in fact, that there will soon be a demand for an eighth edition and for contributors of the new generation to work under the skilful co-ordination of Dr. Frederick Price.

PYELONEPHRITIS OF PREGNANCY

Hydronephrosis and Pyelitis (Pyelonephritis) of Pregnancy. Aetiology and Pathogenesis. An Historical Review. By H. E. Robertson, M.D. (Pp. 332; illustrated. 25s.) Philadelphia and London: W. B. Saunders Company.

This illustrated monograph is for the most part a historical review of an important and fascinating subject. It is now known that some degree of dilatation of the ureter and renal pelvis occurs in every pregnant woman, and it is unanimously accepted that in 5 to 7% of these infection occurs at some stage of the pregnancy. In spite of the vast material thus provided for study it is somewhat humiliating to have to admit that such fundamental questions as why the dilatation occurs and how the invading organism is transmitted cannot as yet be answered with absolute authority. No one who is interested in this subject should fail to have a copy of Dr. Robertson's excellent review. In it he discusses nearly 1,000 relevant publications dealing with all aspects of the subject—anatomical, physiological, endocrinal, biochemical, and radiological. The gradual accumulation of knowledge is traced through the records of the years and makes most interesting reading, but the critical reader is reminded repeatedly of how much there is still to be learned.

This book has justified its publication by the scope of its historical survey, but if it succeeds in arousing fresh interest in an aspect of pregnancy which is too often ignored, then its ultimate effect will be far-reaching and the considerable labours of its author will be richly rewarded.

SEX EDUCATION

The Practice of Sex Education. By Dr. Eustace Chessier and Zoë Dawe. (Pp. 157. 10s. 6d.) London: Medical Publications, Ltd.

This useful book is divided into two parts. In the first Dr. Eustace Chessier deals with the subject generally. He stresses the importance of proper sex education and draws attention to its extreme imperfections at the present time. In his chapters on the child, the parent, the teacher, and the school he gives examples of the ill-effects of the usual evasions, and makes a good point that children should be taught the proper scientific names of the genital organs and their various parts, since difficulties often arise due to ignorance among the elders of anything

but inappropriate slang terms. In his last chapter he gives a very brief description of the physiology and Freudian psychology of sexual development. Whether the uninitiated will grasp the latter difficult subject is doubtful.

In the second part Miss Zoë Dawe describes a course of reproductive biology which she gives in schools. It is a moot point whether school is the place where first sexual instruction should be given, but Miss Dawe's course is in itself admirable, and would be specially valuable if the parents had already done their duty in answering the child's questions frankly and truthfully as they arise. Two chapters at the end are very interesting. One enumerates the sort of questions asked by children of the 12-14 age group, either by word of mouth or in writing. The other gives selections from essays written by the girls commenting on Miss Dawe's course.

Of the many books on sex education which are appearing this is one of the most valuable.

PAEDIATRICS

The 1945 Year Book of Pediatrics. Edited by Isaac A. Abt, D.Sc., M.D. With the collaboration of Arthur F. Abt, B.S., M.D. (Pp. 443; illustrated. 95s or 18s.) Chicago: The Year Book Publishers; London: H. K. Lewis and Co.

Once again the two American paediatric professors, I. A. Abt and A. F. Abt, have edited a valuable collection of abstracts, and the *1945 Year Book of Pediatrics* is well up to standard. It is perhaps regrettable that the journals forming the basis of the book are essentially confined to the English-speaking world, but in defence it may be argued that only in such parts of the world has it been possible to continue original work in this subject. An adequate proportion of the abstracts have their origin in Great Britain. The editors have added, as usual, their helpful comments in the form of notes at the end of the abstracts. It is satisfactory to observe that although, naturally, the new advances of chemotherapy have their place they have not been allowed to swamp the volume or upset the balance. There are other important subjects, in regard to diagnosis and treatment, which receive due mention. The work contains a "quiz" of twenty questions, and the reviewer regrets to say that he did not secure a pass mark before he read the book. This should be an indication of the amount of new material presented—and in a manner which is easy to assimilate.

Notes on Books

The fourth edition of *Essentials of Body Mechanics in Health and Disease*, by Drs. JOEL E. GOLDTHWAIT, L. T. BROWN, L. T. SWAIN and J. G. KURYS, the famous Boston orthopaedic team, is opportune, when we are hearing and thinking so much of the rehabilitation of those who have succumbed to the strains and stresses of war both at the front and at home. We cannot be too often reminded that structure and posture of the body influence the function of every system and every organ, and this simple guide to the maintenance of good posture and correction of bad posture will keep these important truths in the minds of all doctors if they study it. In this edition the chapter on foot-strain has been recast so that it is a simple and clear exposition of what goes wrong and how to get it right. The new chapter on geriatrics merely calls attention to the fact that almost all the disabilities of the ageing interfere with body balance, that restoration of this so far as may be possible mitigates these afflictions to a considerable extent, and that their onset may perhaps be indefinitely postponed if correct body mechanisms have been maintained throughout life. The book is published in London by J. B. Lippincott Company at 30s.

In *Gas and Air Analgesia in Midwifery* (Staples Press Ltd; 5s.) Dr. G. H. T. STOVIN makes an attempt to give the reader more details than are found in similar textbooks, of the manufacture of nitrous oxide and of the mechanics of the common analgesia machines. The administration of gas-and-air analgesia is described well enough, but the book on the whole falls between two stools. The illustrated and well-written section on apparatus is likely to be too much for most midwives, while medical readers may feel that the clinical section could be expanded. The book's chief appeal will be to those who want to know a little more about the "innards" of analgesia machines.

E. and S. Livingstone Ltd., of Teviot Place, Edinburgh, have published a seventh edition of *A Pocket Medical Dictionary*, compiled by Miss LOIS OAKES with the help of Prof. Thomas B. Davie. This little book made its bow in 1933 and has gone through six editions and three reprintings. The price is 4s., plus 4d. postage.

Preparations and Appliances

A GAG FOR USE DURING ELECTRIC CONVULSION THERAPY

Dr. B. ANDRATSCHEKE, Mr. J. H. D. MYATT, L.D.S., and Dr. C. H. ROGERSON, F.R.C.P., write from the Cassel Hospital for Functional Nervous Disorders:

One of the most troublesome complications of electric shock therapy is the damage to the teeth which sometimes results from the tight closure of the jaw during convulsion. When a semi-rigid gag such as a padded wooden spatula is used, loosening and even splintering of the teeth which receive the pressure may occur.

At first we thought to overcome this problem by a gag made of a rolled-up piece of rubber cut from an old hot-water bottle. Obvious damage still, however, occurred, particularly when one or two teeth had to bear the brunt of the pressure. Nor was this all, for one of us (J. H. D. M.) was able to demonstrate that in several instances there were serious remote effects of trauma in the form of periodontitis, and later devitalization of teeth which had shown no obvious injuries at the time of treatment other than a little bleeding from the gum margins.

We realized that a new type of gag was needed which would fulfil the following essential conditions: (1) It must secure an equal distribution of pressure over all teeth. (2) It must prevent accidental biting of tongue, lips, or cheek. (3) It must be constructed of a shock-absorbing medium which would remove the dangers of blow and pressure trauma, even in mouths presenting irregular occlusal planes.

Taking these features in order: (1) and (2) We constructed a gag to what we considered the required shape, in dental wax on a metal framework. By repeated trial in the mouth this was modified to an optimum shape. This shape is, roughly, that of two shallow lower impression trays placed back to back, in one piece, tapering towards the back to conform to the occlusal surfaces. The raised flanges prevent any accidental biting of tongue lips or cheek. (3) The gag was made in soft "vela" rubber, which has proved a satisfactory medium. One of the new soft plastics may, of course, have advantages over rubber.

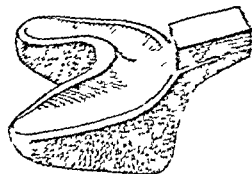
The gag is easy to insert, it is, of course, placed in position before the current is applied. It is almost entirely self-retaining, so that the assistant's attention can be directed towards supporting the lower jaw to prevent the dislocation which sometimes occurs during the initial wide-opening. There is an adequate airway through the teeth and round the gag which can be improved if necessary by hooking back the angle of the mouth with the finger. We are, in any case, in the habit of administering oxygen through a nasal catheter to all patients showing cyanosis after the convulsion.

Extended clinical trial has demonstrated that it fulfils our required conditions. It can be constructed by any good dental mechanic.

MICROMETER SYRINGE

The "Agla" brand micrometer syringe was developed at the Wellcome Physiological Research Laboratories, Beckenham (*Biochem. J.*, 1925, 19, 1111) for use in experimental techniques requiring the accurate measurement of very small amounts of fluid. It consists of a specially made hypodermic syringe with a standard needle mount, attached by a rigid holder to a micrometer which operates the plunger. By its use volumes as little as 0.001 ml. can be delivered with an accuracy of ± 0.00005 ml. Typical uses are chemical micro-titrations, serological titrations, injections of laboratory animals with small doses, measurements of small volumes for Langmuir trough experiments, and surface tension measurements. The distributors, Burroughs Wellcome and Co., 12, Red Lion Square, London, W.C.1, hope to be able to resume deliveries of this instrument within the next few months, and invite inquiries. Orders will be executed in rotation when supplies become available.

Allen and Hanburys Ltd. announce the introduction of a new product "fel-evac," a synthetic fatty meal for use in cholecystography to promote the emptying and consequent contraction of the gall-bladder.



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THE PRESS, THE MINISTER, AND THE BILL

In any dispute both parties believe the right to be on their side, at least in the early stages. When tempers have cooled after the initial clash each party may, even though grudgingly, admit there is something in the other man's point of view. Both then gradually discover a common ground on which to agree and, if they possess more than the wisdom of the serpent, put on one side points of difference when they are regarded by each as fundamental. This is what is known as compromise, and has hitherto been held to be peculiarly an English virtue. The most regrettable and distasteful aspect of any dispute, major or minor, is what we might call the period of misrepresentation. In so far as the present controversy over the National Health Service Bill is concerned, the medical profession has seen its views and statements misrepresented in some organs of the popular press and by individual spokesmen for political reasons.

Apart from deliberate misrepresentation of fact, there is the insidious form that comes from stating only or largely that side of the case which one favours. The medical profession cannot but feel disturbed when it finds the most powerful organ of public opinion in this country—the *Times*—lending its authority to a one-sided presentation of the issues now before Parliament, the profession, and the people. Finding in our esteemed contemporary support for its own policy, it uses the ammunition for its own big guns, and ignores the different expression of opinion voiced in these columns on the Bill as a whole and on the hospital question in particular. Thus the non-medical and informed public which looks to the *Times* for a balanced presentation of majority medical opinion on an important issue is not, we think, provided with it. Instead it finds an attack upon the B.M.A. in this form: "Doctors and laymen alike have naturally looked to the B.M.A. Council's statement on the Bill to learn what issues might be held to justify talk of a fight for medical freedom 'should Parliament prove obdurate.' The document contains no such issues." Yet the *Times* admits the proposals in the Bill mean the nationalization of hospitals, and ignores the argument advanced in these columns that a general-practitioner service on a part-salary basis in health centres owned by local authorities will nationalize general practice. It seems to approve of "the course favoured by the *Lancet*," which "would seem to imply a similar nationalization of all the other medical services"—i.e., of those services in addition to the hospital service. It is just because of these implications that the B.M.A., representing 51,000 doctors, foresees the possibility "of a general refusal of doctors to enter the new service."

A criticism of the B.M.A. which finds expression in our correspondence columns, and in debate and conversation, is that the Association has no constructive plan or views of its own. Some medical men are genuinely perplexed, and an analysis of the position may be clarifying. In 1938 the B.M.A. placed on record its constructive proposals in a pamphlet entitled *A General Medical Service for the Nation*, which, briefly, advocated the extension to the dependants of the insured population of the medical benefits under the N.H.I. Acts, and the expansion of this scheme by the inclusion of consultant, specialist, and institutional services—in other words, a comprehensive health service for the families of the wage-earners. After the war began the B.M.A. set up a Medical Planning Commission, which published its Draft Interim Report shortly before the appearance of the Beveridge report. In view of the fact that Assumption B necessitated an investigation by the Ministry of Health into the medical services of the country, the Association decided not to proceed to a final report of its own Commission but to make its contribution to the Ministry's inquiry if called upon to do so. If we may be wise after the event, this decision may have weakened the Association's position in controversies that have flowed from the publication of the Beveridge report, Mr. Ernest Brown's abortive White Paper, Mr. Willink's White Paper, and Mr. Aneurin Bevan's Bill. Confronted with these successive Government pronouncements the B.M.A. and the medical profession have naturally been put on the defensive and in the position of having to criticize this and that aspect of them for fear they should go by default. The profession has been tactically at a disadvantage, and its antagonists on the platform and in the Press have used this situation to misrepresent it.

It may, therefore, still serve some purpose if we state as plainly as is possible what the position of the B.M.A. is at this moment, bearing in mind that policies may be changed by the Special Representative Meeting in the beginning of May. First of all we have, in common with Mr. Bevan and his predecessors, the aim of providing a comprehensive health service—or perhaps we should say medical service, because health will not come out of any service but out of the conditions that make for health. Second, we agree that all the resources of modern medicine should be at the disposal of everyone: we differ on the means of achieving this. Third, we approve of the Minister's plan for administering the hospital service on a regional basis, and of his proposals for national laboratory and transfusion services.

What are the points of disagreement? There is disappointment that the Minister has not been able to integrate in his Ministry the various services still administered by other Government Departments. The administrative separation of hospital, general practitioner, and clinic services makes, in the view of the B.M.A., proper co-ordination of the work of doctors taking part in them difficult. What is worse, there seems to be a sharp separation of the general practitioner from the hospitals. The failure to give details of the composition of the Regional Board, and the failure to make the Central Health Services Council a really effective body, are further matters on which the Minister is criticized.

If the Bill is looked at as a whole and in relation to the future evolution of the medical profession, there are two features which the Council of the B.M.A. finds not only disappointing but profoundly disturbing. The first is the proposal to disinherit the voluntary hospitals, and to deprive local communities of the part they should play in the development of local institutions. With the ownership of all hospitals vested in the Minister of Health, given absolute power subject to Treasury discretion, the hospitals of this country will in effect be run by the civil servants of the Ministry—for they are permanent, while the Minister is but a temporary figure. A State hospital service means in the long run that medical men working in it will be wholly or partly State employees working under Civil Service direction. State ownership of hospitals can mean nothing less.

The future general practitioner will, it is proposed, practise in the public service in an area only with the permission of a Government committee, be paid in a substantial part by salary, and conduct his practice in and from a health centre owned and administered by local health authorities. This, it is not unreasonable to assume in view of the Labour Party's declared policy, is the first step to a whole-time salaried basis.

Considering the hospital and the general practitioner plans together, we cannot avoid the conclusion that they form the nucleus of a whole-time salaried State medical service. We may grant that in opposing this conception some men are actuated by selfish motives, just as some of those supporting it are actuated by a desire for power. But doctors individually and collectively have a deep-rooted distrust of authoritarianism in medicine, are not inspired by the effects upon medicine of powerful administrations, and see nothing but harm in a system which introduces an official between the doctor and his patient.

What, then, is left on which the medical profession can work out a constructive scheme in co-operation with the Minister of Health if he will seek this? If the doctor is to put his back into his work let him be rewarded according to his merits and exertion. Among the many motives that impel a man to take up medicine the economic motive is one—and not an unworthy one. Medical men are as unequal in their native abilities as any other group of men: their genes see to this. To attempt to treat them as equal by giving them equal salaries and pooling capitation fees is to attempt to treat them as mass-production units, and the corollary of this is that the patients will come to be treated as so many units of disease. This will lead to unending dissatisfaction, frustration, and resentment—and bad medicine. We would, therefore, suggest that the Minister drop his salary proposal and see that doctors are remunerated on a capitation basis. As to health centres, we suggest they should be started in certain areas, and that different types should be set up. The advances of medicine which are said to necessitate the development of health centres are not in the clinical field but in the laboratory. Therefore to group clinicians will in itself be no solution of the problem. What the practising doctor needs above all is access to the facilities offered by medical science and personal contact with and advice from the men expert in the various branches of this science—the bacteriologist,

the pathologist, the biochemist, the radiologist and radio-therapist. What needs grouping are the services provided by these men, and the most suitable centre for the grouping is the hospital, provided that every practitioner in the country has a properly equipped hospital within easy reach of him and his patient—and modern communications should not make this impossible in a compact country like England. The general practitioner does not so much want consultation with another practitioner in a health centre as with the man who has expert knowledge he does not possess himself. If general-practitioner health centres will benefit the patient and add to the convenience of the doctor, then their evolution is to be desired. But the incentive to excel professionally needs an atmosphere of freedom.

The same atmosphere of freedom and independence is even more necessary in the hospital. Each hospital must be free to work out its own salvation within the general framework of the hospital service. Liberty to develop is often willfully misrepresented as licence to exploit. If liberty is curtailed, then one sure result is that licence will increase. Each hospital in a region must obviously fit into the general pattern; its function and the scope of its services must be defined. The staffing proposals of the Minister, with the setting up of selection committees, will ensure that local favouritism or nepotism will not exert its unhealthy influence. But to cut off the current of local affection and pride in local institutions is to sever something which is really valuable in our national life.

The present Minister of Health has never been cowed by majorities or afraid to express his individual view. The medical profession likewise should not be cowed by the large majority the Minister has behind him in the House of Commons, and we may hope that the Minister may yet negotiate on points of difference between him and a profession which sincerely holds them. Democracy is discussion, and the medical profession wants to discuss these matters before the Bill becomes an Act under the terms of which it will work with reluctance and dissent.

ENCEPHALITIS AND ENTOMOLOGY

In North and South America, in Africa, in the Far East of Asia, and in European Russia there exist forms of encephalitis caused by viruses and transmitted by mosquitoes or ticks. What are the dangers that with the development of aviation these diseases may be spread from endemic areas to other parts of the world and, in particular, to Britain? Health authorities are alive to the danger of the spread of yellow fever by infected mosquitoes carried in aeroplanes. Ought they to be worrying also about a whole series of other virus diseases? Of supreme importance is an understanding of the oecology and epidemiology of the group, for thus alone can we foresee and guard against possible disasters; we therefore read with deep interest of the work carried on in the last few years, especially in America and Russia, and lately reviewed by Drs. Hammon and Reeves.¹

The only arthropod-transmitted encephalitis yet recognized in Britain is louping-ill, a serious disease of sheep, especially along the Scottish border; this is carried by a tick, *Ixodes ricinus*. The virus is known to be pathogenic for man, but is not normally a cause of human disease in Britain. It is, however, serologically very closely related to the virus of spring-summer encephalitis of the forested regions of the Eastern U.S.S.R., and may even be a biological race of that virus. The Russian virus, also tick-borne, is of importance as a cause of encephalitis of man, not of sheep. A tick-borne encephalitis of man occurring in the far east of the U.S.S.R. is said to be caused by a different virus.

Of encephalitis viruses carried by mosquitoes there exists now a terrifying array. We have St. Louis encephalitis and Western equine encephalomyelitis of Central and Western North America, Eastern equine encephalomyelitis, and, in South America and Trinidad, the Venezuelan equine encephalomyelitis. All of these can cause encephalitis in man, and the first two in serious numbers. At least two other, yet unnamed, viruses have been isolated from wild-caught mosquitoes in Colombia and California; they have not yet been certainly implicated as responsible for human disease but can cause encephalitis in mice and other rodents, and neutralizing antibodies against the Californian one have been found in the sera of some encephalitis patients. Across the Pacific, the Japanese B encephalitis is said to have caused over 12,000 human deaths in Japan between 1924 and 1937. It occurs also in China and in Eastern Siberia, where the Russians call it "autumn encephalitis." Now that there are many U.S. troops in Japan and China authorities in the U.S.A. are disturbed at the possibility of the addition of yet another to their already formidable collection of encephalitis viruses in America, for the necessary mosquito vectors are present there. In Central Africa also a virus, West Nile virus, has turned up, closely related to the St. Louis and Japanese B viruses; experimentally it is transmissible by the mosquito *Aedes albopictus*, and serological tests suggest it may infect man over a wide area. Though it causes encephalitis experimentally in mice and other animals it is not known whether infection of man is ever accompanied by encephalitis.

The three varieties of equine encephalomyelitis came to our attention because of the losses inflicted on horses, and only later were human infections recognized; it is now believed that the viruses far more commonly infect birds, and especially domestic fowls. Men and horses may develop encephalitis if bitten by infected mosquitoes, but such occurrences are accidents, unrelated to the normal life-history of the viruses. The mosquitoes particularly concerned in transmitting the St. Louis and Western equine viruses are *Culex tarsalis* and *C. pipiens*, both of them species known to feed predominantly on birds. The viruses have been repeatedly recovered from wild-caught mosquitoes (on 75 occasions for the Western equine virus).

A *Culex*-fowl cycle, however, will not adequately cover the life-history of the viruses as we know it. To be satisfied that we understand the oecology we must be able to visualize a mechanism by which the virus survives from year to year. This might be in a chronically infected

mammal or bird or in a persistently infected arthropod vector. No one has yet succeeded in showing that chickens or other birds can serve as chronic or latent carriers of the infection. Further, no virus has been recovered from hibernating mosquitoes (5,429 have been tested for St. Louis virus); so the mechanism of survival of the virus through the winter is quite obscure. Nor is there any evidence suggesting that the St. Louis virus can be transmitted through the egg to the progeny of an infected mosquito. Search has therefore been made for other possible arthropod vectors. Experimentally, dog-ticks (*Dermacentor variabilis*) can be infected and transmission through the egg (transovarian infection) occurs; but no naturally infected ticks have ever been found. Quite recently the viruses of both St. Louis and Western equine encephalomyelitis have been recovered from chicken mites, *Dermanyssus gallinae*, and the possibility of transovarian infection in this mite has been shown for the former virus. Even so, this mite may turn out to be a misleading clue, for transmission by the bite of these mites has not yet been accomplished; moreover, virus has only exceptionally been found in mites though readily revealed in mosquitoes in the same localities. It now seems that we must probe deeper still into natural history. Just as human and equine infections proved to be incidental to an infection of poultry, so it now seems possible that the infection-cycle in the fowls may be something superimposed on a basic life cycle with some other vertebrate-arthropod sequence. Possible clues are afforded by the finding of infected prairie chickens, pheasants, pigeons, ground squirrels, and deer in the wild state. Domestic fowls are, from the evolutionary standpoint, very recent introductions to North America and most unlikely to be the original hosts, since the North American viruses have not been recognized in Asia, from which our domestic fowls ultimately derive.

In Britain we have men, horses, fowls, and potential *Culicine* vectors; so we do well to be on the watch for the viruses. But we may reasonably hope that the essential virus reservoir will prove to be absent over here. We may take comfort from knowing that the Western equine encephalomyelitis virus does not readily spread eastwards across the American continent, nor the Eastern one westwards. But we should be happier for seeing the problem of the natural history of these diseases well and truly settled.

AIR DISINFECTION

The disinfection of the heavily polluted air which we still have to breathe in certain places remains the greatest sanitary reform yet to be achieved. No doubt air-conditioning and more spacious design will play the major part in this reform, but circumstances are likely to remain in which chemical disinfection will also be advisable. Much has been discovered about possibilities in this direction in the past few years, and it is satisfactory to see that the subject is not being neglected. The use of glycols has passed beyond the small-scale experimental stage in the U.S.A. and is being applied in rooms or buildings of considerable size, with careful observations on the results in preventing the spread of air-borne infection. Such a study is reported

by E. Bigg, B. H. Jennings, and I. C. W. Olson¹: this was conducted in barracks where four identical pairs of dormitories served as test and control areas, the former being supplied throughout the night with triethylene glycol vapour to produce an atmospheric concentration of about 0.0025 mg. per litre (i.e., 1 part in 400,000,000). Needless to say, none of the inhabitants complained of any unpleasant effects. Even this very low concentration reduced bacterial counts obtained from the air, and there is evidence that it also reduced the spread of infection. This is of three kinds: the hospital admission rate among men from the test dormitories was lower than that from the controls; the spread of an epidemic of mumps was apparently partly checked, and there was a marked reduction in the number of men from whom throat cultures grew haemolytic streptococci. By analysing these carriers into "losers," "gainers," or "keepers," and plotting their positions in the dormitories on diagrams, it is made evident that the spread of this infection must have been largely prevented: there were only 7 gainers in the test series but 32 in the control. Apart from this feature the figures are not impressive, but they are at least promising; it must be borne in mind that nothing was done in other parts of these buildings to control the spread of infection during the daytime.

The halogens are another class of air disinfectant which shows promise. Most work in this direction has been done with chlorine in some form, but Joyce D. Stone and F. M. Burnet² have used iodine vapour in a careful experimental study of the destruction of influenza virus suspended in the air in the form of minute droplets. Mice were introduced into the experimental chamber after disinfectant treatment as an indicator of its efficacy. Almost immediate inactivation of the virus was produced by an atmospheric iodine concentration of 0.1 part per million, whether the virus was suspended in Ringer's solution or human saliva; on the other hand, if the droplets were desiccated by reducing humidity with calcium chloride an iodine vapour concentration 40 times greater was only partly effective. Iodine is too expensive for general use in air disinfection, but these authors make the interesting suggestion that a gauze mask impregnated with iodine might be a valuable safeguard to medical personnel dealing with highly infectious and dangerous diseases, such as pneumonic plague, pandemic influenza, and psittacosis. In experiments of another kind chlorine was found to be about as effective as iodine in destroying influenza virus. The chlorine disinfectants are cheap enough, but their utility for general purposes is likely always to be limited by their corrosive action on metals.

THE USE OF TUBERCULIN

When the Ministry of Labour received powers to "direct," compulsorily, both nurses and domestics into tuberculosis institutions an interesting administrative problem arose. Though it is doubtful whether this legal power of "direction" has been used to any extent if at all, its consequences have been significant. The Ministry desired a quick way of deciding whether a particular individual could work with safety in the environment of a sanatorium. Not unnaturally, from the point of view of the layman, the tuberculin test was thought to provide the answer. Why not tuberculin-test all individuals before "direction"? Those who understand the nature and mechanism of the tuberculin test realize that this is the very thing which it does not do. Tuberculin does not enable us to diagnose

clinical tuberculosis, in adults at least, nor does it afford any reliable guide as to who should, or should not, work in a sanatorium. Nevertheless, the question of how tuberculin should be used for this purpose was referred to a subcommittee of the Ministry of Health's Standing Advisory Committee on Tuberculosis, under the chairmanship of Dr. James Watt, and it has now presented its report.

There is nothing new or revolutionary in this document, but it is interesting to note that the committee recommends Koch's Old Tuberculin rather than the newer purified protein derivatives of Seibert and Long. The latter, which is extensively used in the U.S.A., is not at present manufactured in this country, but can be imported. The committee recommends three graduated doses of Old Tuberculin, used by the Mantoux method of intracutaneous injection. Recommendations are made to secure standardized syringes, and a regular technique which can be used by different doctors with comparable results.

A positive tuberculin reaction indicates, of course, that the individual has undergone primary infection with the tubercle bacillus, and this infection is in most cases a benign symptomless process. A negative reaction indicates that tubercle bacilli have never successfully invaded the tissues. Such facts have long been accepted, but it is their interpretation and administrative consequences which called for careful reconsideration. The committee rightly lays stress on that phase of the individual's life when the tuberculin reaction is changing over from negative to positive. This phase, as Scandinavian work has shown, is the risky one. It is rightly asked whether, in view of the hazards, nurses who are tuberculin-negative should be admitted at all to sanatorium staffs. The committee states categorically its belief that the suggestion to exclude Mantoux-negative nurses is in the interests neither of the nurses nor of the public. In future the proportion of Mantoux-negative reactors in the community is likely to increase, due to our better social control of tuberculosis, and this will occur particularly in the age group from which nurses are recruited.

As for the nurse's own interest, it is clear that a sanatorium nurse is in a much better position than a nurse in a general hospital if a threat of clinical tuberculosis develops. She enjoys on the whole better hygienic conditions while working in the wards, and preventive measures are more likely to be taken. In the future the use of B.C.G. may greatly ease this problem. Nevertheless, careful recommendations are given for safeguarding the health of Mantoux-negative nurses. These recommendations include: (a) Repeating the Mantoux test every three months until it becomes positive; (b) x-ray films of chest on entry and at regular intervals; (c) special care when the Mantoux test changes from negative to positive; (d) monthly body-weight records under comparable conditions; (e) the care of the nurse's health to be the responsibility of the senior member of the medical staff. Finally, it is recommended that the examination of individuals to be "directed," should not be done by the local authority's tuberculosis officer but by the employing sanatorium. Too elaborate an inspection tends to give the impression to the candidate that tuberculosis nursing is a much more hazardous occupation than it is.

Before long we imagine the administrative procedure of "direction" will be of historical interest only, as in future no woman will be compelled to work in a sanatorium against her will. If the procedure has done no other good it has at least brought the tuberculin test back into favour, not as a means of diagnosis or of treatment but as a measure of preventive work in tuberculosis, such as was preached by Sir Robert Philip twenty-five years ago.

¹ *Amer. J. publ. Hlth.*, 1945, 35, 788.
² *Austral. J. Biol. med. Sci.*, 1945, 23, 205.

A VISIT TO AN INDIAN LEPROSY COLONY

BY

P. P. NEWMAN, M.B., Ch.B.

The Settlement covered about fifty acres (20 hectares), most of which was farmland. The hospital was a low building in a central position, with verandahs connecting each ward. It had a dispensary, though many of the shelves were empty; an operating theatre, scrupulously clean, but lacking suitable lamps and equipment; and also a laboratory, where exceedingly skilful work was performed. Apart from the routine of bacteriological investigation, the staff had collected a whole series of pathological specimens, which they themselves had prepared and mounted.

We were shown some of the case-sheets. A full history of each patient was taken at the clinic with special reference to the family and other sources of contact. Nearly everyone had some family connexion, but the incidence of long-neglected disease was rapidly declining. The people were becoming "leper conscious" and would seek advice and treatment on the first appearance of symptoms. Many of the cases were self-diagnosed, though microscopical section of the skin around the nodules was done as a routine. Little children would come up of their own accord to show a small lesion on the skin they had noticed, and it was these early cases which responded most successfully to treatment. A child born of a leper did not usually develop the disease if it was taken away from the mother soon after birth. The children were kept segregated in a school on the same Settlement, and the parents were allowed to visit them once a week. Eventually these children would lead ordinary healthy lives, perhaps even healthier than the average individual in India, on account of the extra care taken over them. In some instances, where the mother was non-infective, she was allowed to continue to look after her baby while under observation.

The case-sheets carefully recorded the progress of each patient, with accurately illustrated charts of the lesions and of the extent of anaesthesia. Cotton-wool was found too light to detect superficial sensation, and small feathers were used instead. From a glance, it appeared that nodular lesions affected mainly the face and limbs, while the anaesthetic areas were distributed on the trunk. The standard treatment was by injection of hydnocarpus oil in 4% creosote or thymol; results on the whole were good. As many as fifty injections were given with quarter-inch (6 mm.) needles into the skin around the leprosy areas, in addition to daily intramuscular injections. Cases were studied over a number of years and there were very few relapses, except in those who contracted venereal disease.

Unfortunately, syphilis was a very frequent concomitant of leprosy. It not only lowered the general resistance of the patient but impeded the action of the drug, and, of course, the two diseases had to be treated concurrently. Tuberculosis was another complication, and such cases could be highly infectious. There was only a small portable x-ray apparatus available, so that to differentiate this disease from leprosy reliance had to be placed on bacteriological examination. Because of the similarity of the causal organisms, one had, finally, to rely upon the clinical picture. However, before a case was regarded as non-infectious the doctor had to be satisfied that the organism was absent from twenty consecutive examinations. Then, in the disease-arrested stage, there was a follow-up routine extending over several years.

The Surgery of Leprosy

One had only to do a round of the wards to be struck by a sense of unparalleled achievement and of devotion to humanity. One saw very few cases that were either repulsive or hopelessly riddled with disease. Death from actual cachexia was rare. The disease began as a rule with a simple skin eruption on the arm or leg in the form of nodules, either under the skin or above it. Some cases presented raised vesicular patches. There might be some loss of sensation over a wider area, but early treatment gave very promising results. More often the disease

took the form of an insidious contraction of tissue in the fingers and toes, accompanied by a localized area of anaesthesia. Because of the loss of the protective and nutritive function of nerves, complications following injury added to the process, with all the sequelae of secondary infection. In any case, leprosy is relentless in its attack, and very soon there was considerable loss of tissue with subsequent deformity. It was not true to say that digits dropped off from the limbs; rather it was the persistence of a contracting process that gave, however, the same end-result.

The leper then was a subject for amputation. Many hundreds of those people could demonstrate some form of surgical intervention, and, in spite of the inadequacy of equipment, a high performance of operative procedure was maintained. The scars healed well and without much evidence of sepsis. In spite of the loss of half a foot, patients were able to walk with reasonable effectiveness and stability. It was found that when a metatarsal amputation was designed, the disease had often penetrated into the tarsus and a more radical operation became necessary. Yet the degree of mobility and stability after those operations on the feet was out of all proportion to the teachings of textbooks. When it attacked the face, leprosy could be the most devastating of diseases. Some of the victims were unquestionably horrible sights. The nasal cartilages suffered primarily, but even here attempts were made at plastic treatment which could bear comparison with that of the best centres in Europe or America. The men who performed this work were accomplished clinicians, surgeons, and physicians all in one. They had also to be specialists in orthopaedics. Abscesses were frequent in bones and fractures occurred readily. Of the other complications, iritis was the commonest, though actual blindness was rare. Sometimes the disease affected the scalp, producing an alopecia, but apart from a definite thinning of the eyebrows, loss of hair was not an outstanding feature. Leprosy did not seem to precipitate cardiac or gastric disease, and, except for associated syphilis, the mental picture was normal. Some cases of hysteria were present, but leprosy did not adversely influence the intellect. The other form of the disease was essentially an interstitial neuritis, and the ulnar nerve of one or both arms was nearly always affected. There was a round-cell infiltration and thickening of the nerve with resultant wasting and paralysis. Decapsulation sometimes gave marked clinical improvement.

There were about 700 patients, 80 of whom were ward cases; 10,000 treatments were given annually. The disease respected no particular caste, but appeared to be three times more prevalent in the male than in the female. It was, however, a milder form than was found in Burma or China. In the face of untold difficulties—financial problems, shortage of technical staff, inadequacy of equipment, and numerous other encumbrances—a handful of men lived up to the finest traditions of the profession.

Visiting that colony, one could not help being impressed by the cheerfulness and high morale of the patients. Most of them were poor and paid nothing, but there were a small number of private patients who rented a one-room "cottage" at a nominal charge of 7 rupees a month. Even the worst cripples were surprisingly happy. One woman, who was permanently confined to her bed, took great delight in showing us how she could tie a spoon firmly to the stump of her forearm with the aid of her teeth. An old man who had lost both feet was entirely overcome with emotion when he told us how his hands had been useless and rigid, and now he could use them normally. Actually, he had a wide range of movement, though there was much arthritis and also hypothermia wasting. The gratitude of these people was most moving; the medical staff were practically worshipped. Those who could get about—and that included the vast majority of them—would render what assistance they could. Lectures were given to train them in the elements of hygiene and nursing so that they could help each other. There were classes on carpentry and needlework for the younger people, while nearly all of them were able to give a hand on the farm. The Settlement had its own herd of cattle, kept in first-rate condition, and, apart from the actual milking, nearly all the work was done by the inmates. Here was an active, self-supporting community, which was, in its pathetic isolation, an outstanding medical achievement.

CARE OF THE CHRONIC SICK AND OF THE AGED

We print below a summary of an address given to the Parliamentary Medical Group recently by Lord AMULREE, M.D., and Dr. E. L. STURDEE.

THE CHRONIC SICK

The first thing to remember about the chronic sick is that they are by no means all of them very old people. Figures from the county hospitals and institutions in Surrey show that in January, 1943, 29% of the chronic sick were under 65 years and 10.5% under 45. Among the latter may be cardiac cases, arthritis cases, and patients with conditions such as undiagnosed pernicious anaemia or "nervous" conditions.

On the other hand, perhaps 25% of the chronic sick are patients with arthritis or hemiplegias, a larger number of whom may be improved to the extent that they are no longer bed-ridden and may be able to go to their homes. It is therefore desirable that a hospital in which there are patients of this kind has attached to it a specialist in physical medicine and facilities for physiotherapy. Some people hold the view that each general hospital should have a proportion of chronic wards and also small annexes for various types of long-stay patients. Remembering that the elderly among the chronic sick fade imperceptibly into different grades of acute, chronic, infirm, and those requiring little more than skilled nursing oversight, provision for all such grades should be included in a hospital service, though not necessarily on the site of the hospital itself. In 1944 Sir Alexander Macgregor, reporting to the Glasgow Corporation, followed the same argument to some extent. He stated that patients all require a preliminary period of investigation and treatment, before being judged incapable of benefiting by further treatment and that even then patients should still have skilled medical attention available. He therefore considered that the problem of the chronic sick was closely related to that of provision for old persons generally.

Sir Alexander Macgregor also suggested that 10 to 20% of the total beds of general hospitals should be allotted to chronic sick, the difference in the number presumably depending on the type of hospital because "the policy of selection of patients has now reached a stage where the efficiency of the Corporation hospitals is seriously imperilled." His reason for saying this is the present-day tendency of giving priority to acute patients and leaving the others to shift for themselves. He recognizes that it is often a question of housing conditions, because there is a difficulty in looking after long-term illnesses in small houses, and help, either domestic or nursing, cannot always be obtained. For this reason it seems that the provision of some sort of accommodation for old persons who are not entirely capable of looking after themselves will have to be undertaken, and in providing this there is a medical responsibility which must not be overlooked. Proper classification of patients and accurate diagnosis are essential, which means that the expert diagnosis and treatment obtainable in a general hospital must be available for chronic cases and aged, sick, and infirm persons. Dr. Bluestone, superintendent of the Montefiore Hospital in New York, goes further than this and arranges for periodical consultations on long-stay cases, in which specialist advice is again sought in order to decide whether everything possible is being done.

Many of the patients who are kept out of hospital because they seem likely to stay a long time might, if admitted earlier, receive treatment which would prevent their remaining in hospital. General practitioners should, therefore, be encouraged to obtain skilled advice and treatment for patients with conditions such as arthritis or hemiplegias as soon as possible so as to avoid contractures. Sometimes patients are admitted to chronic wards who should be in acute wards, at any rate for a time, which shows the disadvantage of having so-called chronic sick in hospitals of their own instead of allowing them to participate in a general hospital service. It therefore follows that the diagnosis and treatment of the chronic sick should be looked upon as part of the duties of the more experienced medical staff.

An attempt should be made with all infirm patients to house together persons who are likely to mix well, but there will

always be patients who are likely to upset others and will need special discipline. For long-stay patients small units with a "homely" atmosphere are necessary, and everything should be done to remove the institutional atmosphere.

Not only is the problem of the treatment of the chronic sick not being met, but most people do not realize that there is a problem.

CARE OF THE AGED

This is a problem which is increasing* because of the ageing of the population, and the housing and other domestic difficulties which make the care at home of elderly persons more difficult. It is also no longer confined to one class of the community. At a hospital recently a retired colonel had to be admitted who normally should not have taken up a bed but that his wife had no domestic help and was unable to get anyone to help to look after her husband, who was suffering from paralysis agitans. In Coventry people of means have been admitted into a hostel run by the Public Assistance Authority because their relatives are unable to look after them. They are not hospital cases and they are paying the full cost of their keep, and in past years would probably have lived at home with a companion. The figures for deaths from accidents during 1945, which the coroner for North London has kindly supplied, show how large a proportion of fatal accidents occur among old people living alone or in conditions where such slight disabilities as they have are not properly looked after.

The solution of this problem is not entirely one of housing because, although those for whom accommodation is required are more or less healthy, they often suffer from some slight disability which may itself get worse or may lead to an accident unless they have care and attention. Others of them are able to look after themselves to a great extent but cannot undertake the whole of the domestic duties required if they live in their own homes without help. Death often occurs from the neglect of a small accident because, if there is no one to look after such people when they are well, still less is there anyone available when they are incapacitated.

Type of Accommodation Required

The easiest and sometimes the best type of accommodation for old people is the *hostel*, which should be run on the lines somewhat of a boarding house or private hotel. Every effort should be made to prevent the hostel becoming like an institution, and rules and regulations should be as few as possible. Attention must be paid to the special requirements of old people, such as the avoidance of slippery floors, of chairs which are not easy to get out of, and of unexpected steps in passage ways which are badly lighted. Arrangements also have to be made for old people to sleep at various times of the day, and as many of them prefer to sleep in their bedrooms the provision of a blanket or something of that kind for use in the afternoon is desirable. Lighting over the beds is a matter that requires attention because old people often like to read or knit in bed. The rooms in the hostels should be of a varying type. There should be some single rooms because it is a mistake to believe that people who are forced to live in communities need no privacy during the whole 24 hours. On the other hand, many people, especially the very old, feel frightened at night and like to feel there is someone else in the room. It is therefore desirable to have rooms which will take two, three, or four beds. More than this is inclined to look like an institution or a hospital ward. Mrs. A. V. Hill has made what seems to be a successful experiment in one of her hostels of having rooms for four persons which are divided up so that each person uses a part of the room as his own where he can keep his own property and where he can do as he likes without interference from the other people sharing the room. The rooms are, to all intents and purposes, bed-sitting rooms, and the inhabitants may have their meals and spend most of the day there. There might be an advantage in having cubicles or at least curtains in a room of this type. In the Surrey County Council's hostel at Farnham the single rooms are much

* In 1900 there were 1,750,000 people over 65 years of age in Great Britain. By 1937 this figure had increased to over 3,750,000; by 1951 it is expected to be 5,500,000—that will be 11% of the total population. (Dudley Committee's reports on the Design of Dwellings; H.M. Stationery Office, 1944.)

coveted and there is generally a waiting list for them. They tend there to be used by some of the older inhabitants who have shown that they appreciate living in the home.

Cottage Homes

Some authorities, both voluntary and public, have found that small houses are appreciated. It is often said from the experience of the Poor Law that old married couples show no desire to live together. But this is probably because when such an opportunity has arisen the couple has already lived some time in the institution and each has become accustomed to a new mode of life. Old people, like children, do not like changes, but where small houses or flats are provided in the first instance they are very popular.

An example of accommodation of this type provided by a local authority is in the Crookston Homes belonging to Glasgow Public Assistance Committee. These homes consist of small cottages, some for married couples and others for single persons, which have been erected on land adjoining the Crookston Public Assistance Institution. The cottages are built in blocks containing either eight cottages for married couples or 16 for single persons. Each cottage has a living-room with a bedroom opening out of it, a small kitchen with an electric cooker, and a bathroom. In the sitting-room there is a coal fire, but there is also a thermostatically controlled electric panel in the bedroom, and, as there is only a curtain between the bedroom and the sitting-room, the temperature of the whole cottage is the same. The residents are supplied with free coal, light, wireless, and full rations as they are all eligible to receive public assistance. They can cook their breakfast, tea, and supper in their own kitchen, but they are supposed to have their midday meal in the common dining-room. This is partly to ensure that each person has at least one proper meal a day and partly as a means of finding out if any of the inhabitants is sick. The kitchens are fully furnished and cutlery and china are provided. The staff consists of one trained and one assistant nurse with about six domestics. A doctor in the neighbourhood visits daily and is available on call. The matron of the Public Assistance Institution is also able to supervise the cottages. It is proposed eventually to house about 250 persons in these cottages. Each block of cottages will have a common dayroom. A large assembly hall, which has been used for an emergency hospital during the war, will be used for the midday meal. These cottages are expensive, being about 55s. a week per person, or 27s. a week if the cost of maintenance and buildings and repayment of loans is excluded, but they seem to serve their purpose. There are very few rules and the inhabitants can go out as they like and spend the night with relatives.

An example of cottage homes supplied by a voluntary association is the Bethany Homestead, Northampton. These homes were started in 1926 as a charitable venture by the Congregationalists and Baptists of Northampton. Since then a few cottages have been built for the Wesleys, and there is said to be a project to build a block for the Church of England. The Homestead consists of two-room cottages for healthy old couples. No rent is paid, but the occupant pays for gas, water, and food. They live their own life but are expected to be in their cottages by 10.30 p.m. On the estate there are also 18 rest-rooms where are housed people who are not quite fit enough to look after themselves entirely, and there is also a so-called nursing home which consists of three four-bedded wards, one four-bedded ward, and three single-bed wards. The resident nurses in the nursing home, and the staff consists of the matron, who is a State-registered nurse, and two or sometimes three assistant nurses, with about 15 unskilled persons to help. There are also a housekeeper and a domestic staff of six. In the cottages used by the healthy old couples there is, over the bed in each cottage, a bell which connects with the nursing home in case of sudden illness. The inhabitants of the cottages are usually looked after by their own doctor, but there is a local doctor on call in an emergency. The inhabitants of the rest-rooms have a certain amount of domestic help and take their midday meal in the common dining-room, but the furniture in their rooms is usually their own, except for the bed, which is supplied by the Association.

It has been suggested by many people that homes, of whatever kind, limited entirely to old people are not satisfactory, and Dr. Banks mentions in his report in the *Bulletin of the Ministry of Health* for June, 1945, that there is much to be said for the development of the cottage estate such as has been set up in Amsterdam. There are people of all ages on the estate, but it is possible to make special arrangements to ensure that the aged and infirm in their own homes have such medical and nursing care as well as domestic assistance as is required. Curran and his fellow authors take the same view in the avoidance of segregation (*Lancet*, Feb. 2, 1946).

Whatever kind of accommodation is provided, whether in flats, in cottages, or in hostels, some selection of the inhabitants

must be made. In some hostels, both voluntary and public assistance, there are people with some disability such as a chronic cough or a habit of excessive snoring, who tend to make friends and agree to share a room, but, both at Glasgow and at Farnham, the inhabitants know that if they cause trouble to the rest of the community they are liable to find themselves in the "poor house." It must be recognized that there is always likely to be a certain proportion of persons who are impossible to fit in anywhere except under strict institutional discipline.

Staff for Homes and Hostels

It is difficult to be dogmatic about this because, as was found during the war with residential nurseries, a highly trained person without a sense of vocation may not be as successful as a person without academic training who is enthusiastic about the work. So far as inquiries have gone at present, one of the best matrons in charge of a hostel for old people is a State-registered nurse, but a woman councillor in East Ham who was voluntarily looking after a hostel for the aged seemed an excellent type for the work, although perhaps liable to take risks owing to her lack of knowledge. A member of the Friends' Relief Society, writing in the *Quarterly Review of the British Red Cross* for October, 1945, states that in most of the Friends' Hostels for the Aged they have had married couples as wardens, but they have found that there should be someone responsible for the health of the old people in each hostel, although this need not be a State-registered nurse. A knowledge of home nursing and ability to decide when a doctor is necessary are the chief requirements, and Mrs. A. V. Hill thinks that there is a future for the assistant nurse in old people's hostels. It is easy to add to the number of the staff in the interests of safety, but so much depends on the type of old person (healthy but feeble, infirm, lame, etc.) that it is difficult to lay down standards, especially as a few enthusiastic persons will probably achieve better results than a larger number working by the clock.

Even the best type of master and matron trained in the Poor Law service is likely to be unsuitable in homes and hostels of the kind desired because they tend involuntarily to give an institutional air to the place. Further investigation may result in a clearer idea of the amount and type of staff required in homes and hostels for the aged, but what is quite certain is that people doing this work must avoid anything that seems like interference with the inmates and must adopt a helpful and sympathetic attitude towards them.

Heating and Lighting

There is a good deal of difference of opinion about the heating of homes for old people, and personal preferences and the difficulty of obtaining additional heat at the present time unconsciously colour some people's views. In general terms, it seems advisable that roughly the same temperature should be maintained all over the home. In some hostels old people have been seen resting in the afternoon in their bedrooms with the clothes over their heads to keep out the cold. It should be possible to ventilate the rooms from time to time during the day without running the risk of the inhabitants becoming cold when they go into another room. Central heating of a hostel prevents the crowding of the inhabitants round the one fire with the consequent institutional atmosphere which this produces. As old people often cannot see very well, the question of lighting is important. Bracket lights in common-rooms as well as a central lamp are necessary, and, as old people spend a good deal of time in their bedrooms, it is essential to have a light over the bed so that they can read or knit. Care must also be taken that the passages are well lighted, especially at danger points, such as occasional steps.

INTERIM CONCLUSIONS

Some members of the medical staff of the Ministry of Health have been studying the problem of the aged and the long-term sick patient for some time, but have only touched the fringe of it, because the ramifications are so many and because the subject is comparatively new and a number of associations and individuals are trying out different methods. This is satisfactory because in process of time ideas on the subject will become more defined. It is hoped shortly to visit homes for people of higher incomes, and this may modify some of the statements above.

One thing that seems certain is that there are at the present time four classes of patient filling hospital beds unnecessarily. First, patients with diseases which have become chronic and difficult to treat because they have not been placed under skilled treatment soon enough. Secondly, patients who have a disability but are taken into a hospital bed only because their friends are unable to look after them. Thirdly, patients who are suffering from an illness which could have been prevented

(for example, the result of an accident) if there had been someone at hand. Fourthly, patients who have been admitted with so-called chronic diseases which, under treatment, have improved so that the patients could return home but that they have nowhere to go.

In some hospitals there are, unfortunately, patients who have been allowed to remain in bed for months or years without proper classification or treatment, but it is to be hoped that these will cease to be found in the new hospital services. If satisfactory accommodation can be made either under the Housing Acts † or in other ways, for all types of people of the later age periods—that is to say, the apparently healthy, the slightly feeble, the infirm—many people now spending long months and years in hospital may be kept about, able to lead interesting and often useful lives until near the time of their deaths.

SCOTTISH STATISTICAL RESEARCH BUREAU

Following discussions which have taken place between the four Scottish Universities and the Faculty of Actuaries, a Scottish Statistical Research Bureau has been set up to bring together those who have statistical material which requires investigation and analysis, and those who have the experience to deal with the subject statistically.

It is known that valuable material is constantly being uncovered in many spheres of activity, but very often no attempt is made to bring out the facts which an investigation of such data might reveal, because the necessary time, labour, and statistical knowledge are not readily available. It is hoped that the new Bureau will close this gap. For example, a doctor who has collected data relating to a certain disease may be put in touch with an actuary who, as a practical statistician, will collaborate with him in getting at the facts behind the rough data. Larger investigations will also be undertaken, and it is intended that the Bureau, with its practical facilities, will act as a kind of clearing house. It should thus be the means of bringing to fruition research in the medical field and other fields which might not otherwise be carried out and the benefit of such research therefore lost to the community. During the war the practical benefits of statistical research were abundantly proved, whether the research applied to weapons of war, to industry, or to disease and sickness at home or in the jungle. What has been successfully applied during war could usefully be applied in peace in greater measure than has been the case in the past.

In its initial stages the Bureau will act only on behalf of individuals or associations of individuals who approach it through the Scottish Universities or the Faculty of Actuaries, which bodies will be the original members. It is intended, however, that other organizations interested in statistical research, in any field whatsoever, may later become members.

The Bureau will function through a central committee representative of the members. The first chairman of the Central Committee is Mr J G Kyd, Registrar General for Scotland, who is president of the Faculty of Actuaries. The secretary is Mr E Waugh, Faculty of Actuaries, 23, St. Andrew Square, Edinburgh.

† A housing association is defined in the Housing Acts. Such an association does not trade for profit but can construct, improve, or manage houses for the working classes. A local authority may, with the approval of the Minister, make arrangements with the housing association to help it in its objects.

German and Austrian children are to benefit from the latest relief plans of the Swedish Red Cross and the Save the Children Society, which have the support of the Swedish Government Committee for International Relief. Plans for Germany include feeding centres in Hamburg and the Ruhr, and probably also in Berlin, distribution of clothes, and medical assistance from Swedish doctors and nurses; those for Austria, daily meals for 10 000 Viennese children between the ages of 3 and 6 years, and distribution of clothing. The relief generally is to be given in all four occupation zones. Other news of Sweden's generosity is that Leningrad has received a second gift from the Swedish Government Committee for International Relief, this time of equipment for nine hospitals. The first gift, a year ago, was chiefly of medicines and vitamin preparations.

Reports of Societies

POSTMATURITY

At a meeting of the Section of Obstetrics of the Royal Society of Medicine on March 15, with Prof F J Browne in the chair, Mr A J WRIGLEY read a paper on the problems of postmaturity. He said that he had felt considerable dissatisfaction with the meaning of the word the diagnosis and management of the condition, and the lack of teaching on the subject. Many of our difficulties were self made, in that we acted on the assumption that if any pregnancy continued over the calculated date for its termination the foetus would become so large as to give rise to difficulty in delivery. That this was not the case had long been recognized. Almost half the babies of 9 lb (4.0 kg) and over born at St. Thomas's Hospital in 1945 had been delivered before the calculated date. Another series of cases showed how often a small baby was born after the expected date. Some textbooks stated that prolonged pregnancy did not necessarily result in a large child, while others ignored the subject or stated that the child was always above the average weight and length. Textbooks were also contradictory on the diagnosis of postmaturity. The majority of authors had written on the assumption that postmaturity was synonymous with excessive development of the foetus. Radiography was not much help in diagnosis. The appearance of ossific centres varied considerably and was of little value in assessing the maturity of the foetus. Many writers gave no advice on the management of women who had passed the expected date of confinement, some advised induction when the foetus was postmature but did not indicate when that state was reached, while others avoided interference. Weekly examination and induction were advised when the child was large and labour overdue. Estimation of the height of the fundus would never help, especially in the last weeks of pregnancy. Girth measurement varied in different women and did not greatly increase when the foetus was postmature, because there was no corresponding increase in the amount of liquor amni. The following, Mr Wrigley said, were additional physical signs of postmaturity: (1) when the foetus was truly postmature it was large, its weight being well above 7 lb (3.1 kg), this could be appreciated by repeated clinical examinations; (2) Concurrent with the increase in size was increase in strength and tone, which resulted in the whole foetus becoming more rigid, this rigidity could be recognized on clinical examination; (3) The amount of liquor did not appear to increase in the last weeks of pregnancy, and therefore as pregnancy advanced the foetus became more easy to palpate. Thus there might be a large rigid foetus easily felt in a uterus that contained little liquor, perhaps so little that the uterine wall might be thought to outline the foetal position and some of its limbs. These signs would be observed with reasonable certainty only if the doctor had watched the patient at regular intervals throughout the pregnancy and at frequent intervals in the later weeks. The amount of liquor varied in different women, but in all women there should be a relative, and as full time was reached a noticeable, apparent decrease in amount.

Mr Wrigley held that ideas on pregnancy and its termination needed revision. The "expected date" could only be approximate and it would probably never be possible at any time during the pregnancy to make a more accurate forecast. Three variations might occur: the expected date might come and go and labour start some days or weeks later with the delivery of a large postmature baby, or with the delivery of a normal-sized baby or even a small baby, or, at about the calculated date, a large oversized baby would be delivered that showed every characteristic attributed to postmaturity. An apt simile was that the pregnant uterus should be regarded as an oven, and just as there were slow ovens and quick ovens so would there be a variation in the time expected in the production of a cooked joint or a mature foetus. As a result of the differing advice in the textbooks doctors adopted one of two courses: either every woman who had passed the expected date received a medical induction or she was "left to Nature"; in the latter case the patient occasionally delivered herself of a large truly postmature baby,

perhaps with great difficulty and risk to both. There was no justification whatever for advising that a week or a fortnight should elapse after the expected date and then labour should be induced. If this course was adopted a number of women would go into labour later than they should be allowed to do, or, alternatively, the baby might not be mature. Another objection to routine induction was that it frequently led to repeated medical inductions. Apart from the physical upheaval of such proceedings, they were accompanied by a variable degree of anxiety which increased with each failure to bring on labour. It should be a rule that if there was justification for a medical induction there was justification for surgical induction. Doctors should continue to give patients estimated dates for their confinement, but should cease to believe and to teach that every woman would mature in the calculated 40 weeks. There should be no instructions to terminate pregnancy as a routine at the 40th week, 41st week, 42nd week, etc. Doctors should teach that by repeated observations at regular intervals there appeared a combination of physical signs that would indicate the course of action; that it might well be necessary to terminate pregnancy at the 38th week for a baby that was obviously large; and that in the absence of these physical signs interference was bad midwifery.

At the beginning of the meeting Dr. TITCOMB and Dr. DEANE showed a film of the movements of the human foetus, with a commentary by Sir Joseph Barcroft.

NUTRITION IN THE COLONIES

A conference of the Nutrition Society on "Nutrition in Colonial Territories" was held on March 2 at the London School of Hygiene and Tropical Medicine.

Col. WALTER ELLIOT, who took the chair, suggested that the present food restrictions in this country might at least make us more sympathetic about the nourishment of less highly civilized populations. The standards of nutrition in the Colonies varied greatly in different localities. Even in neighbouring territories, moreover, dietary habits and prejudices, such as religious bans on eating meat, might vitally affect the nutritional status and physical development. Striking evidence was obtained during the war to show that the nutrition of East African natives fell short of European standards. Troops recruited in Sierra Leone were very susceptible to tuberculosis, but after receiving European diets during the Burma campaign their resistance was much improved. The quantity of food was no less important than quality. A Chinese delegate to a League of Nations conference had once remarked that all Chinese were undernourished all the time. The key to better nutrition lay in improved agriculture, starting in the intelligent application of the principles of soil science.

Dr. B. S. PLATT displayed a map showing the disposition of the Colonies, which have a total of 66,000,000 inhabitants. The population of 21,000,000 was in Nigeria, while at the other end of the scale were the Falkland Islands with 2,000 and about 60,000 sheep. Density of population was greatest in Hong Kong, and least in Nyasaland. The nutritional problems to be faced, and the state of public health in general, varied greatly in different localities. Thus the neonatal mortality rate of 327 per 1,000 in Hong Kong was much higher than the rates in most other Colonies, and about ten times higher than in New Zealand, which had the world's lowest rate.

Malnutrition might be quantitative, resulting in varying degrees of starvation, or qualitative, in which case the characteristic deficiency diseases would ensue. The state of nutrition in populations might be assessed either by clinical examination of selected groups of people or by the detailed investigation of the quantity and quality of the food on which they subsisted. While under ideal conditions the same answer should be obtained by both methods the results in practice might sometimes be divergent. In this event suspicion should fall first on the dietary survey, which should be checked for any possible inaccuracies or unsuspected complicating factors. The first clinical signs of malnutrition were physically ill-defined. Mental symptoms were more easily recognized, and included apathy, and an attitude to authority commonly described as "bloody-mindedness." Remarkable improve-

ments in the mentality of African troops were found when they were transferred from native to European rations. Clinical evidence of malnutrition was obtained recently in Ceylon, when the war made it necessary to substitute wheat flour and coconut for part of the rice in the diet. As a result the death and neonatal mortality rates, and the incidence of sore mouth and of the skin condition known as "phrynodermia," were all substantially increased.

Dietary Surveys

In dietary surveys it was necessary to inquire how much of the various foodstuffs were eaten, and then to express the amounts in terms of the basic nutrients. Dr. PLATT displayed a long list in which he had tabulated data on hundreds of native foods. Differences in calorific intakes might be expected between communities accustomed to hard or light labour, and in practice the requirements of African natives were found to vary according to whether they lived on the shores of a lake, at the summit of a hill, or on the slopes of a hill in such a position that energy was constantly wasted in moving up and down. In assessing the amounts of food eaten, however, care must be taken to avoid a false impression caused by the time of the survey coinciding with a temporary shortage of supplies.

The traditional African ration of 1 lb. (454 g.) of maize and 1 1/2 lb. (227 g.) of beans daily left great scope for improvement, and an organized programme of action was necessary to improve the standard of nutrition and of living in general. The soil must be preserved and watered, and pests controlled. A correct balance must be struck between crops grown for home consumption and "cash" crops, grown for export. The food value of crops must be assessed in relation to the labour expended, and the present enormous waste of effort reduced by the introduction of modern methods and efficient farm implements. The cassava, from which tapioca was obtained, gave a high return in calories per man-hour spent in its cultivation. The storage of food, and its preservation by dehydration, must be arranged so as to provide for seasons when crops were scarce. Finally, there was a need for social progress. The native must be educated, and be given the incentive to work for a higher standard of living. Some system of apprenticeship was wanted to enable skilled trades to be passed on. Excessive fecundity should be prevented by birth control.

In carrying out this programme about 75% of the money available for improving nutrition in the Colonies would have to be spent on personnel. Field working parties were being organized, and were to consist of teams, each including a doctor, agronomist, administrator, and "nutritionist."

Dr. PLATT's paper was followed by a film showing the achievements of the Middle East Supply Centre during the war. The activities of this organization took place mainly in Egypt. The problems of irrigation, soil preservation, afforestation, locust control, and the breeding and insurance of livestock were all clearly illustrated. In addition it was shown that the fight against starvation and economic collapse was made difficult by the human element, since Arab farmers were persuaded by enemy propaganda to conceal their stocks of much-needed grain.

Problems of Malnutrition

Dr. H. S. STANNUS spoke next on malnutrition in colonial territories. In his opinion unknown deficiency diseases greatly outnumbered those already known. In the early stages of malnutrition, before the tissues sustained obvious injury, functional abnormalities occurred which were difficult to assess but which were associated with increased liability to fatigue, irritability, apathy, depression, giddiness, loss of tone, an neurasthenia. Clinical observations, laboratory investigations and dietary surveys all helped in the diagnosis of malnutrition. In clinical examinations grave doubts had recently been thrown on corneal vascularization as a sign of riboflavin deficiency and on keratitis pilaris as a sign of vitamin A deficiency. Moreover, it was grossly incorrect to attribute pellagra simply to deficiency of nicotinic acid. Good evidence had been obtained, however, associating macrocytic anaemia with deficiency of folic acid. The condition of reticulobulbar neuritis and the so-called infantile pellagra seem to be of nutritional origin, but had not yet been ascribed to deficiency

of specific nutrients. Laboratory methods of investigation had the disadvantage that heavy apparatus and fittings were needed, and they were therefore of little use in the field. In dietary surveys it must be remembered that the staple articles of diet might be supplemented by many seemingly small seasonal extras varying from wild honey to caterpillars, flies, and grasshoppers, which might have considerable nutritional importance. Diets in gaols might be supplemented by food brought in by friends of the prisoners.

The human subject could sustain life on widely different diet patterns. While the Eskimo ate nothing but flesh, and the Oriental coolie nothing but rice the prejudice for any particular diet might be very strong. In the Bengal famine some Indians when offered wheat instead of rice, preferred to die of starvation. The individual seemed capable of subsisting at different planes of activity, and after a period of undernourishment the metabolism becomes adjusted so that a new state of equilibrium might be reached at a reduced body weight and with curtailed physical activity. Dr STANNUS expressed misgivings as to how far an attempt at European standards of diet and civilization would improve the lot of the African tribes. He predicted that the disuse of native customs would be attended by over population, continued malnutrition and a high incidence of syphilis.

General Discussion

Dr J G REED said that valuable information had been collected in prisoner-of-war camps in Hong Kong and Singapore, which should be compared with similar data from British, American, Dutch, and Australian sources. One important generalization which had been reached was that mal nutritional disease was not clear-cut and constant. While syndromes such as that characterized by retrobulbar optic neuritis were extremely widespread in many camps, the evidences of malnutrition overlapped and interlinked in a complex pattern. Food yeast, local fermentation products, and easily grown green vegetables had proved valuable as supplements.

Dr N C WRIGHT dealt with the relation of animal husbandry to human nutritional needs. During the earlier stages of Colonial agricultural development emphasis was invariably placed on plant husbandry, and except in predominantly pastoral areas the parallel need for the development of livestock husbandry was overlooked. In the 1939 report of the Colonial Nutrition Committee the most striking finding was the almost complete absence of milk, and indeed all animal products, from most Colonial dietaries. Although this lack did not apply to natives of East Africa, Northern Nigeria, and the Middle East, animal husbandry even in these great pastoral areas was very inefficient. The animals suffered from overcrowding, drought, disease, and gross undernourishment at certain seasons of the year. The necessity for using oxen for draught purposes reduced the milk yield, but with improved breeding and nutrition the native strains could be much improved. In the predominantly settled areas, comprising mainly the territories of the wet tropical belt, the animal population was disproportionately low in relation to the nutritional requirements of the human population. In the whole field of animal nutrition new ideas must be probed, new methods investigated, and new projects boldly planned and executed. Dr W R WOOLDRIDGE reminded the Conference that the Colonial Veterinary Service had already done much useful work on the control of epizootic diseases such as rinderpest.

Miss AUDREY I RICHARDS discussed sociological factors in relation to Colonial nutrition. The Colonial Social Service Research Council could help in finding out what changes in the social habits would be necessitated if the proposed improvements in dietary standards were to be obtained. Mr A J WAKEFIELD congratulated Dr Platt on the good progress of his campaign for improved nutrition in the Colonies, and promised agricultural support. He indicated the plight of the West Indies, where concentration on a single export crop, such as sugar, had prevented the adequate production of home-grown foodstuffs for a dense and rapidly increasing population. Prof R FIRTH discussed the influence of social factors such as hospitality and religious prejudices, on the consumption of food. Sir JOSEPH BARCROFT, in philosophic vein, reflected that it had been the lot of most mankind to be undernourished from

time immemorial, and that any systematic attempt to improve the position might lead to larger populations, resulting only in an intensification of the state of chaos which civilization had already reached.

In summarizing the day's proceedings Col ELLIOT said that the conference had been fortunate in hearing first hand comments from several experts from overseas. While the film shown earlier in the meeting had emphasized the more romantic aspects of the struggle for improved nutrition, the real need was for day to day "plugging on the part of the administrators." It was essential that the desirability of "profit" crops should not lead either to the natives neglecting their own food requirements, or to an undue drain on their soil. Nitrogen in the form of meat or cattle cakes and phosphates in the form of bones should not continually be exported to temperate zones without provision for their replacement. A higher standard of living based on larger crops, could not be expected from an impoverished soil.

Correspondence

The Health Service Bill

SIR,—The medical profession, as we all realize, is now at a critical period in its history when far reaching decisions which will affect the course of medical practice for generations, must be taken. As one who is within a few years of the end of his career and who will be little affected personally by the National Health Service proposals, I am wondering whether the action taken during the last few months by the leaders of the profession is best calculated to ensure that the Bill, when it finally passes through Parliament, will produce a medical service which will provide to the patient a first-class medical service and will at the same time, enable the medical practitioner to work under conditions satisfying to him. Week by week in the *Journal* we see a spate of high-sounding words which baffle rather than instruct, and we seem, as a profession, to be in grave danger of scattering our energies in promulgating principles some of which stand very little chance of being accepted by the community at large or being sympathetically considered by Parliament.

Medical men have the reputation—not always deserved—of being poor business men, but there never was a time when the profession required more urgently the business instinct of knowing what is possible and what is not and concentrating on the possible. We have in front of us a Bill for the drastic reorganization of medical services promoted by an able Minister, with a large majority in Parliament, who conscientiously believes that his proposals are in the best interests of the country. He is well aware of the almost chaotic conditions under which the public health, hospitals, and medical services have been working for many years, how defective in many respects these services are, and how urgently drastic reforms are needed. Having all the facts of the previous proposals before him, he produces a Bill which, with all its faults, is a most courageous attempt to reduce to some kind of order the existing services. I have been associated with the negotiations in regard to the new medical service from the commencement, and as a result am convinced that no scheme could be produced which did not contain some anomalies so complicated have the services become during the course of the last fifty years. The Minister's scheme has its anomalies—notably the separation of clinic services, in some cases, from hospitals—but, as it seems to me, it is fundamentally a sound scheme which, if amended in some particulars, and if generously administered, would provide an efficient medical service for the community.

My criticism of the B.M.A.'s policy, so far as I know it, is that it seems to be dissipating its energies in a cloud of words instead of concentrating effectively on the one single point which affects so vitally the future of the profession. The only point of really vital importance to the profession, as it seems to me, is that of its freedom from official control. This point can be readily grasped by the layman, who is going to be the final arbiter on this question. Such control is to be imposed

in the Bill in two ways—by prohibition of the sale of practices and by the proposal to remunerate practitioners largely, but not entirely, on a salary basis. Admittedly the sale of practices in the past has not always produced satisfactory results in some areas, but the alternative of prohibition as a cure for a not very serious evil appears absurdly drastic, and the penal clause, involving fine and imprisonment, seems a new departure in English jurisprudence. If, however, the profession fails to secure the omission of this proposal from the Bill, doctors in the service will be appointed by the local Executive Council and their freedom of action, and even their freedom to practise the profession for which they have been so long and so expensively trained, will in the long run be grievously curtailed. The second point in regard to payment by way of salary is of equal importance. Even if remuneration is at first 50% salary and 50% capitation fee, this basis of payment can at any time, by regulation, be changed to 100% salary and 0% capitation fee. The power to make regulations, usually without an affirmative resolution of both Houses of Parliament, conferred in the present Bill and much other legislation gives to a Minister, and, of course, the Civil Service, great powers which may, or may not, be used wisely. This power could be used to reduce still further the freedom of the profession, of course in the interests of efficiency, in the future. Regulations are essential in connexion with a service of this kind, but, in view of their importance, it is to be hoped that the Association will attempt to procure an amendment of Clause 69 (2) of the Bill providing that all regulations shall be laid in draft before Parliament and approved by resolution of each House.

I am aware, of course, that the B.M.A. has the matters referred to above in mind. The purpose of this letter is to make a plea for simplification of procedure and for concentration on one or two vital points. If the Minister can be persuaded to accept the proposed amendments his scheme for the reorganization of medical services will not become thereby less efficient or more difficult to administer, and he will gain the sympathy and support of a free profession willing and anxious to co-operate in the provision of a first-class service.

The dropping of proposals for the prohibition of the sale of practices and for any payment by way of salary will admittedly be in the interests of the medical profession, though it will not adversely affect, and might improve, the efficiency of the service. Let us admit this frankly instead of pretending that all we do is in the interests of our patients. The medical profession has, in the past, deserved well of the community. In return we would now ask the community to allow us to retain a similar measure of freedom to that still accorded to other professions.—I am, etc.,

The University, Liverpool.

W. M. FRAZER.

SIR,—The many letters and the divergent opinions expressed in the Health Service Bill in the *Journal* of April 6 seem to confirm the opinion that I have formed, after many years' experience with medical committees—that the doctor is a poor politician because he sees many sides to every question and finds it difficult to make up his mind; sometimes he requires a long time to come to a conclusion, and may even wish to reconsider the position when new evidence is produced.

I trust that the B.M.A. is going to produce a scheme of its own as an alternative to Government suggestions. I am well aware that attempts have been made for many years to persuade the Government to accept a scheme, but I do not know that the exact details of such a scheme have been published. I trust that the leaders of the profession in the Royal Colleges and the Association will lead, and will not wait to see which way the tail of the profession is going to wag.

There are some facts that are perfectly clear. This Bill affords powers to the Minister of Health which will enable him to dictate to the individual doctor or hospital; indeed, he has already shown his hand in his attitude to the (so-called) Negotiating Committee, for no negotiations of any kind have taken place: "Ministers do not negotiate." This Bill is a Socialistic political move aimed at ensuring a sound actuarial background for the national insurance scheme; it will tighten up certification, make every practitioner who signs certificates a State-paid, State-controlled servant, and render him liable to inspection. The Bill is not a constructive measure for the

improvement of national health. There is no offer of adequate numbers of hospital beds; there is no hope of the immediate production of new health centres; and without a considerable increase in the numbers of doctors, dentists, and nurses the scheme is quite unworkable in 1948.

To call the scheme a "comprehensive health scheme for all" is most misleading. If there were five times as many dental surgeons, all working, they could not do the work necessary to provide a comprehensive dental scheme for the population of this country, and to make this Bill a practical measure the number of general practitioners must be at least doubled, and the number of consultants in all branches of medicine, surgery, obstetrics and gynaecology at least trebled. When a consultant's opinion costs nothing the public will demand that opinion on every possible occasion, and the practitioner will, naturally, support them. A good doctor is always glad to receive confirmation of his opinion and assistance in his management. Is Mrs. William Jones in Wales to be debarred from the benefit of the opinion of Sir Thomas Smith of Harley Street when she is ill? And if she is so debarred, why?

But already there are variations in the interpretation between the Bill itself and the Summary, as pointed out by Dr. N. Cridland. Which are we to believe? No doubt the Minister himself will ultimately decide what he means. There are some optimists in the profession, such as Dr. J. L. Henry, who suggests that we must not organize any resistance, even if we dislike the Bill, and should use our not inconsiderable influence in Parliament to bring about modification. I can only suppose that Dr. Henry has not had time to read or listen to reports on Parliamentary procedure. This Government has a large majority and they are not accepting any single modification or amendment to any of their proposals. Their legislation is forced through whatever the opposition may be.

Dr. M. J. Bradlaw's letter appears most important. The Minister is going to offer compensation for loss of practice on the death or retirement of a practitioner. The basis of such compensation has not yet been discussed, but the compensation will be in the form of Government bonds carrying 2½% interest; the net return from these will be about 1½%. But there are even more serious aspects of this suggestion. I suppose every doctor enters his profession with the general idea of earning a living, and after this the various doctors are differentiated by the other factors which govern their practice. The able practitioner is ambitious to establish a reputation to do his patients good; to widen his practice; to obtain greater skill, knowledge, and senior qualifications; and in the past his interest in his practice has been such that he has taken the greatest care in securing a suitable partner or successor (perhaps a son) who will continue the tradition of the practice and pride in personal achievement.

All ambition to build up a good practice will be killed under a nationalization scheme. If the Socialist Government has started in another way and had said: "We wish to improve the medical service of the country; we wish to increase the number of doctors and dentists, nurses and midwives; we want to make every doctor more efficient by providing better education, more secretarial help, and more domestic staff; health centres with every convenience for high-class practice; extra hospital beds so that all the sick may be treated under the best conditions; and we shall be glad to have suggestions from the medical profession for the co-ordination of such services, then the medical profession would have been keen to co-operate. At present they seem to be divided between those who view the Bill with apprehension and yet apathy because they do not know where to turn; and those who hope, like myself, that we are not going to see our profession and our hospitals nationalized by a Socialist dictatorship.—I am, etc.,

Birmingham.

K. DOUGLAS WILKINSON.

SIR,—How stimulating it is to read a letter like that of Dr. William Gray (April 6, p. 542) after the wails and lamentations about the Bill which usually appear in your pages! I am in entire agreement with everything he says. I, too, have thought, since my student days twenty years ago, that the question of money in the doctor-patient relationship should be entirely eliminated. I thought then, and still think, that an ill person is in need of the best help available, and that the question of

payment for this help ought not to arise at all. The theory advanced by the B.M.A. and so many members of our profession that a salaried doctor would not care for his patients to the very best of his ability is an insulting one. Surely any doctor who would be influenced by money received is not worthy of being a doctor at all.

Perhaps Dr Gray has not perused the correspondence about the Bill in the *Journal* as carefully as I have. If he has he must surely have learnt with amazement how despised the doctors in the public health service are by the rest of the profession. Because we receive a salary and do not collect fees from our patients we presumably care nothing for the welfare of our patients and have no loyalty towards them but only towards our employers. I admit that these doctors so indignant about their practices being taken away and a salaried service substituted, might pity the public health officers for having so little business acumen as to be content with a bare living wage rather than piling up a bank balance, but I think it time that someone protested against the idea that we do not consider our patients or do all we can to help them—I am, etc.

WINIFRED M. COPPARD
Asst. C.W.O.

Dunmow, Essex

SIR.—At the B.M.A. meeting in Birmingham on April 7 I voiced my fears that we would fail to present a solid united front in our fight for the rights of the individual. I suggested that the B.M.A. should become a trade union, this being the most efficient way to fight the dictatorship of Whitehall. In reply Dr Dain explained that the Government would not license a new medical trade union.

I am ever mindful of the debacle of 1911 and feel that the majority of medical men would be more content to know for certain that there would be no backsliding and no blacklegs and that we would all stand shoulder to shoulder in our refusal to co-operate with the Government until the seven essential Principles laid down by the B.M.A. are incorporated into the National Health Service Bill. Let us recognize that we are fighting for the liberty of the individual and the safeguarding of the rights of the public as well as our own profession. We are the first body of people to be attacked, but, make no mistake, if we go back on our Principles and refuse to fight we shall not be the last. I therefore suggest that local meetings be called immediately, and all medical men requested to sign a pledge that they will refuse co-operation until the Government amends the Bill to incorporate our Principles. We shall then know where we all stand, and Mr Bevan (who now relies upon splitting us) will know also. Without our co-operation the Bill, even if passed into law, is moribund.

I further suggest that the colleges and the universities be approached and requested to postpone all further final examinations until Mr Bevan listens to reason. This step, combined with a huge publicity campaign, will make the Minister of Health realize that the medical profession and the British public will not submit to dictatorship whether it be Nazi or Socialist.

The time to act is now and not when the Bill is passed into law. So let us go forward shoulder to shoulder, secure in the knowledge that we fight not only for the principles of a great and honoured profession but for the elementary rights of the whole British democracy—I am, etc.

Birmingham

MARK J. BRADLAW

SIR.—G.P.s are confronted with a difficult situation in being asked to formulate an opinion on the new N.H.S. Bill in the absence of details about remuneration. Without that information it is impossible to determine whether the average doctor will be reasonably contented in the new service and, in consequence, the public satisfied by the service. Although G.P.s would embark on the scheme with the best intentions, the present number would possibly be unable to cope happily with the greatly increased number of patients seeking their services. If remuneration for the increased work is considerably less than his present income what attitude is any doctor likely to adopt? It would be difficult for him not to view many of his patients' attendances as unnecessary, and the changed attitude of doctor to patient would inevitably result in an unsatisfactory service. The majority of doctors cannot divorce conscientious service

to the public from financial considerations, however good their intention to do so.

Basic salaries and capitation fees are discussed, but in the profession there is no unanimous desire for either or both. An alternative has not been put forward which would prevent a doctor from feeling that he was being imposed on and the patient from getting the impression (rightly or wrongly) that his calls on the doctor were unwelcome. Would the attitude of the doctor to his patients be less disturbed and his patients receive greater care and attention if the financial reward were to vary with the amount of work done and not depend only on the number of persons on his list? Would not a small capitation fee plus a scheme of payment on lines similar to those of the National Deposit Friendly Society and the Army civilian practitioner bills make for a more satisfactory service? Each patient in the National Health Service will probably have a medical record envelope as used at present in the N.H.I., and it could contain cards for the purpose of claiming fees (not from the patient). Some method of preventing dishonest claims could surely be devised.

It is generally believed that the National Health Service Bill will be passed but it can fulfil its aims only with the full co-operation of G.P.s. Satisfactory remuneration, based on raising every patient to the status of private patient, would ensure successful operation of the service, and the objects for which the Bill is introduced could be achieved. But in its present incomplete form one cannot possibly decide in favour of the Bill—I am, etc.

Creswell, Derbyshire

S. H. EVANS

SIR.—Among the many letters published in the *Journal* on the subject of the new Health Service Bill there have been few on two matters which concern general practitioners most intimately. These two are compensation and remuneration.

The offer of compensation is the most juicy of the baits so far thrown to us and as such is the one most likely to lead us into error. It is said to be made in order to compensate us for the loss of the capital value of our practices. We may ask, Why should there be any loss? There can only be loss of that capital value if we are denied the right to buy or sell our practices. There will be no loss if we retain that right. If, therefore, we accept compensation in any shape or form we have at once thrown away not only the capital value of our practices but also our independence, and we have committed ourselves irrevocably to accept the terms of service offered us from time to time, whether we like them or not. From past experience we can be certain that these terms will not be generous.

Why, then, should we so easily allow ourselves to be bamboozled into suffering this unnecessary loss of capital value? Why should we not avoid it by insisting on our own right, in the same way as any other law-abiding citizen of this country, to buy or sell the goodwill of our practices, not only to whomsoever we choose but at whatever time we choose, whether we take part in the new service or not? The trap for the surrender of our liberty is well laid. Let us not walk into it so blithely. Let us tell Mr Bevan in no uncertain terms, "Our practices are not for sale. We do not want compensation for loss of capital value, for there need be none. We insist on the right to buy or sell our practices at all times. We will not be bought out and have a 'forced loan' imposed on us." This question of "compensation" thus becomes vital if we wish to retain any freedom from control and regimentation which, it is obvious, is the primary object of the present proposals.

Dependent on the right to buy or sell as set out above, is the point that we cannot accept a basic salary. Naturally we cannot buy or sell a salary. It follows that remuneration must be by way of capitation fee. Here again we must insist that the capitation fee should be adequate, guaranteed, and constant, no matter how many patients a doctor has on his list. There is no justification whatever for the penalty of expecting us to treat any particular patient for a smaller fee than that decided upon, simply because we happen to have been chosen as medical attendant by a certain number of other patients.

Incidentally, by refusing to accept "compensation" we would be saving the country the not insignificant sum of £66,000,000—I am, etc.

Newport, Mon.

C. N. COHEN

The Minister Listens

SIR,—Sir E. Graham-Little (March 30, p. 503) appears to be very annoyed at my letter (March 16, p. 411), but that is no reason why he should distort it beyond recognition in his reply. I did not say that 40,000,000 people were all "united," or that these same people were attempting to "coerce" anyone. I made no statement of the numbers who voted at the General Election, but sought to contrast the small number of some 50,000 doctors with the huge figure of some 40,000,000 people who are the prospective patients of those 50,000 doctors under a Bill for a more modernized, a more humane, and a more democratic system of treatment.

The Government of this country, during its term of office, is always recognized as representative of the people, and it is against the endorsed scheme of this representative Government for better health conditions for the nation as a whole that certain doctors are urging sabotage. The main excuses brought forward for this sabotage are objections to the small measure of direction which the scheme urges for the benefit of those who are badly placed for medical treatment; objections to the stoppage of buying and selling of the treatment of patients *en bloc*; objections to whole-time salaried service which, they claim, interferes with a doctor's freedom; objections to the rapid and immediate efforts to open large numbers of health centres which would improve the working facilities for doctors and others and whose efficiency could be further increased as experience of their working was collated; objections to the taking over of voluntary hospitals (many of which are out of date and lack sufficient funds), which pick and choose their patients and contrive to get most of the limelight although the ratio of beds in voluntary hospitals to those in municipal hospitals is of the order of 1 to 5 in the whole of the country; and objections generally to the harnessing of the profession as a more closely working team for the benefit of the country as a whole. In other words, the objections of these saboteurs are mainly from the narrow professional viewpoint.

It is true that they also claim much virtue in their anxiety about that somewhat ill-defined condition which they term the doctor-patient relationship, but is not this a considerable slur on their numerous colleagues who are working in whole-time salaried jobs up and down the country? Have they ever considered the nurse-patient relationship? Are nurses any worse nurses because their salary—a scandalously low one—is paid to them by a hospital board or by a local authority instead of being collected on a capitation system? And is it not possible that our patients, who, by the way, did vote at the election, have a very shrewd idea of what would benefit their own "health and happiness"? They know their doctors—at any rate they know the general practitioners who form the majority in any national health scheme for doctors—and they do not appear as a class to be worried about this doctor-patient relationship.

Sir Ernest's own assertion that the "vast majority" of our doctors sincerely believe that acceptance of the Government's proposals will worsen, rather than better, the nation's health and happiness is an astounding piece of wishful thinking for which he forgets to offer any evidence. Where are his "authentic figures" for this grotesque statement? Can it be that he finds them in the B.M.A. questionnaire or from that majority of the group of doctors who also sit in the House of Commons and disagree with his opinions?

Lastly, he must surely agree that the Labour Government is the representative Government of this nation of 40,000,000. For otherwise it follows that he, who received only 7,618 votes out of an electorate of some 24,000 and won his seat by the narrow majority of 149, is not the representative Member for the University of London. Which is unthinkable.—I am, etc.,

London, N 3.

P. G. S. DAVIS.

Paralytic Ileus

SIR,—If Mr. Rodney Smith (Feb. 16, p. 253) had read my letter (Feb. 2, p. 177) more carefully, he should have realized that I had no desire to belittle the value of "suction-drainage," my main wish being to point out its advantages—but also its limitations. The vast majority of surgeons in this country are "fully conscious" of the value of suction-drainage—and also

of its shortcomings. While very many good things have had origin in America, and I would not for a moment belittle the tremendous advances achieved by so many of their pioneers in the field of surgery, we must not lose our sense of proportion or our critical faculty. This is a mechanical age and America is a highly mechanized country. We must beware of the tendency to mechanize our patients. Fortunately this "Brave New World" of "R.U.R." has not yet arrived! The best surgeon is not necessarily the one whose patients positively bristle with gadgets, nor do patients hemmed in by such a barrage of machines necessarily do best.

I am well aware of the value of suction-drainage in operations on the oesophagus or cardio-oesophageal areas, where leakage is so prone to occur after anastomosis of stomach or jejunum to oesophagus. Very many surgeons, myself included, invariably use suction-drainage with operations on the stomach, duodenum, or small intestine, to prevent gastric or duodenal dilatation. Its value in the treatment of penetrating wounds of the intestines is quite beyond question, due to the greatly increased but incalculable risk of intra-peritoneal infection added to the other hazards. But when the fluid and/or flatus collect in and remain in the lower jejunum and ileum (as in true paralytic ileus) I do not believe that suction-drainage of the stomach, duodenum, or upper jejunum alone is the best form of treatment. In true paralytic ileus there is neither peristalsis to carry the tube down to the distended bowel nor reversed peristalsis to carry the fluid and/or flatus up to the tube. Otherwise ileostomy would not have failed so universally. Of course suction-drainage alone will succeed admirably with the lesser and more transient degrees of functional post-operative distension, or in cases of physical obstruction where there is active peristalsis. The distinction between slight transient distension and paralytic ileus is very difficult to define in the all-important early stages, for it seems to be mainly a matter of degree and duration. Absence of peristaltic sounds even for long periods is not enough. The normal abdomen is often quite silent for long intervals, as also is the distended abdomen, whether due to transient distension, paralytic ileus, or complete physical block. There will be noise only where there is movement, usually through a narrowed lumen as in partial physical obstruction.

I entirely agree with Mr. Rodney Smith that "the prevention of the vicious circle" is of paramount importance. Hence my advocacy of "eternal vigilance and prompt action" (Feb. 2, p. 177). But I am still firmly convinced that my scheme of active prevention is much more rapid and certain than suction-drainage alone. Perhaps I did not make it sufficiently clear that I always employ this latter method when there is any accessible fluid or flatus to be aspirated. But I have seen patients die from toxæmia because this method alone was persisted in, who could certainly have been saved by the early active treatment described. I stress the word "early," so as to avoid Mr. Smith's "vicious circle." But what evidence is there in favour of "a paresis of the intestinal muscle"? Could not the lesion be at the myoneural junction or in the parasympathetic system higher up? Might it not be due to deficient production of acetylcholine at parasympathetic nerve-endings, or its abnormal destruction by cholinesterase? Or might it not be due to central overaction of the sympathetic system inhibiting the parasympathetic? The condition is as full of possibilities as the abdomen is of fluid or flatus! Again, how do we know that in true paralytic ileus the muscle will "resume its function when it has recovered its tone," and that "this recovery is best facilitated by resting the gut as much as possible"? I maintain that such masterly inactivity (as regards effectively dealing with the dilated ileum) merely favours the development of Mr. Smith's "vicious circle," as well as prolonging the toxæmia. I have found that early treatment with prostigmin may initiate peristalsis alone without the need for an enema. So there does not appear to be a "paresis of the intestinal muscle," unless and until late in the "vicious circle," when the intestine has become hugely dilated, anoxic and devitalized, and will never contract again. I have not seen any patient "made worse by such treatment," unless it had been left till too late, when he was already moribund.

I must thank Mr. Rodney Smith for correcting a rather loose and careless use of words on my part in referring to "gastric suction with a Miller-Abbott tube." In a spirit of grateful-reciprocity might I point out a similar mental aberration on his part, when he states—"but the enormous volume of fluid withdrawn by suction does not mean any greater necessity for intravenous fluids, for stagnant fluid left in the dilated intestine is just as much lost from the general circulation as that withdrawn by suction." The "stagnant fluid" left in the dilated bowel, provided none of it has been taken by mouth, must all of necessity have been secreted by the bowel, and must cause a loss of fluid and chlorides from the body, whether these were sucked out of the bowel or not. Therefore they must be made good by intravenous saline. The daily urine output will indicate whether enough fluid is being administered intravenously. Estimation of urinary chlorides will indicate whether these are being replaced adequately. Chlorides will disappear early from urine unless adequately replaced intravenously. Urea will be retained in the

blood to an abnormally high level later on, to maintain a normal osmotic pressure, if the chloride and protein deficiency is allowed to progress. So it too, will tend to disappear from the urine, but only when the plasma proteins have already fallen.

Mr Smith calls neglect of physiological stimulation of the dilated bowel "physiological rest". Since the dilatation is due to some pathological cause I would suggest that physiological stimulation is the correct form of treatment. Can one call it "physiological rest" when the ileum and perhaps the lower jejunum are dilated with toxic and stagnant fluid left in it? As regards attempting "to coerce the gut into contracting while it is dilated and therefore at a great mechanical disadvantage" surely he has not forgotten that stretched muscle contracts more forcibly when stimulated than unstretched muscle, and the tone in muscle increases with stretching. That is provided it has not been neglected too long by "physiological rest" thus entering the "vicious circle". Eternal vigilance and prompt action are the answer.

With regard to Mr Michael Harmer's painful experience with prostigmin (Feb 16, p 254) I would suggest that in his case it was not necessary. As he had such severe peristalsis after the prostigmin he was suffering from post operative distension due to some physical intestinal obstruction and not true paralytic ileus. As regards the "small faecal object" passed as I have said before (Feb 2 p 177) the need for treatment should be gauged by the tension of the distended abdomen and the success of treatment is gauged not so much by the amount of faeces and flatus passed as by the increased softness of the abdomen afterwards.—I am, etc

Mount Vernon Hospital, Northwood

ALAN SHORTER

Treatment of Chest Wounds in Forward Areas

SIR,—It was with interest that I read the article on the treatment of chest wounds in forward areas by Major W. Michie, Capt. H. W. C. Baile, and Capt. J. Macpherson (March 30 p 482). The impression is given that tension pneumothorax will be relieved by the introduction into the pleural cavity of a wide-bore needle with a one way flow attachment. Admittedly this is sufficient treatment in most cases, but it does not always work. I remember seeing a man in an advanced surgical centre in Italy who was treated in this way. Air escaped continuously under high pressure from the affected side, but the displacement of the mediastinum continued, with all the associated symptoms, and he died. At necropsy a small shell splinter was found embedded in a wound on the costal surface of the lung, the bronchioles were laid open, and kept open, by the foreign body. The collapse of the lung had not closed the wound as expected.

Soon after this I encountered a similar case which showed no relief of symptoms by attempted reduction of the pressure in the chest. With the lesson of the previous case before me I opened the chest, and again found a small lung wound from which air was being discharged into the pleura—a piece of metal 1 cm by 1/2 cm lying there keeping it open. This was removed and the wound sutured, the patient making an un interrupted recovery. It is apparent therefore that thoracotomy is indicated in any chest wound complicated by tension pneumothorax which does not respond rapidly to the recognized treatment.—I am, etc

Newcastle upon-Tyne

JOHN SWINNEY

Smallpox in the Vaccinated

SIR—In your annotation on smallpox in the vaccinated (March 30) you quote the late Dr T. F. Ricketts. The common tendency is both to underestimate and to exaggerate the capacity of vaccination to protect against smallpox. As the proposal to repeal compulsory vaccination is now before Parliament and the country in the National Health Service Bill, the question of just what vaccination can or cannot do is of more than academic interest. May I therefore suggest that the tendency to underestimate referred to by Dr Ricketts relates to the effect of vaccination in protecting the individual while the tendency to exaggerate occurs in relation to the effect in protecting the community. In all the 34 years during which I was M.O.H. for Leicester I never had a single member of my staff in the health department the ambulance service, or the smallpox hospital contract smallpox, the only precaution taken to secure this satisfactory result being to ensure that all

were freshly vaccinated before going on smallpox duty. This proves what vaccination can do in protecting the individual.

But it is quite impracticable to protect a whole community in this way. Infant vaccination, as has been proved over and over again will not do it, while repeated revaccination, even if it were desirable, could never be enforced. I will go further and say that infant vaccination which is not followed by revaccination may even be worse than useless, because, as you rightly point out, smallpox in persons well vaccinated many years before is often so highly modified that it is very easily overlooked yet it may spread the disease broadcast in a highly virulent form.

For very many years infant vaccination in this country has been steadily declining, yet instead of the deaths from smallpox increasing they too have declined until they are now almost negligible. After all it is only the child population which is really protected by infant vaccination, and one of the lessons to be learnt from the experience of an unvaccinated town like Leicester is that, under modern conditions of combating the disease, smallpox is essentially a disease of adults.

The purport of this letter is to suggest that even though infant vaccination falls still more into disuse when compulsion is repealed—and personally I believe that it will do so—there is no serious reason to fear that smallpox mortality will increase.—I am, etc

C. KILLICK MILLARD

Leicester

M.O.H. for Leicester 1901-4

"Cord Round the Neck"

SIR,—While I agree with Mr Mortimer Reddington (Jan 19, p 109) that a cord around the neck of a foetus will never cause a stillbirth by compressing the trachea, yet I am not so sure that the progress of labour may not cause fatal compression of a cord which is wrapped round some part of the foetal anatomy.

Mr Reddington makes the point that the uterus, placenta, and cord all descend *pari passu* with the presenting part of the foetus so that the tension of the cord must remain constant throughout labour. Do they in fact do this? If a piece of elastic 6 in (15 cm) long, but stretched to 12 in (30 cm), is relaxed, one end being held in the same place, the loose end will move 6 in (15 cm) but the centre of the elastic only 3 in (7.5 cm). Similarly, if the fundus of the uterus were to move downwards the same distance as the presenting part, so too would the insertion of the cord only if the placenta were implanted on the fundus. If the insertion of the cord were halfway down the upper segment, then it would move only half the distance of the presenting part of the fundus. If it were somewhat tight at the beginning of labour it would be tighter still by the time the head had reached the perineum. If the cord were inserted battledore fashion at the lower edge of a placenta situated anywhere but on the fundus, then it would be further from the fundus and would descend proportionately less.

This is assuming that the fundus does, in fact, move downwards as the presenting part does, but it may not necessarily do so. The girth of the uterus is greater than the girth of the foetal head. As the head descends, the space which it leaves behind is at once filled up by liquor from above. The upper segment retracts this same volume, but the resulting decrease in the length and breadth of the uterus is very small and, be it noted, it is the breadth as well as the length which decreases. To make the matter clearer suppose a child's balloon were inflated and a piece of glass tubing 1/4 in. (0.63 cm) wide and containing a piston inserted into the mouth-piece. The piston could be blown many inches along the tubing before the deflation of the balloon became noticeable. If the piston were attached by a piece of loose string to the interior of the balloon this string would soon become tight. This is, of course, greatly exaggerating the mechanism of the foetal expulsion but the principle is the same so long as there is a fair amount of liquor.

Nor can one entirely neglect the movements of the shoulders. If the cord is entwined round one of them and tight at the beginning of labour rotation of the shoulder during labour may pull upon it and compress it. The movements of the shoulders, except those that occur after the birth of the head, are not given much

attention, but there can be little doubt that they often begin to rotate before this in occipito-posterior positions, since full "long restitution" through one and a half right-angles is so rarely seen. Quite a few degrees of rotation could cause a shoulder to move 1 in. (2.5 cm.) or 2 in. (5 cm.) or even more, and this could put considerable tension upon a cord already tight, quite apart from the other mechanism of descent mentioned above.

When these conditions obtain I believe a stillbirth may occur if the case is left too long "to Nature." When one would expect an easy delivery—the presentation, position, and contractions being good—and yet delivery is delayed, I believe one should suspect a tight cord. If the foetal heart becomes slow then forceps should be applied at once. I suggest that Mr. Reddington has not seen a stillbirth from "cord round the neck" because he is a careful obstetrician. If stillbirths do occur from this cause, perhaps they should be attributed to the neglectful midwifery which allowed a slowing foetal heart to pass unnoticed. In this sense the explanation of "cord round the neck" must be regarded with doubt. Since there is but little descent of the head before the os is fully dilated, after which the forceps may be used at any time (provided the head has entered the pelvis: and it will not have descended far if it is still floating), a timely forceps delivery should almost always save the baby. May I add that I doubt if the necessity arises often.

While on the subject of stillbirths resulting from accidents to the cord, I remember a young primigravida whose labour was progressing splendidly. Quite suddenly the foetal heart fell almost to 100 and became irregular. I at once applied forceps, and in adjusting the right blade distinctly felt the cord at the side of the head, but not prolapsed in advance of it. I have no doubt that it was being pressed between the head and the birth canal with each contraction. The child was not stillborn, but would have been, I am sure, if it had been "left to Nature." In this case the cord was not round the neck, and a stillbirth, had it occurred, would have been difficult to explain.

May I suggest, therefore, that while "cord round the neck" may rarely be an excuse for a stillbirth, yet it may nevertheless cause a stillbirth sometimes and should not be dismissed from our calculations. If it should be so dismissed, then that may encourage the less careful to neglect to listen to the foetal heart as often as they should towards the end of labour.—I am, etc.,

G. BENION THOMAS,
Professor of Midwifery, Madras Medical College.

Ocular Signs in the Prisoner of War from the Far East

SIR.—May I, as an ex-P.O.W. who had some experience of ocular defects among my fellow-prisoners in Hong Kong, make a few comments upon recent correspondence? Unfortunately I am not in a position to give statistics, but perhaps some general observations may be of interest.

The ocular signs for the most part corresponded to the description given by Spillane and Scott in the *Lancet* of Sept. 1, 1945 (p. 261), except that in addition we also saw a considerable number of conjunctival and corneal conditions, the latter varying from what appeared to be a mild epithelial dystrophy to ulceration (no slit-lamp observations were possible). These latter appeared to respond to cod-liver oil or vitamin A preparations.

A large proportion of men developed bilateral central scotomata with visual acuity ranging from less than 6/60 to almost standard vision. The field defects were central, and did not closely resemble those of tobacco amblyopia in shape or nuclei, but were for the most part roughly circular. The severer ones might show a central nucleus for a 10-mm. white object at 1 m. extending to 2 or 3 degrees from the fixation point, with roughly concentric zones for 5-mm. and 1-mm. white objects, or there might be no field for 1 mm. In others the defect might be only a relative one for red, and during the course of recovery in those who were fortunate a scotoma for white would regress to a relative scotoma for red. I personally was never able to follow a case to complete recovery, though I observed several who recovered 6/6 vision and were unaware of any defect.

My observations were made at 1 m. on a Bjerrum screen and not a perimeter. Only a few of the severer cases showed some peripheral contraction by the confrontation test. Those with dense scotomata frequently showed a concentric depression of the 1-mm. isopter to within the blind spot, and in some cases the 5-mm. isopter was demonstrably depressed. The blind spot was usually enlarged, but

the difficulties of accurate fixation may have accounted for this in some cases.

Pallor of the disk, usually only temporal, and always diagnosed with caution, manifested itself in a considerable proportion of those whose defect persisted for more than a few months, but, as Spillane and Scott found, the relation between the pallor and the severity of the defect was inconsistent. Pallor of the whole disk sometimes occurred, and in these the visual defect was grave, and probably permanent.

Macular changes were not uncommon, and usually took the form of minute pigmentary disturbances with or without small whitish dots, reminiscent of senile macular degeneration. I was unable to convince myself that there was any necessary relation between these appearances and the degree of central defect, as identical field defects were found in their absence.

The ocular condition was in most cases, as Dr. H. G. Garland observes (Jan. 26, p. 143), part of a neuropathic syndrome, which included in most cases varying degrees of spinal cord dysfunction, the worst cases being helpless and bed-ridden, and labelled subacute combined degeneration. A colleague in another camp reported a case which had all the appearance of a bulbar paralysis. He made an astonishing recovery, but I believe had a residual ocular defect. Nerve deafness occurred in a few, and I saw two cases of paresis of the vocal cords. Mental deterioration occurred in some, but may have had other causes than malnutrition.

The account given by Spillane and Scott of a similar syndrome in P.O.W.s in the Middle East is in many features applicable to our experience. We saw a similar neuropathy, but extremely painful feet were usually a prominent feature at some stage, and, as one would expect, universal and often extreme loss of weight. There were the same bizarre alterations of sensibility of the lower limbs, but frequently also in the trunk, upper limbs, and head and neck. There were commonly alternating zones of hyperaesthesia and anaesthesia of the chest and abdomen, associated with subjective sensations of constriction of the chest and abdomen, with difficulty of breathing and dysphagia. There was usually a sensation of numbness round the mouth, and frequently loss of anal sensation. The nervous control of the bladder reflexes was sometimes disturbed, leading to frequency of micturition or difficulty in starting the stream.

Ocular signs were not always present in these neuropathies, and conversely they sometimes were present without the remainder of the syndrome, but the association of the ocular and other nervous lesions was so frequent that it would seem unnecessary to multiply entities to account for them all. Furthermore, hypochlorhydria was clinically present in a large number, as shown by varying degrees of dyspepsia, flatulent distension, anorexia, and diarrhoea, responding to the administration of HCl when available. Anaemia was common, but facilities for blood examination were not generally available. It usually appeared to be of the hypochromic variety.

The frequent association of retrobulbar neuritis with hypochlorhydria, anaemia, and cord lesions, and the very high proportion whose neuropathy was preceded by diarrhoea or dysentery, perhaps suggests that the analogy to be drawn, at any rate in the Hong Kong cases, is not so much with the toxic amblyopias, as Capt. W. M. Rich (March 2, p. 330) would urge in his comments upon the extremely interesting paper contributed by Major G. C. Dansey-Browning and himself (Jan. 5, p. 20), as with a wider group including the sprues, anaemias, and subacute combined degeneration. I am not qualified to discuss the parts played by intrinsic and extrinsic factors, and I find the current textbook accounts of beriberi, pellagra, and central neuritis confuse my attempts to classify the condition under discussion, which does not appear susceptible of being neatly docketed under any of these labels. Elliot's *Tropical Ophthalmology*, like other pre-war writings, is also inadequate. One finally resorted to the non-committal term "avitaminosis." Capt. Rich refers to the "irreversible optic atrophy," but our experiences in Hong Kong indicated that there is an earlier stage when the optic nerve lesion and the other central lesions are to a greater or lesser degree reversible under slightly more favourable nutritional conditions.

We were not in a position to carry out any scientifically controlled experiments in treatment, but gave whatever vitamin preparations could be obtained or improvised, along with such extra protein and fat-containing foods as we were able to obtain by purchase, or to a greater extent by gifts from the local International Red Cross organization. The results so far as vision was concerned were frequently disappointing, though the earlier or less severe cases often benefited remarkably. Any attempts to evaluate different courses of vitamin therapy were inconclusive. Dr. Goldsmith's remarks are of interest in this connexion, as many of our patients declared that a course of eggs did their eyesight more good than anything else. One certainly felt that an egg contained something more valuable than any vitamin capsule. The Japanese ration was seriously deficient in protein. There was much confusion as to the cause of the oedema which was so common, but there is little doubt in my mind that what was frequently described as wet beriberi was hypoproteinaemic oedema. There was no apparent relation between the incidence of oedema and visual defects. The rice was often in poor condition and possibly

toxic. The absence of trachoma, where the disease is normally endemic, was also notable amongst the P.O.W. in Hong Kong.

In conclusion I should like to express the gratitude and admiration we all felt for the tireless work and self-sacrifice of all those voluntary workers among the non-interned residents of the colony who, often at great personal risk, and at the expense of their own health and treasure, obtained for us those extra supplies which were undoubtedly the means of saving many lives, and to whom many of us are to-day indebted for our health.—I am, etc.,

Leicester.

JOHN DURRAN.

Penicillin Treatment of Malignant Diphtheria

SIR,—I was interested to see the memorandum with this heading by Drs. A. B. Christie and J. C. Preston (March 23, p. 433). The aim in treating diphtheria with penicillin is to obtain: (1) a sufficient concentration in the blood; (2) a sufficient concentration in the saliva. The first is simple, the second requires a larger dose. In my opinion the dose should not be less than 500,000 units a day. This is sufficient to remove all penicillin-sensitive organisms from the mouth.

I have not seen enough cases to be dogmatic, but in the worst case that I have seen in my clinical experience and the worst case the medical officer of a fever hospital had seen, I gave a million units in the day. In all our opinions the prognosis appeared to be hopeless: a bull neck, an active spreading membrane in spite of antitoxin in adequate dosage (80,000 units intravenously), an ashy-grey patient in collapse, a very rapid onset with a rapid worsening of the condition. The organism was *C. diphtheriae gravis*. The response to treatment was dramatic, the membrane was coughed off intact in twelve hours, and the organism has not been grown since treatment was started. The child made a full recovery. Incidentally, the same dosage—500,000 units a day—seems to act equally dramatically in the few cases of scarlet fever that I have treated in this way, these cases being of the very severe anginose type seen in adults. In all cases treatment was stopped after three days.—I am, etc.,

St. Albans

DAVID A. LONG,
Penicillin Officer, Hill End Hospital

Tuberculin Therapy

SIR,—I should like to support Dr. John R. Gillespie's plea (March 30, p. 501) that there should be a fresh inquiry into this subject; the time for hammering out the truth is most fitting, now that its vigorous upholder has gone. Is tuberculin a unique prophylactic or invariably fraught with danger to the recipient? We, too, think that it has fallen into disrepute through no fault of its own. Now, administered according to Dr. Camac Wilkinson's method, it can do no harm, and it may do very much good in early uncomplicated cases of pulmonary tuberculosis. Started on infinitesimal doses of P.T.O. (*Perlsucht Tuberculin Original*) (bovine) the patient's response one way or the other soon becomes apparent; and, of course, on this depends the continuing or withholding of the treatment. Our working hypothesis may be simply stated thus. The aim is to desensitize the patient's tissues to the strong bacillary toxins which are forming tubercles in his lungs, this process being: mitosis of the connective-tissue cells, giant-cell formation, and subsequent devascularization of the whole tuberculous nodule. Bearing in mind, then, that the growth of the tubercle is essentially toxin-caused, we inoculate tuberculin into a healthy tissue with the express purpose of forming an antitoxin with which to neutralize the toxin of the bacilli, and thus to rob them of their only weapon. When thus safeguarded, the tissues in the front line are enabled to put up a fight, and separate themselves from the necrosed tissue. The zoned-off granulomatous material then further breaks down, and is coughed up as phlegm through the bronchioles, which act as natural drainage tubes. The rest of the treatment continues as a slow siege, until the desired cicatrization is reached.

That the administered heterotoxin may not exactly correspond to the autotoxin matters less than might be supposed. The danger is when the autotoxin becomes mingled with the toxins of pyogenic and other organisms. Unless these can be eliminated, it is useless and harmful to go on with the tuberculin. A question once frequently heard was, "Cannot an equally good result follow after absorptions of autogenous

tuberculin, more or less induced by graduated exercises?" The answer is that we have no control over the quality or quantity of this toxin, and indeed are in the dark as to whether it is functioning at all. Moreover, antitoxin formed from healthy cells has more to recommend it than that produced at a diseased focus.

We sum up by saying that tuberculin is primarily indicated in early cases of phthisis, uncomplicated by haemoptysis or marked pyrexia; and that it acts as a prophylactic by taking antitoxin-toll of the body cells, and thus follows the general law of immunization. The doses must be checked throughout by records of pulse, temperature, and weight; and, cautiously increased, both local and focal reactions can be kept at a safe minimum.

The danger of giving too heavy a dose of tuberculin, which, disastrously paralyses the immunizing agents of the body, must be attributed to carelessness rather than to faults of method. It was Koch's unfortunate early mistakes in this respect that dealt tuberculin therapy a knock-out blow, from which it seems never to have recovered.

The tuberculin course is, of necessity, lengthy, even with twice-weekly inoculations and things being at their best. The technique is sufficiently full of difficulties as to necessitate an initial course of instruction to those who wish to take it up. Above all, it must be remembered that everything depends upon the skill and judgment of the administrator.—I am, etc.,

Oxford

HERBERT C. MANNING.

SIR,—Dr. John R. Gillespie's letter on tuberculin therapy recalls the notable work of the late Dr. Camac Wilkinson. He achieved a great deal, and, I think, narrowly missed achieving a great deal more. To observers at his clinic one fact stuck out a mile. The patients insisted on the tonic effect of some of the doses. This raises the crucial point of the treatment dose of vaccine, which has never been appreciated at its proper worth. Vaccine is so firmly associated in the minds of most doctors with prophylaxis that it has proved a curse when treatment is the object, not prophylaxis. A correct treatment dose is as remarkable in its effect, and often as rapid, as is that of opium, digitalis, or other potent drug. Who in his senses would go on increasing the dose of a powerful drug when it is acting satisfactorily? Yet how often do we get instructions to do so when vaccine is being used? A dose of vaccine, if in any way effective, produces either a reaction, which is not the object, or a beneficent response, and this latter effect is what one aims at. Dr. Gillespie has no easy task ahead, but he has my sincerest wishes for success.—I am, etc.,

Crowborough

G. L. BUNTING.

B.C.G. Vaccination

SIR,—In his communication (March 30, p. 501) Dr. Claude Lillingston wonders "if we have been caught napping" with regard to B.C.G. It would not be fair to say that, though we have been slow to appreciate the use which has been made of it in other countries. However, in November, 1943, as a result of a meeting of the Tuberculosis Association, at which physicians from Norway, Canada, and the U.S.A. spoke, a joint committee consisting of representatives from the Joint Tuberculosis Council, the Tuberculosis Association, and the National Association for the Prevention of Tuberculosis was set up to investigate the position. While the war lasted there did not seem any possibility of trying out B.C.G. here, but in the near future action will be taken to put the case for its trial before those in authority and before the medical public.—I am, etc.,

The Tuberculosis Association,
26, Portland Place, London, W.1.

J. V. HURFORD.

SIR,—Dr. Claude Lillingston in his letter on B.C.G. vaccination (March 30, p. 501) asks whether we have an "intelligent Intelligence Service" to keep us from being "caught napping" by medical advances in other countries. In your answer you refer him to your leading article of Dec. 4, 1943. You are too modest. Dr. Lillingston quotes an eminent Scandinavian authority as saying: "The stage at which one discussed the risks of B.C.G. having been passed, the questions now remaining to be asked are: whom to vaccinate, and how long does the immunity conferred by B.C.G. last?" This was on Jan. 18

of this year. On Oct. 7, 1934, in a review of my book on B.C.G., in which I advocated it as safe and successful, you said: "These views are very similar to those which have been advanced in the editorial columns of the *B.M.J.* during the past few years, and are likely to meet with a considerable measure of approval. The real crux of the matter is how great and how lasting is the degree of immunity produced."

I think Dr. Lillingston's fears are justified; we have been caught napping in this country—but not through any fault of yours, Mr. Editor, or mine.—I am, etc.,

Henley-on-Thames.

K. NEVILLE IRVINE.

Temperature in Pulmonary Tuberculosis

SIR,—There have been a number of articles in the *Journal* about the temperature in pulmonary tuberculosis, especially in connexion with the menstrual cycle: Feb. 9 (p. 209), March 2 (p. 334), and April 6 (p. 523). In the *Journal* of Dec. 29, 1928 (p. 1173), I wrote on "The Temperature in Pulmonary Tuberculosis."

The oral method is the most suitable for taking the temperature, but the patient must keep his or her mouth shut for fifteen minutes, and the thermometer should be kept in for five minutes for accuracy. I noted the following points. (1) There was a definite premenstrual rise in temperature, the average duration of which was five to six days. The long premenstrual rise is present in only 34% of positive cases, but in 52% of negative cases. Two healthy nurses took their own temperatures at my request, and in both cases there was a premenstrual rise. This seems to show that it is not diagnostic of tuberculosis. In fact, if only one record of temperature is taken, it must be considered in relation to the menstrual cycle. (2) I also noted that in 90.1% of males the difference between morning and evening temperatures was more than 1° F. (0.56° C.), and in 56.7% of females less than 1° F.—I am, etc.,

Dorridge, Birmingham.

COLIN MILNE.

Stethoscope versus X Rays

SIR,—Dr. J. Frankland West (Feb. 2, p. 182) describes a case in which the radiological diagnosis was that of a resolving lobar pneumonia, though the patient actually was suffering from pulmonary tuberculosis. From this case Dr. West concludes that a vote of "no confidence" with regard to mass miniature radiography is justifiable, and also that the x-ray film is inferior to the stethoscope in the diagnosis of early tuberculosis. Frankly I fail to see how a medical man with years of training behind him can arrive at such a conclusion on the scanty and feeble evidence put forward.

The clinician who relies on others for his x-ray interpretations is apt to forget that we can ask an x-ray film—and particularly one of the chest—just so much and no more. He feels that in order for such a film to be of any use it must supply an exact answer to the question, "From what disease is this patient suffering?" This belief is often fostered by the unwary radiologist who is tempted to read his films in terms of "radiology" instead of "pathology."

The x-ray film is a shadow picture of a disease process in an anatomic structure, and often cannot, and should not, be interpreted in the light of the causative organism. Yet this apparently is what Dr. West feels that it should be capable of doing before he is willing to grant it its rightful place in chest diagnosis. He is asking too much of his chest films, and because on occasions he gets the wrong answer he is ready to condemn the most useful diagnostic means at our disposal. Would Dr. West drive a screw with a hammer? And if he did try to do so without success would he then condemn the hammer as a useless tool? Would he condemn the microscope because it failed to tell him the difference between a tubercle bacillus and, say, a leprosy bacillus?

Nevertheless he attempts to belittle the value of the x-ray film when he once fails to get from it a differentiation between a tuberculous pneumonia and a resolving lobar pneumonia, two conditions which may very strongly resemble one another. Any man with experience of chest radiology will admit that such differentiation is often quite impossible, and in Dr. West's case I have no doubt at all that the fault lay, not in the x-ray film, but in too great a readiness on the part of the radiologist

to give a definite diagnosis on insufficient evidence. Those of us who give our whole time to chest work are constantly running across difficulties in accurate diagnosis on the basis of the x-ray film alone. A lung abscess may look exactly like a tuberculous cavity, while malignant glands in the mediastinum may be indistinguishable from the glandular involvement due to primary infection tuberculosis.

Nevertheless the x-ray film may be relied upon to reveal with accuracy pathological changes in the chest, even though on some occasions it gives no clue to the aetiology of the condition encountered. As a clinician who for the last fifteen years has been listening to patients' chests first and examining their x-ray films afterwards, I have no hesitation in saying that the skiagram will reveal many more early lesions than my stethoscope will bring to light. I use the word "lesions" advisedly, however, as in a number of cases it is impossible to be sure of the actual condition present without further laboratory and clinical examinations, and often another x-ray examination.

Dr. West has missed the point entirely when he expects a cut-and-dried diagnosis always to stare at him as soon as he opens the radiologist's report. Surely he would not ask for a vote of "no confidence" in his own report when it failed to recognize a three-foot depth of water. Yet this is exactly what he is doing when he asks an x-ray film too much and occasionally gets a wrong answer.—I am, etc.,

King George V Jubilee Memorial
Sanatorium, Jamaica.

RICHARD A. S. CORY,
Senior Medical Officer.

SIR,—I hasten to explain that the membership of my "fifth-rate provincial soccer club" (March 16, p. 410) was strictly limited to the clinical methods of investigation which were enumerated in the preceding paragraph. Persons—living, dead, or fictitious—were neither admitted nor included. I hardly thought that this explanation would be necessary, but Dr. Weatherhead's letter (March 30, p. 504) shows that one can never be too careful when using a comparison.

Dr. Weatherhead's statement that I am a "comparatively recent" recruit to the tuberculosis service is not only comparatively but absolutely untrue. If ten years—three and a half of which were spent in full-time hospital appointments (two years in a teaching hospital) and six and a half years in busy tuberculosis clinics—come under the heading of "comparatively recent" then I must admit that my English is considerably worse than Dr. Weatherhead thinks.—I am, etc.,

Woodford Green, Essex.

F. KELLERMANN.

Words and Clear Thinking

SIR,—I read with considerable interest Dr. T. C. Beard's letter (March 16, p. 404). It seems to me that medicine is honeycombed with etymological inconsistencies, in many cases the same word showing a Greek prefix and a Latin suffix, such as that dreadful word "dysfunction." Surely it would be better to show lingual continuity by referring to a "malfunction" or "dyscrasia."

It would be useful if some efforts were made to standardize medical language. Two glaring examples of mental confusion are presented in the numerous alternative names for the barbiturate drugs and in the various pathological subdivisions of the nephritic lesion such as "acute diffuse glomerulo-tubular nephritis." As I once heard a learned physician say, "Azotæmic and hydraemic nephritis are good enough for me." Again, why in eliciting signs in the chest should it be said that "vocal fremitus" is increased or diminished, thus using an English and a Latin word in the same phrase? Or is it really to one's advantage to know that splenomedullary leukaemia is synonymous with myelocytic leukaemia? I well recall on a ward-round my chief reading out to us clerks the registrar's impressive differential blood count in which well over a dozen different types of cell were claimed to have been seen under the microscope. Among them was a group classed as "dictocyte." My chief, himself a blood expert, said blandly to us: "Dictocytes! What are they? Do they talk to you?" There is a tendency also to fix the incorrect proper name to certain things. In descriptions of lymphadenoma the giant cells are labelled *Dorothy Reed or Sternberg cells*, whereas they were first described by Sir Frederick Andrewes of Bart's and should be Andrewes cells. To give another example, Graves's disease was

first described by C. H. Parry, a West Country physician of repute.

Basic English has a lesson to teach us, I feel sure, in helping one to express oneself in a simple manner. Muddled thought leads to muddled action and has been responsible for not a little of the present international unrest, and for vague terminology in so many official documents, such as White Papers, that one meets nowadays. If everyone "called a spade a spade" the affairs of nations would soon sort themselves out in a reasonable manner.—I am, etc.,

Donibristle, Dunfermline.

J. B. GURNEY SMITH,
Surgeon-Lieut., R.N.V.R.

Obituary

CHALMERS WATSON, M.D., F.R.C.P.ED.

We regret to announce the death on April 6 at Fenton Barns, Drem, East Lothian, of Dr. Chalmers Watson, consulting physician to the Edinburgh Royal Infirmary, who had been well known for his work on nutrition and in later years devoted himself to rearing cattle for production of pure and safe milk.

Douglas Chalmers Watson, son of Walter Watson, M.D., of Midcalder, was born in 1870 and was educated at George Watson's College and at Edinburgh University, where he won the Wightman prize in clinical medicine on graduating M.B., C.M. in 1892. After serving as house-physician at the Royal Infirmary and at the Royal Hospital for Sick Children he was elected F.R.C.P.ED. in 1901 and proceeded to the M.D. in 1904. For a time he worked on nutritional problems in Sir Edward Sharpey-Schafer's laboratory, and for this research he was awarded the Alvarenga prize by the College of Physicians of Philadelphia. After his election to the visiting staff of the Edinburgh Royal Infirmary Chalmers Watson was active in promoting scientific methods in hospital practice; he exercised much influence upon students as a clinical teacher and became senior lecturer in clinical medicine in the university. He joined the B.M.A. in 1897 and was secretary of the Section of Pharmacology and Therapeutics at the Annual Meeting held in London in 1910. He was the original editor of the *Encyclopaedia Medica* published in fourteen volumes at the beginning of this century, of which a second edition appeared in 1915-25. His numerous published writings included *Food and Feeding in Health and Disease*, which reached a second edition in 1913, and a small volume, *Lectures on Medicine*, a handbook for nurses; also *The Book of Diet*. A clear and fluent writer, he was a strong advocate of reform in medical education and keenly interested in student activities, both athletic and social. At the Edinburgh University Rectorial Election in 1935 he ran Lord Allenby close.

His first wife, Alexandra Mary Geddes, C.B.E., M.D., sister of Lord Geddes, took a prominent part in Scottish public life and shared many of his tastes and activities. She had been physician to the Edinburgh Hospital for Women and Children, chief controller of the Women's Army Auxiliary Corps, and president of the Medical Women's Federation. She died in 1936, and he married secondly Miss Lily Brayton, widow of Oscar Asche.

The following passages are quoted from a tribute paid to Dr. Chalmers Watson by a colleague writing in the *Scotsman*:

His originality of thought and dynamic spirit early created an impulse towards research. As a physician associated with the Royal Infirmary of Edinburgh throughout his active medical career he was a clinician of outstanding ability. He was equally loved for his humanity and respected for his sincerity and integrity of purpose. He inspired succeeding generations of students by his enthusiasm, his clarity of exposition, and his originality of thought. He had deep insight into human nature and an unusual capacity for imparting it to others. To his clinical work in hospital he brought his earlier scientific training and was responsible for founding the clinical laboratory of the Infirmary. In the sphere of social medicine his interest was equally wide and the effect of his endeavours equally impressive. Perceiving the lack of suitable institutional facilities for the treatment of those of moderate means he obtained the charter for the foundation of the Queen Mary Nursing Home in Edinburgh and led the way to numerous similar developments elsewhere. Faithful to his early instinct in nutrition as a basis of good health he was not only an ardent advocate of healthy food production, but, in later years, took a practical lead in dairy farming.

Dr. WILLIAM HERBERT SMAILES, who died on March 24 in the Brotherton Wing of the Leeds General Infirmary, was for many years an active worker in the British Medical Association. He had been chairman of the Huddersfield Division and president of the Yorkshire Branch; he served a year on the Central Council and nineteen years on the Insurance Acts Committee, and represented his Division at thirteen Annual Meetings of the Association. Born at Honley, near Huddersfield, on July 6, 1881, son of Thomas Smalles, M.D., he was educated at the Leys School, Cambridge, and at Manchester and Leeds Universities. He graduated M.B., Ch.B. of Leeds, and M.B., B.S. of London University in 1905, took the M.D. (London) in 1910, and the D.P.H. of Sheffield in 1912. Dr. Smalles had been in practice at Honley for forty years. He was medical officer at the Deanehouse Institution, held many public appointments, and was for some time honorary pathologist at the Huddersfield Royal Infirmary. During part of the war of 1914-18 he worked as assistant surgeon at the Huddersfield War Hospital with the rank of captain, R.A.M.C.(T). He was a past president of the Huddersfield Medical Society and honorary secretary of the Panel Committee. Apart from his medical work, Dr. Smalles had many other activities. He was a J.P. for the West Riding of Yorkshire, a member (ex-chairman) of the Holmfirth School, and a prominent Freemason. H.F.H. writes: His passing has removed from this district an outstanding figure. After nearly seven years of close association with him on the National Service Board at Huddersfield, I can, with knowledge, pay tribute to his worth. He was a fine clinician, of mature and balanced judgment, a most careful and courteous examiner, and a delightful colleague. No matter how busy he might be in his practice, he was invariably punctual in his attendances at the Medical Board, his work was never hurried, and he never lost his serenity. Always ready to help his colleagues, he had a smile and pleasant word for everyone, and was loved by us all. It is not to be wondered that his patients were devoted to him, his life being spent in their service. He was an example of the ideal family doctor, and his passing has left a void which it will be difficult to fill. To his widow and family we extend our deepest sympathy.

Dr. DUGALD CAMPBELL ORR, M.C., who died in hospital at East Kilbride on March 25, graduated M.B., Ch.B. at Glasgow University in 1926. A. B. S. writes: On learning of the death of Dr. Dugald Orr I felt keenly the loss of a great friend and a great physician. My association with him extended over a short nine months, when as a very green house-physician it was my happy lot to be under his masterly guidance. His knowledge of the management and treatment of pulmonary tuberculosis had an uncanny completeness and breadth. But his real mastery lay in his deep sympathy with and understanding of an afflicted human being rather than an afflicted lung. It was this ability to understand and analyse human reactions that made him a great physician. Despite an incapacitating illness he struggled on heroically—his first concern always being the care of his patients. Not only the medical world but also all those privileged to fall under his care will mourn the passing of this beloved physician.

Dr. LEWIS TURNER LANCASTER, of Clitheroe, Lancs., died on March 26 at his home, after a short illness, at the age of 80. He graduated M.B., C.M. at Edinburgh in 1890, and succeeded his father in 1893 in an extensive and scattered country practice in the Clitheroe district. He was in active practice for 40 years: 20 years with horses over long distances, and 20 years with motor cars doing N.H.I. work. He referred to the first 20 years as the good years, the harder years, when work was difficult, responsibilities heavy, hospital facilities scanty—the years when services were appreciated. He found it hard to adjust himself to the psychology of the N.H.I. patients who crowded his surgeries and wasted his time. He was a man of strong individual character, of artistic tastes, loyal, sincere, kind and genial, but hostile and impatient in the presence of his wife and daughter, there was a cordial welcome to all friends who came to see him. He was well known to all friends and practitioners of N.E. Lancs. and to a wide circle of friends in this district. He was a member of the B.M.A. for the last 50 years. The writer has worked with him as an assistant, as a partner, and succeeded him in his practice 15 years ago. Throughout these years he remained the same staunch friend and counsellor, sound and solid and true—qualities which his colleagues in practice respected throughout his active career. He loved a joke and could pass one on with relish. His reminiscences of his early days in practice were highly entertaining. He has gone from among us, but the memories of a vivid personality remain.—J. M.

Dr. GEORGE GUNN, of Neston, Cheshire, died on April 3 at Crowborough, Sussex. He was born in Melbourne in 1879, and from the Church of England grammar school in that city came to this country to study medicine. He graduated M.B., Ch.B. of Edinburgh University in 1905, and in 1908 proceeded M.D. and took the F.R.C.S.Ed. diploma. By that time he had held house appointments at the Edinburgh Royal Infirmary, at the Royal Southern Hospital, Liverpool, and at the Royal Edinburgh Children's Hospital. Before settling in practice at Neston he served as resident medical officer at the Kasr-el-Ainy Hospital at Cairo. During the war of 1914-18 he was medical officer to the Red Cross Hospitals at Thingwall Hall, Parkgate, and Neston, and later M.O. to the local war memorial cottage hospital; he was awarded the M.B.E. in 1920. Dr. Gunn had a particular interest in paediatrics and was for some years physician to the Heswall Branch of the Royal Liverpool Children's Hospital. He joined the B.M.A. in 1911, and became chairman of the Birkenhead Division in 1922.

The Rev. SANDFORD SCOBELL LESSEY, M.D., rector of Grafton Underwood, Kettering, who died on April 3, spent a large part of his life as both physician and clergyman. He was born in London on Feb. 21, 1859, son of Theophilus Lessey, and studied medicine at St. Thomas's Hospital, qualifying in 1882. For seven years he was a member of the staff of the Miller Hospital and Royal Kent Dispensary and surgeon to the New Cross and Deptford Provident Dispensary. In 1896 he entered a theological college, and in 1899, the year in which he took the M.D. degree of Durham University, became curate of Newport, Isle of Wight. From 1902 to 1912 he was vicar of Hythe, near Southampton, and then for four years chaplain-superintendent, under the Church of England Temperance Society, of the Temple Memorial Home for Male Inebriates at Cinderford. During the war of 1914-18 he took charge of several medical practices so that doctors could join up, and he afterwards practised at Birmingham. In 1935 he accepted the living of Grafton Underwood, a tiny parish in Northamptonshire with a population of 200, which had had no rector for seven years because the stipend was too small for anyone but a man with independent means to accept the office. The money Dr. Lessey received for the sale of his practice or saved during his lifetime enabled him to take the living, to which he was inducted by the Bishop of Peterborough on April 30 of that year. He had joined the B.M.A. in 1894.

Dr. EDWARD HENRY EZARD, who died at Farnham, Surrey, was born at Bath on Aug. 15, 1864, son of Henry Ezard; he was educated at Grosvenor School, Bath, at Bristol, and the University of Edinburgh, where, after graduating M.B., C.M., and B.Sc., he was demonstrator of physiology for a year, and then for two years assistant physician to the Royal Edinburgh Asylum. He received the D.Sc. degree in Public Health in 1893. Later he went to Cambridge, took the M.A., and became director of medical studies at FitzWilliam Hall. Before his retirement from active work Dr. Ezard held honorary ophthalmic appointments in and around Cambridge, and during part of the war of 1914-18 served as civilian eye surgeon of the 1st Eastern General Hospital. He joined the B.M.A. in 1885, was a Fellow of the Royal Historical Society, and a past president of the Royal Medical Society of Edinburgh.

The death of the Rev. JAMES KITCHIN, L.R.C.P.&S., breaks a link with the older generation of medical missionaries in India. After spending some years in practice at Leven, Fife, Dr. Kitchin was able to fulfil a long-cherished hope when, in 1905, he was appointed by the former United Free Church of Scotland to the Mission to the Santals, an aboriginal tribe inhabiting the uplands of Chota Nagpur in Bihar. There he had as one of his colleagues Dr. J. M. Macphail, who was then building up a wide reputation as an ophthalmic surgeon in that part of India. Kitchin soon felt the urge to break new ground, and eventually he established a hospital at Tisri, where he spent over 25 years of service. He was a man who in a singular degree combined with his medical skill a deep and sincere piety and an unflinching compassion for the sick folk who filled his hospital—qualities that had their roots in a simple Christian faith. His courtesy, too, was unflinching. In addition to his medical work he did much to advance the cause of primary education among the Santals, and often, after a long day in hospital, he would go out to visit one or other of the night-schools which he had established in neighbouring villages. He spent himself unsparingly in the service of the people, who learned to trust him not only as a doctor but as a counsellor and helper in any of the manifold troubles which are the lot of the poor all over India. He was nobly assisted by his wife, who shared his constant devotion to the work of the Mission. He retired in 1935, and after Mrs. Kitchin's death three years ago he had been in failing health. James Kitchin was truly in

the succession of the holy and humble in heart whose lives have refreshed the earth. He lives in the memory of many simple folk who counted him their friend and in the affectionate regard of his colleagues in the Mission.—W.D.

The work and influence of J. D. ROLLESTON, writes Dr. A. P. Cawadías, were much more important than they appeared. Like his brother, he took the broad humanistic view of medicine. He was not only a medical historian but also a physician of wide culture who wanted to infuse medical practice with the high intellectual background of the Renaissance physicians. It was because he proceeded from such depths that he showed such manifold interests. But his epidemiological, his paediatric, and his social medical work were united by a common humanistic basic conception. Undoubtedly his influence has been great in fostering this conception so necessary in times when politics, the pressure of material interests, and the mechanization of life threaten to undermine this intellectual basis without which we shall degenerate into blind craftsmen. Those who, like myself, were intimately associated with J. D. Rolleston can testify to his high aims, to his tenacity and courage. He had not, however, the reputation he merited, for he lacked the self-confidence and the external strength to "blow his own trumpet." And he was handicapped also by the gigantic figure of him whom he called "my famous brother." I have been honoured with the friendship of both the Rollestons for more than twenty years, and I believe that the only difference between them was one of personality. Both, however, should be united in the history of British medicine as torchbearers of the humanistic tradition.

The Services

Capt. V. S. Joshi, I.A.M.C., has been awarded the M.C. in recognition of gallant and distinguished services in the Far East.

Col. J. T. Simson, late R.A.M.C., has been mentioned in despatches in recognition of gallant and distinguished services in the defence of Hong Kong in 1941.

The following have been mentioned in despatches in recognition of gallant and distinguished services in North-West Europe:

Cols. W. D. Anderton, M.C., C. D. M. Buckley, M.C., and J. W. C. Stubbs, D.S.O., M.C., late R.A.M.C. Brig. (Temp.) H. L. G. Hughes, C.B.E., D.S.O., M.C., Brig. (local) A. E. Porritt, C.B.E.; Cols. (Temp.) L. T. Fumivall, D.S.O., and W. A. Robinson, O.B.E.; Col. (Acting) R. W. Fairbrother; Lieut.-Col. A. Harrison-Hall; Lieut.-Cols. (Temp.) W. M. Arnott, T.D., J. H. Bolton, A. L. Eyre-Brook, C. L. Broomhead, T.D., J. Clay, P. Coleman, T. H. Crozier, G. V. Davies, T. H. Dockrell, L. H. Howells, A. F. Kennedy, O.B.E., J. C. Lindsay, M. J. Lindsey, M.C., M. Markowe, N. H. Martin, T. Moore, R. J. G. Morrison, F. Murgatroyd, E. A. L. Murphy, T.D., J. W. Osborne, W. M. Oxley, G. D. Pirrie, C. B. Prowse, W. A. McD. Scott, J. Shields, C. de V. Short, R. A. Smart, R. A. Stephen, J. P. Stewart, W. Stewart, M.B.E., and A. D. Young, D.S.O.; Majors E. H. Evans, J. A. C. Fleming, E. R. Hargreaves, and B. F. Longbotham; Majors (Temp.) J. MacC. Almond, E. McL. Barbour, J. Borrowman, R. Y. Bullock, A. A. Byrne, M.C., G. G. Cochrane, H. H. Collier, J. L. Collis, R. C. Cunningham, G. H. Darke, W. N. Darling, F. R. Dennison, W. N. Douglas, R. Glanvill, G. Gregg, A. B. Hamer, J. M. Harker, M.B.E., J. C. Harland, G. J. Harrison, S. T. Henderson, J. A. Hewitt, S. Howe, W. Hynes, J. E. Marquis, R. J. Miller, W. G. Mills, C. R. Morgan, R. T. Nicholas, D. J. Paddison, K. D. G. Reid, I. B. Rees-Roberts, J. A. Ross, J. E. Roys, G. R. Royston, G. Sanders, R. S. Thompson, H. Hall-Tomkin, M. Toohey, A. M. Wadsworth, F. R. Waldron, J. Watt, M.C., L. R. West, H. F. Whalley, A. R. Wilson, M.C., and J. W. Wishart; Majors (Acting) W. J. Christie, and H. S. Lanceley; Capt. E. Anderson, J. Anderson, J. D. Binning, R. Black, J. N. Blair, F. M. Braines, J. M. Childs, S. S. Conlan, P. J. Cremin, W. R. Cunningham, (Mrs.) M. W. Davies, R. D. Dewar, A. H. Dickie, W. K. Douglas, A. R. Ford, W. G. French, T. Gibson, W. N. Gibson, D. H. Girdwood, (Miss) M. B. Graham, A. Hughes, R. T. Kiddie, H. W. Lees, R. Levy, M. P. Lewis, N. A. Lewtas, E. MacLaine, O.B.E., A. D. Macrae, J. D. McCardell, R. C. McLaren, T. H. Meek, C. Milne, J. F. O'Neill, G. W. Pimblett, (Miss) D. P. Potter, E. J. T. Prettjohn, D. H. Rhind, P. M. Ritchie, T. T. Romans, (Miss) O. C. Sandys, W. M. Smith, D. N. Stuart, J. H. Tasker, J. R. Trowne, I. McC. Troup, H. B. S. Warren, P. F. A. Watkins, C. J. L. Wells, W. F. White, O. P. G. Whitfield, I. A. Williams, and W. K. Young; Capt. (Temp.) W. H. Franklin, and J. Wilson; Lieuts. J. G. S. Burton, F. A. Donnthorne, S. B. Fletcher, K. D. Poulter, W. A. Reynolds, K. L. Taylor, A. H. Tottle, C. Weir, and S. J. Windsor, R.A.M.C.; Lieut.-Col. J. M. Spence; Majors (Acting Lieut.-Cols.) F. S. Brion and W. M. Couper; Majors H. W. Fish, E.D., E. W. Flahiff, S. Hanson, E. A. Lovell, A. B. Sinclair, E. G. Spooner, C. R. Trask, and K. J. R. Wightman; Capt. (Acting Majors) R. Cowan, and R. MacK. Taylor; Capt. J. B. Benson, R. F. Boettger, B. L. P. Brosseau, M.C., B. W. Casselman, J. N. Cunningham, T. Dalrymple, R. E. Fisher, J. H. S. Geggie, J. Greenblatt, J. E. Howes, S. Kling, G. B. McCall, J. S. S. Martin, S. M. Medine, J. K. Morrison, R. D. Oatway, J. E. G. Soucie, and J. B. Tindall; Lieut. D. P. Melville, R.C.A.M.C.

NAVAL MEDICAL COMPASSIONATE FUND

A meeting of the subscribers of the above Fund will be held on April 26, at 3 p.m., at the Medical Department of the Navy, 64, St. James's Street, S.W.1, to elect six directors of the Fund.

Medical Notes in Parliament

Development of Atomic Energy

On March 28 Mr. MARTIN LINDSAY opened a debate on the industrial development of atomic energy. He said scientific opinion on both sides of the Atlantic agreed it would be feasible to have atomic power at an economic price within about ten years. Provision in large quantities of radioactive substances would be of great value for medical and biological research and might result in new cures for diseases.

Mr. BLACKBURN said Prof. E. L. Lawrence, of California University, had stated that the first use to which the giant cyclotron in California would be put was research into and treatment of cancer. Prof. Lawrence expected valuable results in two or three years. By the use of radioactive isotopes, which could be fed or injected, it would be possible to discover the metabolism of the human body as never in the past. It would be possible to discover what made a cell grow; thus it might be possible to discover the cause of cancer. By the plutonium process one was able to extract in bulk radioactive substances and radiations vital in medical research and therapy.

Mr. JOHN WILMOT, in reply, said the problem of harnessing the energy of the atom for peaceful purposes had not been solved. Atomic energy plant produced an intense radiation—lethal if it was not screened. Benefits to medical science by the use of artificially produced radioactive materials might have immense value. In nuclear reaction about 1,000,000 times more energy was liberated from a given weight of matter than in any known chemical reaction. There seemed to be no limits to the contribution to human progress which this development might produce.

Veterinary Practice

Mr. TOM WILLIAMS, replying on April 1 to Mr. S. Hudson, said the Government welcomed the recommendations of the Loveday Committee on Veterinary Education in Great Britain and of the Chancellor Committee on Veterinary Practice by Unregistered Persons. It was intended to introduce legislation empowering the Privy Council to authorize a university to confer degrees entitling the holders to registration with the R.C.V.S. as veterinary surgeons. The Bill would also provide for the reconstitution of the Council of the R.C.V.S., would provide for that Council to exercise powers of inspection of teaching facilities and examinations at all veterinary teaching centres, and would deal with the subject of veterinary practice by unregistered persons. The Government would be prepared to provide substantially increased financial assistance to veterinary education. Legislation could not be introduced immediately.

Scrub Typhus

On April 2 Mr. LAWSON told Mr. Viant that the first batch of scrub typhus vaccine was dispatched to India in June, 1945, and by December, 1945, 268,000 ml. had been dispatched. Information was not at present available in the War Office of the number of men inoculated, and information as to the number of cases related only to 1944 and 1945. The following figures of cases of scrub typhus were reported to the War Office for the years 1944 and 1945.

	1944	1945		1944	1945
January ..	100	291	July ..	133	210
February ..	22	40	August ..	835	157
March ..	Nil	—	September ..	684	111
April ..	3	39	October ..	723	177
May ..	35	24	November ..	677	120
June ..	46	79	December ..	530	65

Enteric Fever in the Army

Mr. LAWSON regretted on April 2 that complete figures of cases of enteric fever and deaths from that disease in British armies during the war were not available. He furnished the numbers of cases for four Commands during stated periods as follows:

United Kingdom (September, 1939–December, 1945)	210
M.E.F. (1941–4)	789
	(87 deaths)
C.M.F. (1943–5)	622
B.A.O.R. (July–December, 1945)	29
	1,650

Except in the case of M.E.F., no figures of deaths were available. The figures related to the enteric group of diseases, which included typhoid fever, paratyphoid fever A, B, and C, and "clinical typhoid."

Malaria Control

Mr. LIPSON on April 3 asked if the attention of the Secretary for the Colonies had been drawn to the report by the Ross Institute that conditions in Malaya with regard to malaria

control had reverted to those of 25 years ago. Mr. GEORGE HALL said he had seen this statement. The military administration of Malaya appreciated the serious effects of Japanese neglect, and, within the limitations of man-power, supplies, and transport, pushed on with the restoration of malaria control in the larger centres of population. The Advisory Malaria Board had been reconstituted. It was the intention of the civil medical authorities, who had taken over, to press forward not only with emergency measures of oiling and the distribution of drugs but also with the reconstruction of the antimalarial works which did so much to reduce the incidence of malaria in pre-war Malaya.

Lady NOEL-BUXTON inquired on the same date whether the Government of Tanganyika had adequate machinery for co-ordinating malaria control schemes on sisal estates. Mr. GEORGE HALL said co-ordination of malaria control schemes on sisal estates in Tanganyika formed part of the general public health service of the Territory. This service was not yet fully effective owing to the acute shortage of staff in the medical department. Recruitment to fill existing vacancies in the establishment of the department was proceeding as rapidly as possible.

Universities and Colleges

UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examination indicated:

THIRD M.B., CH.B.—*Pathology and Bacteriology*: Barbara Anderson, Doreen M. Ashworth, Kathleen Barr, P. J. Crawford, K. A. Eshenigian, Ruth Goodier, H. Jackson, V. T. Mason, Mrs. Barbara Oldham, J. E. Parry, R. J. A. Webb, Doreen Wilkinson, D. H. Wright.

UNIVERSITY OF EDINBURGH

Dr. Douglas Guthrie will give a series of lectures on the history of medicine in the physiology class-room of the University on Mondays, at 5 p.m., from April 22 to June 24, both dates inclusive. The title of his first lecture is "The Material and the Tools"; details of the other lectures will be announced in the diary column of the *Supplement* week by week. They are free to all matriculated students; 10s. to others.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

The following candidates have satisfied the examiners for the Diploma in Obstetrics of the College:

Pamela M. C. Aitchison, O. Amadori, Sheila M. Baker, J. Baron, Elizabeth Bate, Margaret E. M. Buxton, Doris Brighton, R. W. Burslem, Jean Collins, Constance M. Cowan, J. Cox, Doris A. Craigmile, G. M. Evans, W. Hall, N. J. P. Hewlings, H. A. Hewlett, G. I. Isaacs, S. M. Jenner, C. M. Kamdar, J. D. Martin, T. Miles, Alice K. Montgomery, J. K. Oaden, J. A. Partidge, Charlotte Saba, J. W. Smith, W. W. Willson.

Medical News

The annual meeting of the Association of Surgeons of Great Britain and Ireland will be held at the Royal College of Surgeons, Lincoln's Inn Fields, W.C., on Tuesday and Wednesday, May 7 and 8. On the first day, after the election of officers and other business, a discussion on inguinal hernia will begin at 10.15 a.m. In the afternoon short papers will be read, followed by tea at Apothecaries' Hall and dinner at Claridge's Hotel. On May 8 a discussion on "Chronic Osteomyelitis, the Sequel to a Gunshot Wound," will begin at 10 a.m., and operating sessions are being arranged at a number of London hospitals in the afternoon. Copies of the programme are issued from 45, Lincoln's Inn Fields, W.C.2.

A meeting of the Medico-Legal Society will be held at 26, Portland Place, W., on Thursday, April 25, at 8.15 p.m., when a paper will be read by Mr. William Latey on "Consummation of Marriage and the Law."

The Société Française de Dermatologie et de Syphiligraphie will hold a special meeting devoted to the treatment of cutaneous tuberculosis by vitamin D, in high dosage at 10 a.m. on May 8, at the Museum, St. Louis Hospital, Paris. The committee of management would be very happy if some members of British dermatological societies could attend the meeting. An ordinary meeting of the society will take place on May 9 at 9.30 a.m., at which also they would be welcomed. The secretary-general is Dr. R. Degos, 20, Rue de Penthièvre, Paris, 8.

The annual general meeting of the Faculty of Ophthalmologists, whose new council has now been elected, will be held at the house of the Royal Society of Medicine, 1, Wimpole Street, W., on Saturday, June 1, at 2.30 p.m. Notices will be sent to each member and associate of the Faculty, with a copy of the annual report.

A special meeting of the London Association of the Medical Women's Federation will be held at B.M.A. House, Tavistock Square, W.C., on Thursday, April 25, at 8.30 p.m., when there will be a discussion on the National Health Service Bill.

Lord Horder presided at a dinner at the Savoy Hotel on April 5 in celebration of the 150th anniversary of the Abernethian Society, which succeeded the Medical and Philosophical Society of St. Bartholomew's Hospital, founded in 1795. The speakers included Sir Alfred Webb-Johnson, President of the Royal College of Surgeons of England, Surg. Rear-Admiral C. P. G. Wakeley, president of the Harveian Society, and Mr. Douglas Abernethy, surgeon to the Radcliffe Infirmary, Oxford, whose great-grandfather was John Abernethy's nephew.

The president of the American Chemical Society has announced the award of the Priestley medal, the highest honour in American chemistry, to Sir Ian Morris Heilbron, D.Sc., F.R.S., professor of organic chemistry in the University of London at the Imperial College of Science and Technology. Prof. Heilbron has in recent years worked on penicillin and the insecticide D.D.T.

During the first three months of this year a series of articles by Miss G. B. Carter and Miss Evelyn C. Pearce appeared in the *Nursing Mirror* under the title "Reconsideration of Nursing: Its Fundamentals, Purpose, and Place in the Community." These have now been reprinted as a pamphlet, and copies can be had for 6d. post free from the *Nursing Mirror*, Dorset House, Stamford Street, London, S.E.1.

The address of the Sheffield depot of the Regional Blood Transfusion Service is now Northfield Road, Crookes, Sheffield, 10. (Telephone No. Sheffield 63271.) This depot serves South Yorkshire, Derbyshire, Leicestershire, Lincolnshire, Northamptonshire, Nottinghamshire, and Rutland.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales, except for a decrease in whooping-cough 98, infectious diseases increased in prevalence, the rises being measles 407, acute pneumonia 103, scarlet fever 68, diphtheria 61, dysentery 24.

The decline in whooping-cough was due to a few counties; the largest falls were Hertfordshire 30, Staffordshire 28. The only counties with an appreciable change in the incidence of scarlet fever were Lancashire and Yorkshire West Riding, with increases of 49 and 40. A small increase in acute pneumonia was recorded in most areas. The largest rises in measles were Lancashire 168, London 78, Durham 43. The increase in diphtheria was contributed mainly by Yorkshire West Riding 18, London 14, Yorkshire East Riding 12, and Surrey 11. Diphtheria is most prevalent in Lancashire and Yorkshire West Riding, where almost one-third of the total cases were notified.

The chief centres of infection for dysentery were: Lancashire 86, Staffordshire 37, London 36, Middlesex 31, Essex 15, Warwickshire 15, Gloucestershire 10, Leicestershire 10, Glamorganshire 10.

In Scotland the chief changes in the incidence of infectious diseases were increases in measles 111 and acute primary pneumonia 21, and decreases in whooping-cough 34 and dysentery 13.

In contrast to the general trend, the notifications of dysentery rose from 5 to 16 in the city of Aberdeen. Although the notifications of diphtheria showed no change there was considerable local variation in incidence, and the western area had an increase from 79 to 92 cases.

In Eire there were diminutions in the incidence of primary pneumonia 27, whooping-cough 19, and diarrhoea and enteritis 13. The only increase of any size was diphtheria 8.

In Northern Ireland the notifications of scarlet fever fell by 9, and those for whooping-cough increased by 8.

Week Ending April 6

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,392, whooping-cough 2,109, diphtheria 463, measles 2,268, acute pneumonia 967, cerebrospinal fever 96, dysentery 294, paratyphoid fever 3, typhoid 3, smallpox 7. Deaths from influenza in the large towns numbered 47.

Corrigendum

In the "Epidemiological Notes" of April 13 (p. 593), relating to the week ending March 23, it was stated that Scotland had "an increase of 26 in cerebrospinal fever." It now appears that 18 cases of chicken-pox in Greenock were erroneously shown as cases of cerebrospinal fever. The total number of cases of cerebrospinal fever in Scotland for the week ending March 23 was therefore 40 and not 58, and the increase over the figures for the previous week was 8 and not 26.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 30.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	74	8	38	4	2	66	4	29	3	—
Deaths	—	1	2	—	—	—	—	1	—	—
Diphtheria	478	36	115	51	17	495	17	126	97	14
Deaths	3	—	1	1	—	6	—	2	—	—
Dysentery	356	36	56	2	—	394	39	164	3	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute	—	—	—	1	—	4	—	2	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	41	7	—	—	—	38	12	5
Deaths	—	1	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	66	10	4	40	1	49	8	4	19	2
Deaths	—	—	—	11	—	—	—	—	6	—
Measles*	2,282	675	683	37	1	2,213	1,652	290	35	31
Deaths	3	—	3	1	—	21	3	—	1	—
Ophthalmia neonatorum	67	9	19	—	—	64	2	20	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	4	—	1 (B)	—	—	4	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza ..	1,079	69	31	14	5	746	38	8	6	7
Deaths (from influenza)† ..	50	7	6	4	5	27	2	3	—	—
Pneumonia, primary	—	57	360	31	17	—	40	194	19	11
Deaths	—	—	—	—	—	—	—	—	4	—
Polio-encephalitis, acute ..	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute	6	—	3	—	—	6	1	—	—	2
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	3	20	—	1	—	6	19	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡	156	12	22	1	1	138	12	13	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	1	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	1,393	88	201	18	28	1,361	52	166	31	48
Deaths	—	—	—	—	—	—	—	—	—	—
Smallpox	2	—	—	—	—	—	—	—	—	—
Deaths	1	—	—	—	—	—	—	—	—	—
Typhoid fever	8	3	3	2	—	8	—	2	5	1
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough*	2,092	200	88	29	12	1,123	44	99	29	24
Deaths	8	1	1	1	—	11	2	3	2	3
Deaths (0-1 year)	408	61	64	47	24	375	47	46	33	28
Infant mortality rate (per 1,000 live births) ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) ..	5,524	878	758	263	160	4,677	679	570	191	149
Annual death rate (per 1,000 persons living) ..	—	—	16.7	16.9	—	—	12.9	12.3	—	—
Live births	8,392	1291	1017	511	268	5,850	596	792	308	252
Annual rate per 1,000 persons living ..	—	—	20.5	32.7	—	—	15.8	19.9	—	—
Stillbirths	232	22	41	—	—	186	20	31	—	—
Rate per 1,000 total births (including stillborn) ..	—	—	39	—	—	—	38	—	—	—

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Includes 1 death from smallpox.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Atiology* *Westcent*, London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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B.M.A. SCOTTISH OFFICE, 7, Drumshugh Gardens, Edinburgh

ANY QUESTIONS?

Essential Xanthomatosis

Q.—What is the underlying cause of the hypercholesterolaemia of essential xanthomatosis of the hypercholesterolaemic type?

A.—Essential xanthomatosis is taken to include xanthoma tuberosum multiplex and the Hand-Schüller-Christian syndrome. Characteristically, hypercholesterolaemia occurs in xanthoma tuberosum multiplex and not in the Hand-Schüller-Christian syndrome, and xanthoma tuberosum multiplex is more often familial, but cases occur with features of both syndromes. As hypercholesterolaemia is not an essential symptom, it seems likely that the primary disturbance is an increased formation and storage of cholesterol in the reticular cells, with a secondary spilling-over of cholesterol into the plasma in cases with hypercholesterolaemia.

Thorium X in Rheumatoid Arthritis

Q.—What is thorium X, and how should it be used in the treatment of rheumatoid arthritis?

A.—Thorium X is a mildly radio-active substance which soon loses its activity by disintegration. Its use in rheumatoid arthritis is empirical and no scientific or controlled studies have yet been made of this form of therapy. Two suggestions have been put forward to account for its value in this condition. First, it may be a "general stimulus to metabolism," causing an increase in the patient's resistance to the arthritic process. Secondly, it is suggested that the alpha rays emanating from the thorium X have a destructive effect on the growing scar tissue which is forming in the synovial membranes. Both these suggestions are vague and inconclusive.

Thorium X may be administered locally to the joint in the form of an ointment, or it may be given intravenously, but most commonly it is taken in solution by mouth in doses of 50 electrostatic units three times a day for three days. There is a danger of leucopenia which must be guarded against.

Inheritance of Retinitis Pigmentosa

Q.—In "Any Questions?" of Nov. 24, 1945 (p. 752), and again on Feb. 23, 1946 (p. 302), it is stated that there is no reason why persons suffering from retinitis pigmentosa should not have children. Could this be explained further? Some patients have long pedigrees of the disease and many affected relatives. Is it right to advocate the broadcasting in the population of such highly undesirable genes?

A.—The first sentence in the question is not quite correct. In both instances mentioned the individual family histories together with the known hereditary behaviour of the condition made it reasonably certain that a recessive gene is involved. It was because of this that it was stated that there was no sufficient argument against children, should the sufferers want them. Had inheritance been dominant (or sex-linked), which does occur sometimes, the genetic outlook would have been quite different and it would be most unwise to have children.

For practical purposes there are three simple types of inheritance: dominant, sex-linked, and recessive. A dominant gene is expressed even though the corresponding gene received from the other parent is normal. On the average, half the offspring of any affected person are themselves affected. Direct transmission of the trait is observed from parent to child.

Sex-linked traits, of which haemophilia is the classical example, depend upon genes carried on the X-chromosome, of which the female possesses two and the male only one. A carrier female, possessing one abnormal gene, is herself outwardly normal; but half her sons receive the abnormal gene on their single X-chromosomes and so are affected. An affected man who marries has normal children only, but all his daughters will be carriers. It can easily be seen, therefore, that in simple dominant inheritance the only problem is the affected person, the children of such people have a 50% chance of being similarly affected. With a sex-linked trait a woman who has already had an affected child has a one-in-four chance that any subsequent child will be affected. The sisters of a haemophiliac may or may not be carriers; the combined chance that any child will be affected is one in eight. A haemophiliac who marries will have normal children, but one-quarter of his grandchildren will be affected. It is clear, therefore, that in regard to these two modes of transmission some individuals run a risk which few sensible people would knowingly accept.

Recessive inheritance is quite different. Here both chromosomes of the pair concerned must carry the abnormal gene before the defect becomes manifest—i.e., one abnormal gene is received from each of the parents, who in the vast majority of instances will themselves be outwardly normal. A couple who have had one affected child run a one-in-four risk that any subsequent child will be abnormal also. The abnormal person himself carries two abnormal genes and so all his children will be carriers, but as in the great majority of instances he will marry someone who does not possess the gene, all his children will be normal. And so it may go on for many generations. The genetic prognosis is therefore excellent, with one proviso. The affected person (and his relatives) should not marry a cousin, because, of course, a cousin may well carry the very same abnormal gene. I saw a few weeks ago a patient suffering from retinitis pigmentosa, the first in her family group to do so. A normal sister had married a cousin and had had an affected child.

In all probability most of us carry at least one undesirable recessive gene, so that for every affected person there are many carriers. The reduction in the number of such genes by preventing the marriage of abnormals would be relatively trifling. If, therefore, we can be reasonably certain that a particular instance of retinitis pigmentosa is due to a recessive gene—and this is the rule—there is no reason to advise against marriage.

Efficient Stethoscope

Q.—Have any recent tests been made of the efficacy of various forms of stethoscope? As one gets on in years hearing becomes less acute, and one needs the most efficient instrument obtainable.

A.—It is the general experience that the open bell-shaped chestpiece used with a binaural stethoscope is the best combination for picking up low-pitched or rumbling murmurs—for example, those of mitral stenosis. On the other hand, the flat chestpiece with diaphragm (phonendoscope) is found by most observers to be best for hearing the high-pitched murmurs (often very soft) of aortic incompetence in the earliest stage. In general, for those hard of hearing, I would stress the value of well-fitting rubber ear connexions, and a rubber rim around the bell-shaped chestpiece, for the better exclusion of extraneous sounds, and thick rubber tubing for the same reason. For the auscultation of the lungs a physician hard of hearing will probably find the phonendoscope type of chestpiece more helpful.

Atropine in Labour

Q.—Ether anaesthesia being desired during the second stage, can atropine 1/100 gr. (0.65 mg.) be injected without affecting parturition?

A.—In laboratory experiments it has been shown that atropine can interfere with the action on uterine muscle of some drugs, such as acetylcholine and pilocarpine. Nevertheless, it does not block nerve impulses to the uterus, nor does it inhibit normal spontaneous uterine activity or interfere with the uterine response to posterior pituitary extract. In the past it was sometimes stated that atropine was contraindicated during labour because it might depress uterine contractions. This is not borne out by clinical experience, and A. W. Bourne and

J. H. Burn (*Journal*, July 19, 1930, p. 87) recorded the contractions of the human uterus during labour and noted that, if anything, the contractions were intensified rather than decreased after 1/100 gr. (0.65 mg.) atropine. Although the position is not clear (atropine is still recommended by some authorities in the treatment of spasmodic dysmenorrhoea) it may be stated that atropine in ordinary dosage can be given to the parturient woman without fear of materially disturbing uterine action.

Skimmed Milk for Children

Q.—Is skimmed milk suitable for feeding infants and older children? Is it correct to say that the only constituent it lacks as compared with cow's milk is fat; and that, but for the want of fat, it is equivalent to cow's milk in its content of mineral salts? The importation of skimmed milk into British Guiana at a reduced rate of customs duties in order to meet the scarcity of local cow's milk has given rise to varying opinions. The view that skimmed milk is suitable for infants was reported in the local press as having been expressed by a nutrition expert who visited this colony last year.

A.—This is a somewhat complicated question, and perhaps one should not attempt an answer without a knowledge of the local conditions in British Guiana and the choice of milk available. From a general point of view, it is fair to state that skimmed milk is not suitable for infants. Not only is the fat content reduced, but this naturally means that given in a strength in which the protein can be digested the calorie content of the milk mixture will be low. Moreover, it is generally accepted that the calcium of milk is in some physico-chemical relationship with the fat and, whether this be true or not, it does seem accepted that absorption of the calcium will depend upon fat intake. These remarks apply when milk is the sole source of food. In older children, on the other hand, it has been clearly shown that even skimmed milk is a valuable supplement to normal diet. It may be that the nutrition expert mentioned in the question had this in mind.

Thought, Emotion, and the Encephalogram

Q.—What are the effects of thought and of emotion upon the electroencephalogram?

A.—Attention of any kind will modify the records in the electroencephalogram. The usual dominant frequency of about 10 a second is inhibited by opening the eyes. This inhibition is not purely visual, it is the result of visual attention—so with any thought processes or emotional states which involve the patient's attention. Emotional states give rise to direct potential changes on the surface of the body, but these direct potential changes are not recorded in the electroencephalogram, which is so designed that it records only alternating and indirect current flow. In any case these direct potential drifts would not materially affect the electroencephalographic record.

Electric Shocks for Phlebitis

Q.—Five months ago, following confinement, a patient developed phlebitis in the left leg. Despite rest the leg remained painful and swelled every evening until one day, a week ago, when she received by accident a severe electric shock. From that minute the pain and swelling have ceased. Can you explain this?

A.—Persistent swelling of the leg indicates some impairment of the circulation; and, although vascular changes are sometimes found post mortem following fatal electric shocks, it is difficult to account for a sudden restoration of the circulation of the leg as a result of the accident described. It may be that the general upset occasioned by the shock has caused the patient to take more rest and thus minimized the swelling of the leg. A longer period of observation seems necessary before any conclusion as to the effect of the accident is justified.

Carbon Monoxide in a Bathroom

Q.—What is the simplest and most reliable test for the presence of carbon monoxide in a bathroom?

A.—Small amounts of carbon monoxide can be detected by passing the gas to be tested through a dilute solution of palladium chloride, or by exposing a filter paper soaked in this solution, when a darker colour is obtained owing to the presence

of metallic palladium. Other reducing gases, however, will give this reaction. The standard method of determining small amounts of carbon monoxide is based on the reduction of iodine pentoxide to iodine by CO. A portable apparatus based on this method is available in this country.

A portable instrument of a different type has been used in the U.S.A. A stream of air is drawn over a Hopcalite catalyst and the carbon monoxide is burnt; the heat thus produced is proportional to the amount of gas. The increase in temperature is detected by a thermocouple and recorded on a meter graduated in parts of CO per 10,000 of air. Such instruments must be calibrated frequently against a standard chemical method.

The detection of carbon monoxide in air and the subsequent analyses are definitely matters for an expert, who should be consulted if one had the slightest reason to suspect the presence of carbon monoxide in a bathroom.

Haemorrhagic Disease of the Newborn

Q.—A boy aged 7 developed haematemesis when 4 days old. At 5 weeks old, when put on to half-cream milk (he was bottle-fed), he developed scalp eczema, which subsequently spread to the flexures of the body. This now alternates with attacks of asthma. The father has hay-fever; and the mother's father, mother, and uncle had duodenal ulcers. The mother wonders whether the next child will be similarly affected.

A.—The three questions at issue are haemorrhagic disease of the newly born, allergy, and peptic ulcer. Tendencies to the two last are undoubtedly inherited and nothing dramatic can be done to prevent them, though breast-feeding is probably preferable to bottle-feeding for the allergic infant. Haemorrhagic disease of the newborn is not usually hereditary or familial; to prevent it, giving the mother 25 mg. of menaphthone or 50 mg. of acetomenaphthone at the beginning of labour, and the baby 5 mg. of menaphthone as soon as possible after birth, has been recommended.

Simmonds's Disease

Q.—What is the latest treatment for Simmonds's disease?

A.—In Simmonds's disease, as a result of anterior pituitary destruction, failure of function is met with in the gonads, thyroid, and adrenal glands. Theoretically, therefore, substitution therapy should comprise oestradiol (or stilboestrol, hexoestrol, or dienoestrol), progesterone, testosterone, thyroid, and desoxycortone or cortical extract, and these should be continued indefinitely. In practice, good results may be obtained with all of these, or with some of them. Thyroid should not be given, at any rate in large doses, in the early stages, as patients may prove intolerant, possibly because of the poor nutrition and glycogen depletion of the liver. Testosterone is indicated in the male, not only because of its effect on sex function, but because of its anabolic effect, resulting in an increase in appetite, gain in strength and in weight. The writer has also found it of great value in women, and the danger of hirsutism or acne seems to be much less in these patients than in other women. Methyl testosterone, 5 mg. t.d.s. by mouth, is partially effective, and may be supplemented by dienoestrol 0.3 mg. b.d., and ethisterone 10 mg. t.d.s., thus avoiding injections.

Stimulation of the gonads by gonadotrophins may be attempted, but patients may prove dangerously allergic, and in any case it is still only substitution therapy and must be continued. Fortunately, in partial Simmonds's disease there may well be, in the course of time, an appreciable degree of spontaneous recovery. Should pregnancy supervene, by any chance, the resulting hypertrophy of the undestroyed portion of the anterior pituitary gland will also tend to produce recovery. Pregnancy, however, is rare in Simmonds's disease of any severity.

Tuberculosis of the Breast

Q.—What is the best treatment for tuberculosis of the breast?

A.—Tuberculosis of the breast is uncommon. Infection may occur from the blood stream, which may convey the microbe from a pulmonary or other focus; sometimes, however, it appears to gain access through the nipple. The lesion may be subacute and fairly rapidly form a chronic abscess, and this may cause the formation of sinuses, which may betray the nature of the lesion. At other times the chronicity of the lesion may lead to fibrosis, which may very closely simulate

arcinoma. In nearly all cases the best treatment is complete removal of the breast. A possible exception is that case in which there is but a small lesion near the nipple, in such a case a local excision may first be tried.

Penicillin for Psoriasis

Q.—Is penicillin any use in psoriasis? If so what is the best way to give it?

A.—This question cannot be answered by a simple Yes or No. In those prone to this pattern of reaction psoriasis may be provoked by a variety of different causes at different times. The provocation may be an endocrine disturbance or may be climatic, it is often nervous but is sometimes toxic, from some infection or some infected focus. In the latter group of cases penicillin therapy parenterally is likely to be valuable for the particular attacks. No doubt a new line of therapy like penicillin will for a time bring relief through suggestion given either parenterally or by local application. I have little experience of its use in this manner, however.

Sterility following Mumps

Q.—An officer aged 27 complains of a heavy aching pain in his right testicle and groin. He developed mumps four months ago with a left orchitis. He lived ashore with his wife for a month with a resultant increase in the symptoms. His sexual potency and libido are not affected but he was worried about the possibility of sterility. The left testicle is atrophied and the right epididymis is slightly tender at times. He has worn a scrotal support for some time with no amelioration of his symptoms. I should appreciate advice as to treatment.

A.—It is stated that the left testicle is atrophied and that the right epididymis is occasionally tender. The word epididymitis is not used, and if no true infection of the epididymis has occurred there is no reason to believe that the patient is sterile. But if he is anxious about his condition—and it is not surprising that he should be—a specimen of semen should be examined. All that is required is to discover whether spermatozoa are present or not. No expert analysis is at the moment necessary. If the occasional tenderness and aching are due to congestion alternate sponging with warm and cold water, in addition to the wearing of a bandage often brings relief.

INCOME TAX

Demobilization—Car Expenses

T D's demobilization leave expired on Dec 31, 1945. He commenced work as an assistant in general practice on Dec 1. How is his assessment for the year to April 5, 1946, calculated? He has been using car A but intends to sell it and buy car B before the end of this month. What should he claim in that connection?

A.—T D will be assessed for the year to April 5, 1946 for nine months. Army pay (on the basis of the previous year if that is to his advantage) and for four months' civil earnings. For 1945-6 he should claim depreciation allowance on car A up to the date of sale, and on car B from the date of purchase—at 20% plus one fifth—and obsolescence allowance on car A—i.e. the cost price less the depreciation claimed on that car and less, also, the amount received for the car on sale. For 1946-7 he should claim the 20% "initial allowance" on car B—i.e. 20% on the cost price less the depreciation allowance claimed on that car for 1945-6, and also, of course, the depreciation allowance on the written-down value.

Sale of Car—"Balancing Charge"

C H has two cars, one of which "is valued at £12 for income tax purposes but is worth about £212 at market values." He wishes to replace it, but the new car will not be available until next August.

A.—If he sells the car on or after April 6, 1946, while carrying on the practice he will be liable to account for income tax on the excess of the amount received for it over the income tax value, subject to the fact that this "balancing charge" must not exceed the aggregate of the depreciation allowances made to him in respect of the old car. If he sells the car before April 6, 1946—which is the "appointed day" at which the Income Tax Act, 1945, comes into operation—he will not be liable to the "balancing charge."

Car Transactions

P M has a car ("M") which cost £130 in 1939, and on which he has received £111 in depreciation allowances. What will be the position if he sells it (a) before or (b) on or after April 6, 1946? A

Similar inquiry is made with regard to another car ("N") which has been depreciated to £275 and may be sold for £200.

A.—Car "M"—(a) If sold before April 6 no liability to a balancing charge will arise. (b) If sold on or after April 6 a balancing charge will be due, the amount being either the excess of the selling price over £19 (£130-£111) or £111, whichever is the less. Car "N"—If sold before April 6, P M will be entitled to the usual obsolescence allowance. If sold on or after April 6 he will be entitled to claim the excess of the depreciated value for income tax purposes (£275) over the selling price. (In this case the two allowances will appear to amount to the same thing.)

Lectures on a Non medical Subject

R is in practice as a consultant, but two or three times a year lectures for a fee on a non-medical subject. Should the fees be shown as income for tax purposes?

A.—Yes. It may be open to doubt whether they are chargeable under Schedule E but if not they appear to be caught by Case VI, Schedule D, as annual profits or gains, not charged by any other Schedule.

Change of Practices

J O sold a practice recently and is negotiating the purchase of a practice in another part of the country. With which tax office should he deal?

A.—As regards the former practice, the office which has hitherto dealt with his income tax liability, as regards the new practice—it is in fact acquired—the office dealing with that locality.

Colonial Medical Service

L L arrived in England in December, 1945, for a course of study. Part of his salary is paid to his wife abroad, the balance is paid to him here.

A.—As L L has come to the United Kingdom for a temporary purpose and not with a view to establishing a residence here, he will not be liable to British income tax if he is not in the country for six months of the financial year. He will not be liable for 1945-6, but will be liable for 1946-7 if his stay here lasts beyond Oct. 5, 1947. If that occurs he will be liable on the amount of pay received here, less the usual personal allowances and less some allowance for income tax paid on the same income in the colony.

LETTERS, NOTES, ETC.

Keeping Properties of Serum and Plasma

Dr K S RANGASWAMY writes from New Delhi. The statement that "human citrated plasma in liquid form should not be stored unless frozen in the solid state" (Jan. 26, p. 152) is rather dogmatic and may create an impression that the use of plasma stored in liquid form is dangerous. In my experience processed plasma stored in the liquid state is a perfectly safe product to use for resuscitation and maintaining a lost blood volume. At the Madras Blood Bank, the King Institute of Preventive Medicine, Guindy, we have prepared and issued during the last three years only liquid plasma processed according to the alkali- CO_2 neutralization technique described by Blash and Wherry. In 1943 and 1944 most of the plasma prepared had been held in storage at 42° F (5.5° C) to meet any possible emergency. The safe time limit for the storage of plasma was then not known, though it was frequently mentioned in the literature that fluid plasma could be stored for "several months." After careful clinical trials the time limit was extended gradually from three months to one year. Some hundreds of transfusions have been given in the Madras hospitals with plasma stored for about one year, and, in some cases, for about eighteen months. From this experience we have fixed that the safe storage period for wet plasma should not ordinarily exceed twelve months. In a paper read before the Madras Medical Association on March 9, 1944, I gave the results of clinical trials with wet plasma, analysing the data of 105 transfusion cases of which the blood bank had complete records. The plasma had been used for the treatment of post-operative shock in 77 cases, injuries including gunshot 10, burns 17, and shock after spinal anaesthesia 1. Of these cases 7 developed a rigor, 4 had a rise of temperature, while 1 had uricæmia after transfusion of plasma. The results were excellent: life undoubtedly saved in 19, good in 46, improvement followed by death of the patient in 25, and no improvement in 15. A surgeon who had used large amounts of fluid plasma summed up his impression by reporting "The use of plasma saved a number of lives. Many of them would not have recovered but for the plasma."

Among those who were not benefited by plasma transfusion were many patients in an advanced state of shock who could not be expected to recover under any treatment to give a few instances, cases of perforated gastric and duodenal ulcers, traumatic rupture of intestines, strangulated hernia of three days' duration, etc. One transfusion report contains a remark which gives an idea of the type of cases falling in these groups: "The [blood] pressure never

rose in spite of giving plasma in a continuous stream by the open method," a typical example of the terminal stage of shock. In some cases the plasma was given too late, while in others the plasma was given either too slowly or in insufficient amount to have any real effect or was stopped too soon so that the initial improvement was not maintained. In two cases it was suggested that the plasma transfusion was followed by ill-effects. These have been investigated. The first was a patient with hypertension in whom plasma transfusion was commenced after the B.P. had fallen from 160/80 to 90/76 during an operation for excision of elephantoid scrotum. The plasma transfusion was continued at the rate of 70 drops a minute, 1,000 ml. being given in four hours. The B.P. continued to fall and the patient died. It was obviously a case of inadequate speed and inadequate volume. The other was a patient on whom a hemicolectomy had been done for ileo-caecal tuberculosis. When the plasma transfusion was started the patient's condition was "bad." The B.P. was 104/60 and pulse rate 102; 500 ml. of plasma was given in one hour, when the patient's condition became "worse," with B.P. 90/58 and pulse rate 136. An hour and a half later an intravenous infusion of normal saline was started and the patient improved, the B.P. rising to 118/68. I venture to suggest, from my experience of two other similar cases in which a saline infusion restored the B.P., which had fallen apparently due to transfusion of plasma, that these are cases of dehydration which fare badly when plasma is given without concomitant administration of saline solution. Since March, 1944, some hundreds more transfusions of stored fluid plasma have been given with very favourable, and in some instances spectacular, results. I am unable to analyse these results as I have no access to the records, which are in far-off Madras.

I have been constrained to make the above observations at some length because processed human citrated plasma and serum stored in the fluid state are in general use all over India except in one or two centres where facilities for drying plasma/serum exist, and any impression that the use of such products is fraught with danger would have disastrous consequences in India and would retard the progress of transfusion in this country. Besides, facilities for storing plasma in the frozen state are equally lacking in India. Experience has shown that properly processed plasma can safely be used after storage at low temperature even in the Tropics.

Are the People More Healthy?

Surg. Lieut.-Cmdr. G. H. C. ST. G. GRIFFITHS, R.N.V.R., writes: Your article on this intriguing subject (March 2, p. 318) touched inclusively on "health," discerned from rather a limited aspect—e.g., coryza, influenza, rheumatism, tuberculosis, and the mortality rate. It did not take into consideration that colds, 'flu, and even rheumatism, ought to be more epidemic one year or season, or the climate was more humid or exacting. Even on peacetime food abundance it must be admitted that epidemics of these diseases are more prevalent in one year than another, or the season is wetter and the rainfall greater, so that food, or the lack of it, may not have contributed to the figures stated in the article in question. Those responsible for the dieting of the nation naturally had to use propaganda of a cheering type, to encourage the public to undertake their long and arduous sacrifices and to endure their lot in going without many valuable foods, such as cheese, cream, butter, eggs, fine bread, meat, and a host of other peacetime foods. Substitutions, such as synthetic jams, powdered egg, peanut butter, varieties of margarine or "honey," were all served to the public in turn to eke out the monotonous and irksome diet that had to be faced, and unfortunately still has to be, owing to the alleged world shortage. However, all these sacrifices led to a "something" that we, as a nation, had not known previously: a general lassitude, languor, lack of energy and driving power; a lack of quick recuperative power to 100%, if ever attained, after some trifling illness. There seemed to be many individuals, men and women, suffering from varying slight grades of anaemia. Fractures, too, through deficient calcium, were more numerous. Accidents causing fractures on the football field were in excess of normal. These fractures often showed grave osteoporosis and decalcification of the bones, the bones appearing under x rays to be little more than fibrous tissues. Skin diseases such as acne pustulosa, furuncles, bullous pemphigus, and carbuncles seemed much more common, due to lack of fresh meat, fruit, and similar foods. Teeth also were not spared, owing to our lack of milk, cream, and butter. The reference to the mortality rate hardly holds good. Millions of people can be more or less starved to a certain extent without reaching the condition of those in Belsen Camp. No grievous epidemic, either, overtook this country, as in 1918, to decimate its inhabitants.

Schizophrenia and War Service

Mr. J. H. WOOD, Secretary, Pensions Department, the British Legion (Scotland) writes: With reference to the question and answer (March 16, p. 419) regarding the Ministry of Pensions and the above disease, first of all, may I point out that the Pensions Appeal Tribunals are independent and not run by the Ministry, and they consist of a lawyer, a doctor, and an ex-Service man. Although in the

case quoted there was no pre-Service history of the disease and the family history was good, I am afraid that the Ministry of Pensions would only admit that the schizophrenia was aggravated or, in other words, made worse by his service in the Navy, but would not admit that it was attributable thereto, their view being that no case of schizophrenia can be due to war service as in every case there is a constitutional predisposition. At the risk of incurring the wrath of many psychiatrists, but not all, I may say that the British Legion disagrees entirely with this point of view, and holds that in cases such as the above the disability can be fairly said to be attributable to war service. Here it is worth noting that in the old Royal Warrant the words "directly attributable" were used, and we would admit in that case that where a predisposition exists it could not be "directly attributable." However, in the present Royal Warrant the word "attributable" appears by itself, and therefore, if a man has a good personal and family history and breaks down under Service stress, the obvious conclusion to be drawn is that the psychosis is attributable to war service. It is also worth noting that Brig. G. W. B. James, in the *Journal* of Nov. 3, 1945 (p. 620), says that in some cases schizophrenia can be fairly said to be the direct result of war service. If only we could alter this attitude of mind in the Ministry and on the Pensions Appeal Tribunals, who, I am sorry to say, uphold the Ministry in their misinterpretation of the word "attributable," the Legion would be a lot happier.

Intravenous Protein Hydrolysates

Dr. A. NEUBERGER, Secretary of the Protein Requirements Committee of the Medical Research Council, writes: Dr. H. E. Magee states that "British preparations for intravenous use are made by hydrolysing casein with sulphuric acid." This is not the case. All preparations which have been tested in this country under the auspices of the Protein Requirements Committee of the Medical Research Council have been prepared by enzymic hydrolysis. One particular preparation made with acid and which had been supplemented with tryptophan has been used in a small number of cases abroad. Dr. Magee also states that "a few repatriated prisoners of war were treated with protein hydrolysates in England in 1945 with some but not spectacular success. Thrombosis of injected veins occurred in every case." It must be pointed out that in the clinical tests carried out under the auspices of our committee thrombosis, though undesirably frequent, was not a regular feature, as implied by Dr. Magee. Thrombosis has also been occasionally observed when American preparations were used. It is clear that further work both on the production of protein hydrolysates and on the clinical administration and indications is required before this method of intravenous alimentation can be recommended for general clinical use.

Height of Water-closet Seats

Fl. Lieut. R. S. HENDERSON, R.A.F.V.R., writes: Surely there is little doubt that the ideal posture for defaecation is a crouching one, with spine, hip-joints, and knee-joints fully flexed, the feet apart, and the anal orifice as near the ground as possible. Most animals may be observed to find this natural and effective. Campers, passing their motions into prepared holes in the ground, know it to be ideal. Now lavatory seats, as at present designed, are never less than 18 in. to 2 ft. (45 to 60 cm.) off the ground. At a time in history when we are expecting almost at any hour the appearance all over the country of new houses, it seems that builders generally might be encouraged to lower the height of their lavatory seats from the ground to a maximum of 12 in. (30 cm.). Quite apart from the saving of material involved, the nation as a whole might thus find itself pleasantly less constipated—with incalculable benefit, no doubt, to the rest of the world.

Blood Transfusion Apparatus

Mrs. A. D. HEDGES, secretary of the Durban Blood Transfusion Service, writes from Addington Hospital, Durban, South Africa: The Durban Blood Transfusion Service has started a small museum and we would like readers of the *British Medical Journal* who have any discarded pieces of blood transfusion apparatus, for which they have no further use, to consider sending them to us.

Corrections

In the report of the Royal Society of Medicine discussion of vascular injuries of warfare (April 6, p. 540) "Mr. Mayer" should read "Mr. B. C. Maybury." We apologize for the error.

Dr. STEPHEN D. STURTON wishes to correct a misprint in his letter on "Deck Ankles" and "Travellers' Oedema" published in the *Journal* of April 13. The third sentence of the second paragraph should read: "By the morning of July 12 out of 314 prisoners 24 of us were suffering from this condition."

Mr. F. G. ST. CLAIR STRANGE, F.R.C.S. (Ministry of Pensions Hospital, Dunston Hill, Gateshead, Co. Durham) is seeking back numbers of the *British Journal of Surgery*. The copies he wants are (up to twelve in number) of the July, 1945, issue, Vol. XXXIII, No. 129.

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RECENT ADVANCES IN THE PHYSIOLOGY OF VISION

By

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Section I: Measurements of the Living Human Eye by Means of X Rays

Rushton (1938) appears to have been the first to use x rays for making measurements of the living human eye. He measured its antero-posterior diameter. Goldmann and Hagen (1942) employed Rushton's method, and themselves measured the same diameter in the case of 10 emmetropes, 7 myopes, and 1 hypermetrope. They also elaborated the method in a very ingenious way by causing two pencils of x rays to strike the retina near the fovea; this enabled them to determine the more important optical constants of the eye. This method—together with some of the results which they obtained—will be reviewed in this section. Recently Sorsby and O'Connor (1945) have also elaborated the method so as to measure not only the antero-posterior diameter but the transverse and vertical diameters as well. Their results will also be reviewed here.

The Methods of Goldmann and Hagen

Knowledge of the optical constants of the eye finds many applications, both practical and theoretical. For this reason several attempts have been made to determine these constants both for the normal human eye and for myopes and hypermetropes. The older methods were laborious and their accuracy was open to doubt. Recently a more reliable method has been developed by Goldmann and Hagen by the use of x rays. So far, two properties of the eye have been determined by them—the length of the eyeball and the total refraction of its lens-system. The first of these is measured as follows: A beam of x rays is passed through a slit-shaped aperture in a stout metal plate. The narrow ray thus produced is caused to fall on the observer's dark-adapted eye at right angles to its optic axis. A ring of light is seen concentric with the fovea. As the beam is moved towards the back of the eye this ring of light gets smaller and smaller until it shrinks to a point. The beam now coincides with the most posterior part of the retina. The whole instrument is then moved forwards until the beam illuminates the anterior part of the cornea, and the movement necessary to do this is carefully measured. Since x rays are not deflected by living tissues the length of the eyeball is accurately determined in this manner.

The total refraction of the eye is now ascertained by the following technique: Two narrow beams of x rays, about 5 mm apart, are projected in at the front of the eye just below the line of sight. The observer sees two bright images apparently projected on to a screen which has been placed in front of him. Two narrow beams of light are projected by an optical lantern on to this same screen and the beams are adjusted until they coincide with the x-ray images. The exact distance of the screen from the observer is carefully measured, so also are the distances between the two lantern beams. The following formula is now used:

Total refraction in dioptres

$$= \frac{1000 \times \text{distance between lantern beams}}{\text{Screen distance} \times \text{distance between x rays}}$$

In the following table the results obtained by Goldmann and Hagen are compared with those of two observers—Tscherning and Gullstrand—who employed the older methods referred to above.

	Goldmann and Hagen	Tscherning	Gullstrand
Length of eyeball	23.40 mm	24.75 mm	24.00 mm
Total refraction	59.22 D	58.33 D	58.64 D
Nodal distance	16.83 mm	17.13 mm	17.05 mm
Posterior focal distance	22.53 mm	22.83 mm	22.78 mm

It will be seen that there is remarkable agreement between the results obtained by the three observers. The mean values are as follows: Length of eyeball=24.05 mm.; total refraction=58.75 D., nodal distance (the distance between the retina and the posterior nodal point)=17.02 mm.; the posterior focal distance=22.73 mm. In every case the mean values are very close to those given by Gullstrand.

The Methods of Sorsby and O'Connor

These observers measured the three principal diameters of the living human eye. After 15 minutes' dark-adaptation the observer's head is clamped. A slit-shaped beam of x rays is now adjusted until it is tangential to the retina first on one side and then on the other. The two positions of the beams are recorded on a photographic film introduced in front of the eyes. The following details of some cases were kindly sent to me by the authors.

Case	X-ray Measurements (mm.)			Refraction	
	Transverse	Vertical	Axial	Vertical	Horizontal
1	21.5	20.5	22.0	0	0
2	23.5	23.0	25.0	-1	+2
3	24.0	24.5	25.0	-3.5	-2
4	23.5	24.0	23.0	-1.0	-1.5
5	24.5	25.0	23.0	-16.0	-14.5
6	24.5	23.5	24.5	0	-0.5

It is interesting that the one case of high myopia shows a long axis. Prof. Sorsby has informed me privately that a second case of myopia was found to have an eyeball of normal length. This method will clearly be of great value in locating foreign bodies opaque to x rays in the eye.

Section II: The Micro-electrode Experiments

Of all the advances made in recent years in the physiology of vision possibly the least expected, and the most far-reaching, are the researches of Granit (1943) on the mammalian retina. The three-colour theory of Thomas Young was so well known, and seemed to be so firmly established as the result of the work of Wright, his co-workers, and many others, that any discovery contrary to it appeared to be most unlikely. It had been known for some time that there were defects in the three-colour theory;

but that the theory could be wrong in essential features was certainly not expected.

The theory apparently has had its day; but during its life it has served a very useful purpose, for it has been the inspiration of much research work and has formed the basis of a convenient way of designating colours. It has also provided a good classification for colour-blind persons and has indicated practical methods of colour photography and cinematography. It should be pointed out that, although the three-colour theory is now in peril, none of the practical applications which have developed from it is in a similar plight. We can still enjoy technicolour or say that a particular patient is red-blind.

Granit's experiments depend on the well-known principle that when a sensory nerve conducts impulses it undergoes changes of electrical potential. The retina of an animal is exposed and a very fine electrode is placed in contact with a single fibre of the optic nerve. This electrode is then connected to a high-gain amplifier and loud-speaker. When the rod, or cone, sense organ connected with the nerve fibre in contact with the micro-electrode is affected by light, changes in potential will be set up in it during conduction, and these will be shown by clicks from the loud-speaker. The stronger the light the more frequent the nerve impulses and the more numerous the clicks. As would be expected, in order to make connexion with a single optic-nerve fibre a very fine micro-electrode indeed must be used. Lastly, the experimenter himself must possess great skill and an aptitude for this kind of work. This is briefly the technique employed by Prof. Granit. Actually the light is not varied in intensity, but in wave-length, in order to determine the response curve of the paracular retinal receptor under investigation. When the curve for one receptor has been determined the electrode is shifted slightly so as to make contact with a neighbouring nerve fibre, which connects to another receptor. The taking of the response curve is then repeated.

When a large number of response curves have been obtained in this way they are sorted into groups, and usually as many as eight types of receptor are found to be present. Type I, which has a broad response curve, is stimulated by nearly all parts of the spectrum. This Granit calls a "dominator." The remaining seven types, all of which have narrow response curves, are stimulated by a part of the spectrum only. These Granit calls "modulators." There is one type of modulator for the orange, another for the yellow, three types for the different shades of green, and two for the blue. These results have been obtained on experimental mammals. If man were to be similarly tested it is probable that much the same result would be obtained in his case. Possible methods of testing this point are being investigated. The total number of types of receptor may well differ in man from other mammals, and their response curves may be different also. Thus from observations in man's colour sense one would expect there to be a type of receptor for the red part of the spectrum in addition to those that have been mentioned above.

While these points of detail remain undecided a temporary name is required to specify this theory of vision. The term "polychromatic" would seem to be not inappropriate. Suppose this theory to be substantiated for man as a result of further research, should we be better off than before? The answer to this question would appear to be "yes," for we could explain on this theory many visual phenomena which the old trichromatic theory is unable to do. Moreover, we should have a more precise method of classifying colour-blind patients.

Section III: Visual Acuity using Lights of Different Colour

König (1894) and Roaf (1930) found that when the acuity of the eye was determined, using lights of different colour, the results for blue lights were less good than those for other colours. Roaf explained these observations by assuming that rods are used in vision when blue light is falling on the retina. Since there is a rod-free area at the centre of the fovea this will account for the poor acuity by blue light. Shlaer (1937) advanced the hypothesis that the acuity of the eye is limited by the size of the pupil when it has a diameter of 2.3 mm. or less because, as is well known, diffraction effects occur at such a pupillary opening. If Shlaer's hypothesis were correct there should be better acuity by yellow light than by red light, better

acuity by green light than by yellow light, and better acuity by blue light than by green light. Shlaer, Smith, and Chase (1941) investigated the acuity of the eye, using lights of different colour, but their results did not confirm the above hypothesis. It is true that there was some slight improvement on passing from red light, through yellow light, to green light, but after that there was a marked deterioration. With a Landolt C test object there was little difference of acuity when lights of different colour were compared with white light.

Last year I investigated the effects of coloured lights, using certain letters as my test objects, and this year I repeated the experiments with Landolt's C test. In none of my tests was there any well-marked difference between white lights and coloured lights. The results of Shlaer and his co-workers, and myself, are summarized in the table below:

Observers	Visual Acuities using Lights of Different Colour				
	Test Objects	White	Red	Yellow-green	Blue
Shlaer <i>et al.</i>	Grating	1	0.91	1.02	1.00
	Landolt's C	1	1.00	—	1.00
	Letters	1	0.82	0.96	0.71
Hartridge	Landolt's C	1	0.86	0.99	0.91
	Mean	1	0.90	0.99	0.92

Great care was taken in my experiments to see that the coloured lights were of the same visual intensity. This is important because visual acuity improves as the brightness of the light increases. The conclusion that the acuity of the eye is substantially the same for white and for coloured lights not only fails to confirm the two hypotheses mentioned above but also puts great difficulties in the way of the usual form of the three-colour theory of Thomas Young, according to which certain retinal cones respond to red, others respond to green, while a third set respond to blue.

If these are all distributed according to a regular plan one would expect the acuity of the eye for red, green, or blue to be very definitely less than that for white, as a larger test object would have to be used with the former in order that discrimination may occur—because of the considerable distance between a photoreceptor of one particular kind and the next one to it of the same kind. On the contrary, when white light is in use all photoreceptors respond, irrespective of their peculiarities. In order to account for these results on visual acuity, and certain other properties of the eye which are at variance with the usual three-colour theory, an alternative theory called the cluster hypothesis has been advanced. This is dealt with in the next section.

Section IV: The Cluster Hypothesis

According to this hypothesis, when structures approximate similar in size are distributed in a random manner those of similar property tend to form small clusters or aggregates consisting almost exclusively of structures of one kind. Thus according to this hypothesis, if a small quantity of starch divided into three roughly equal parts and the first part be stained red, the second stained green, and the third stained blue—if then these three parts are intimately mixed together and examined, clusters of red grains should be found in one place, clusters of green grains in another place, and clusters of blue grains in a third place. These clusters are easily seen if a piece of Lumière screen, prepared for colour photography, be examined under a low-power microscope.

According to the cluster hypothesis, the retinal sense-organs are arranged in a random manner and accordingly form clusters in one place there is a collection of red receptors; in another place a collection of green receptors; while in a third place there is a collection of blue receptors. When high acuity is wanted with red light a red cluster is used for purposes of observation; when the light is green it is a green cluster which is employed; and when the light is blue a blue cluster is brought into play. With white light, on the contrary, it is either a green cluster or a mixed cluster which is employed.

This arrangement of the retinal receptors into clusters accounts for the high acuity of the eye using lights of different colour. It also accounts in a satisfactory manner for other

properties of vision which up to now have been difficult to explain. One of these is the retinal direction effect of Stiles and Rawford. This aspect of the cluster hypothesis is to be dealt with in detail elsewhere.

Using as test objects extremely small disks, it has been possible to identify the position of some of the clusters near the centre of a human fovea. This matter is also to be considered in detail elsewhere.

Section V: The Antichromatic Response

Physiologists have long been puzzled by one property of the lens system of the eye—namely, the absence of colour from the images of colourless objects which it produces on the retina. A lens employed for photographic, microscopic, or similar purposes has to be achromatized by the use of convex crown glass lenses in conjunction with concave flint-glass ones. Such combinations of lenses bring light of different colours to the same focus. Such is not the case if a single lens, either of flint glass or of crown glass, is used by itself. Thus a convex lens brings the violet rays to a focus first, then follow in order the blue, the blue green, the green, the yellow, the orange, and lastly furthest from the lens the red. It has been shown by experiment that this is the order of the colours in the case of the eye. It has also been shown that it is the yellow-green rays that are sharply focused on the retina under normal circumstances. The consequence is that the orange and red rays which have not yet come to a focus, form blurs on the retina, so also do the violet, blue, blue green, and green rays, because having come to a focus, they diverge again before they reach the retina. The image on the retina of a small bright white light on a black background will thus take the form of a yellow spot of high intensity surrounded by a blue halo or fringe which consists of the unfocused colours. So far theory and observation have been in close agreement, but now they differ to a startling extent. For when the observer looks at a small bright light he does not see either the yellow spot or the blue fringe. What he sees is the white light unaccompanied by any colours. Similarly in the case of other objects, both black and white, when these are looked at, coloured fringes—yellow or blue—should be visible owing to the chromatic aberration of the eye. But observation shows that in fact all such effects are conspicuously absent. In the past numerous hypotheses have been advanced to explain the absence of chromatic fringes from vision, but none of these has been able to stand critical examination. The correct explanation has been advanced recently—namely, that the spurious colours of chromatic aberration are eliminated by a nervous process, which has been called the antichromatic response.

A grating test object is prepared consisting of two parts—the upper part of alternate black and white stripes, the lower part of similar blue and yellow ones. The black and blue stripes are in the same straight line, so also are the white and yellow ones. An image of this test object is produced by a simple convex lens of about the same focal length as the eye, and this image is examined by a low-power microscope which magnifies 80 to 100 diameters. In consequence the observer sees an enlarged picture of the test object. He finds that both parts appear blue and yellow—one part because these are the actual colours which are present and the other part because of the colour effects produced by the chromatic aberration of the lens. Unfortunately, no satisfactory method has so far been devised of repeating this test using the lens system of the eye, but there is no reason to doubt if this were done, that a similar result would be obtained. A further test is now performed with the test object a few feet from the observer, when he looks directly at it he sees it in its natural colours—one part in black and white, the other part in yellow and blue. The distance between the test object and the observer is now increased until a position is reached at which both parts of the test object appear black and white. When this is the case not only have the colours produced by chromatic aberration been eliminated but real colours as well.

If this experiment be now repeated, using blue test objects alone or yellow test objects alone, a similar result is observed, the blue is replaced by dark grey or black, while the yellow is replaced by white. Further details will be given elsewhere, together with the reasons for concluding that somewhere on the

pathways between the retina and the brain there are situated nerve centres, one of which deals with blue while the other deals with yellow; and that these two in conjunction have the function of eliminating from vision the spurious colours produced by the chromatic aberration of the eye.

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THE PATHOGENICITY OF PENICILLIN- INSENSITIVE INFECTION

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In countries where animal, insect, and human life are closely associated it is not surprising that Gram negative infection fails to follow the rules as laid down by workers in Europe. It is the object of this paper to show that, in the East at any rate, infection of wounds with penicillin insensitive organisms is common and must be taken seriously, and it is hoped that further interest will be stimulated in this important subject. Our observations are confined to infection with the three Gram-negative organisms—*Bact. coli*, *Ps. pyocyanea*, and the *Proteus* group—on the one hand, and penicillin insensitive strains of *Staph. aureus* on the other.

Two groups of workers, the one situated in the forward base areas in A.L.F.S.E.A. and the other at the rear base in India, both came to the same conclusion, quite independently, that infection with any of the penicillin insensitive organisms mentioned above can result in a serious threat to life and limb. Papers continue to appear stating that the penicillin insensitive Gram-negative organisms have no tendency to give rise to septicaemia or spreading infection, and that their action probably remains local in fact, that in wounds they are essentially saprophytic.

The Gram-negative Bacilli

Before the advent of penicillin the organisms which were responsible for most of the devastation wrought by sepsis were the *Staph. aureus* and the *Str. pyogenes*. The Gram negative bacilli and other microbes were considered to play a very subordinate part, even now they are held to be of very secondary importance by most European workers. Miles, writing in the *Lancet* of June 24, 1944, stated: "The two outstanding causes of severe wound infection are *Staph. aureus* and *Str. pyogenes*, the one being present in up to 100%, and the other in up to 70% of infected wounds." Elsewhere in that paper the same author refers to the rarity of "blue pus" in wounds. Hendry, Gledhill, and Price, writing in the *Lancet* (1945 1, 618), refer to *Ps. pyocyanea* and *Bact. coli* as non pyogenic. Our experience in the East has been far less happy.

With the control of *Str. pyogenes* and sensitive strains of *Staph. aureus* by penicillin, *Bact. coli*, *Ps. pyocyanea*, and the *Proteus* group of organisms have been left free to demonstrate their pathogenic potentialities and to show that in certain circumstances they are capable of behaving in a manner which is anything but saprophytic. In the East *Bact. coli*, *Ps. pyocyanea*, and the *Proteus* group now represent the "Big Three" so far as wound infection is concerned, and workers recently arriving from Europe should be made fully aware both of their malignant nature and of their ubiquity. These three, together with penicillin insensitive strains of *Staph. aureus*, are now the

cause of a major proportion both of fulminating and of prolonged low-grade infection in bone following war wounds. Lieut.-Col. Moffat, adviser in oto-rhino-laryngology for A.L.F.S.E.A., carried out investigations on antral, ear, and throat infections, and was impressed by the very high incidence of *Bact. coli* and *Ps. pyocyanea*. He expressed the opinion that, especially in the pre- and post-monsoon periods, the air and dust must be highly charged with these organisms. It is thus not surprising that their incidence in wounds is abnormally high. Of 86 wounds associated with late-infected compound fractures seen at the rear-base level, one or other of the three Gram-negative organisms was present in no fewer than 67.4% on admission. In a series of 65 late-infected compound fractures *Proteus* group was present in 53.8%, *Ps. pyocyanea* in 20%, and the *coli-aerogenes* group in 10.7%. In the forward areas *Bact. coli* was relatively more and *Proteus* group less common.

It was soon appreciated that when using penicillin tubes for the local instillation of penicillin into wounds every possible precaution was frequently ineffective in preventing the appearance of Gram-negative infection. Such infection occurred in 50% of our cases, and was often responsible for the breaking down of wounds. Break-down was liable to occur even in soft-tissue wounds when the secondary invader was a penicillinase-producing strain of *Bact. coli*. Pus associated with the presence of *Ps. pyocyanea* or *Proteus* group, on the other hand, could usually escape or be expressed from the depths of a soft-tissue wound, which then healed in a satisfactory manner. In the case of soft-tissue wounds infected with penicillin-insensitive organisms there was no instance of severe toxæmia following suture under local penicillin. In this respect our observations coincided with those of workers in Europe, but when closure of femoral fractures was undertaken it soon became apparent that Gram-negative infection was anything but innocuous.

Since in the compound femoral fracture it is notoriously difficult to perform a complete primary wound excision, it is not surprising that it is in this type of injury that both penicillin-sensitive and penicillin-insensitive organisms persist after the primary operation. It was amongst the compound femoral fractures that most of the complications associated with Gram-negative infection were encountered. When attempts were made to carry out delayed primary suture on or about the fifth day after wounding it was appreciated that infection, uncontrolled by both penicillin and the sulphonamides, was being locked up in the wound. Three cases in succession forcibly demonstrated that delayed primary suture of a compound femoral fracture was not a wise procedure under the conditions prevailing east of the Brahmaputra. The following is a brief account of the first of these, in none of which were Gram-positive organisms found, except where stated.

A patient with a grossly shattered lower third of the femur associated with a lesion of the sciatic nerve was sutured on the fifth day after wounding. Penicillin was administered both systemically and locally via tubes distributed in and around the site of fracture. A few days after suture there was a profuse discharge from the wound. *Bact. coli* was isolated from the pus. Persistence of a swinging pyrexia and the appearance of toxæmia demonstrated that evacuation of the Gram-negative pus along the tubes was inadequate, and a large collection was accordingly drained posteriorly by a free incision extending to the proximal limits of the cavity. This operation led to a temporary improvement, but within a few days, in spite of a full course of sulphathiazole, it became evident that unless some radical procedure was adopted the patient would lose his life. Blood transfusion allowed amputation to be performed at the site of fracture, the flaps being left open. At operation it was noted that infection was well established in the bone distal to the site of fracture and also amongst the numerous fragments that were present. There was no undrained collection of pus. The patient was apyrexial within a week of amputation and toxæmia rapidly abated.

In the next two cases an effort was made to forestall the possible collection of Gram-negative pus by the provision of prophylactic posterior drainage. At the time of delayed primary suture a short wide-bore drainage-tube was inserted into the most dependent and proximal part of the haematoma via a posterior stab incision. Systemic penicillin therapy was combined with local instillations. For half an hour before each instillation the clamp was released from the sump drain to allow the escape of any pus which had collected. In one case the initial bacteriological examination had revealed *Str. viridans*, and in the other *Staph. aureus*. In both the wounds Gram-negative infection appeared within the first week, and

there seems little doubt that it gained access through either the penicillin tubes or the sump drain. Both patients became extremely ill, and in both the infecting microbe was *Bact. coli*. Opening up of the original wounds to give free drainage, combined with the use of sulphathiazole, failed to prevent extension of infection along the thigh, and this was accompanied by high swinging pyrexia and marked constitutional disturbance. It became necessary to make further proximal incisions as localization of pus occurred. Only after many weeks did *Bact. coli* disappear, leaving the patients with all the effects of prolonged and profound toxæmia.

The experience gained from the preceding three cases led to the abandonment of delayed primary suture for compound fractures of the femur. The safer procedure of secondary suture with drainage after bacteriological examination was adopted instead. An initial wound swab was taken when the case arrived between three and five days after wounding, but no attempt at suture was made. Local procedures were limited to the removal of foreign bodies, correction of displacement, and, if necessary, more free exposure of the fracture site to ensure adequate drainage. The fracture was appropriately immobilized after the application of an occlusive dressing. Systemic penicillin was combined with the giving or completion of a 40-g. course of sulphathiazole. Although there were exceptions under this treatment, to be referred to later, it was the rule to find that the patient became apyrexial within ten days, and that both local and general conditions remained, or became, satisfactory. It was found that many of the wounds became free of pathogens and that secondary suture performed at this stage was followed by a smooth post-operative course. At the time of secondary suture the fractured bone ends were no longer visible in the depths of the wound, and closure of the latter was more on a par with closure of a soft-tissue injury. Even if the initial wound swab yields a penicillin-insensitive organism, free drainage combined with sulphathiazole should limit the spread of infection at this stage. Secondary suture with drainage performed on the tenth or twelfth day, when tissue planes are already sealed off and local adjustments have occurred, should give rise to no anxiety provided the bone is not involved.

The following six case summaries should provide strong evidence that infection with penicillin-insensitive Gram-negative organisms can produce illness of the utmost gravity in compound fractures of the femur, both recent and old. In addition to these many other cases of severe or prolonged illness have been seen after infection of compound fractures with Gram-negative bacilli.

Case I

This patient was admitted on Feb. 4, 1945, four days after sustaining shell wounds which had caused soft-tissue injuries on the left thigh and a compound fracture of the right femur. In the soft-tissue wound, from which a profuse growth of *Bact. coli* and a scanty growth of *Staph. aureus* were obtained, two secondary haemorrhages subsequently occurred, necessitating femoral, and later external iliac, ligation. On Feb. 11 *Bact. coli* only was cultured from the wound. The limb survived, and in due course secondary suture was successfully performed. The wound associated with the fracture of the right femur was heavily infected, and secondary suture was never possible. Severe toxæmia persisted and progressed, and it became necessary to make even freer posterolateral openings. On March 12 a large sequestrum involving three-quarters of the circumference of the femoral shaft was removed. Following this, high pyrexia of up to and above 103° F. (39.4° C.) persisted, while the discharge continued in undiminished quantities. Ten days after the operation a profuse secondary haemorrhage occurred from the right thigh. The femoral artery was ligated and the leg amputated through the site of the fracture, the flaps being left open. He died several hours later in spite of early and continued blood transfusion. During the period of observation he received two courses of parenteral penicillin, each of over 2 mega units, and sulphathiazole to the limits of tolerance.

From the wound associated with the fracture of the right femur *Str. pyogenes* and *Ps. pyocyanea* were isolated on admission. The streptococcus disappeared soon after penicillin therapy was instituted; *Ps. pyocyanea*, however, persisted, and was recovered from the wound on two further occasions before the operation of sequestrectomy, and again at the time of operation. At amputation the medullary cavity of the proximal fragment was filled with thick, greenish, tenacious pus, and similar greenish necrotic material had stripped the periosteum proximally. Heavy chemotherapy and wide exposure together failed to control the spread of Gram-negative infection. Since no other organisms were found it is probable that the microbe responsible for the progressive toxæmia, secondary haemorrhage, and death was *Ps. pyocyanea*.

Case II

Admitted on Nov. 7, 1944 a week after sustaining a compound fracture of the lower third of the femur together with a lesion of the sciatic nerve. A vaselined gauze plug was removed from the wound and the fracture site widely exposed. Pus had been denied escape by the plug. Secondary suture was performed on Nov. 20 after which pyrexia developed and persisted, and the sutured wound broke down to allow the escape of salmon pink pus. The fracture site was bathed in pus, pockets formed proximally necessitating further incisions, and toxæmia progressed in spite of free drainage and sulphathiazole therapy. On Jan. 20, 1945, amputation had to be performed in order to save the patient's life.

On admission an organism of the *Proteus* group and *S. aph. aureus* were isolated from cultures of the wound. No anaerobes were demonstrated. Within ten days of admission the staphylococcus had disappeared under the influence of penicillin treatment, and was never again present in any of the eleven bacteriological examinations which were subsequently performed, while *Proteus* or *Ps. pyocyanea* or both, were present on every occasion. At the time of secondary amputation *Proteus* group alone was cultured. Three days before amputation *Ps. pyocyanea* and a penicillin sensitive non-haemolytic streptococcus were isolated, and at the time of amputation *Proteus* group was again the only organism demonstrated. The non-haemolytic streptococcus was an evanescent hospital contaminant of no consequence while the patient was under penicillin therapy.

Case III

Admitted on Feb. 10, 1945, five days after wounding with a compound fracture of the lower third of the femur and a swinging temperature of up to 103° F (39.4° C). Systemic penicillin and sulphathiazole therapy were begun, and operation was performed on Feb. 12. More free exposure of the fracture site, and counter-drainage, were provided. The exposed muscles were covered with sloughs, and a foul-smelling discharge was present. He received a total of 1,920,000 units of penicillin and 40 g. of sulphathiazole. By the end of the sulphathiazole course the pyrexia appeared to be settling and the general condition to be improving, but on the sixth day after operation a severe popliteal haemorrhage occurred. Following control of the haemorrhage, it was only after plasma and 3 pints (17 l.) of blood had been given that the patient rallied sufficiently to permit of amputation with open flaps being performed. Further progress was uneventful.

A mixed growth of *Bact. coli* and *Ps. pyocyanea* was obtained from the foul smelling discharge at the time of the initial operation. No anaerobic bacteria were detected. At amputation *Ps. pyocyanea* was isolated from the wound, and the same organism was present in the three subsequent bacteriological examinations that were made. At he first and third of these it was associated with *Bact. coli* but at the second it was the only organism found.

Case IV

Admitted on March 14, 1945, 117 days after sustaining a comminuted compound fracture of the middle third of the femur associated with an incomplete lesion of the sciatic nerve. His general condition was very poor, there was high pyrexia up to 102° F (38.9° C), and the pulse rate varied between 90 and 100. The fracture was ununited, and was open in the depths of the wound. He had completed a course of parenteral penicillin (840,000 units) six days before admission. Parenteral penicillin therapy was started the day after admission, 2.24 mega units being given. Next day one of the wounds was enlarged, the medullary cavities of the proximal and distal fragments were opened, and free drainage was established. The general condition became critical on the table in spite of plasma transfusion. Ten days after completing the first course of penicillin a second course was started because infection was uncontrolled and the general condition was deteriorating. 1.28 mega units were administered. Four days later a meteoric descent in the general condition occurred, and on the morning of April 12 he was in such a state of circulatory collapse that the blood pressure was unrecordable and the radial pulse impalpable. An emergency circular amputation 1 in (2.5 cm.) above the site of fracture was performed in bed. After causing the gravest anxiety he recovered from this operation, but three secondary haemorrhages subsequently occurred, the first of which was almost fatal.

Proteus, together with a penicillin-sensitive strain of *Staph. albus* was present in two bacteriological examinations performed in the four days preceding our first course of penicillin. The staphylococcus never reappeared. At the time of the first operation *Proteus*, *Ps. pyocyanea*, and diphtheroids were isolated from samples of pus and excised bone. During the period between this operation and amputation ten bacteriological examinations were carried out. *Proteus* was present on every occasion—in eight alone and in two associated with diphtheroids. *Proteus* was isolated from pus and bone taken at the time of amputation, and was found in pus taken from the

stump on two subsequent occasions—once with *Ps. pyocyanea* and the second time alone. Anaerobic cultures performed on the swabs taken at the time of amputation were negative.

Case V

Admitted on Aug. 14, 1944, 133 days after receiving compound comminuted fractures of the upper thirds of both femora. There were high pyrexia up to 103° F (39.4° C), a rapid pulse rate, and a moderate degree of macrocytic anaemia. Both fractures were ununited, and were exposed in the depths of the wounds. The general condition was not improved by a parenteral course of 840,000 units of penicillin, and a second course associated with bilateral sequestrectomy was equally ineffective. *Ps. pyocyanea*, *Proteus* and *Bact. coli* were isolated from the wounds on both sides on Oct. 14, when a third course of parenteral penicillin was started. A radical excision of diseased bone was performed on both sides and the wounds were sutured over penicillin tubes. 3,670,000 units of penicillin were given parenterally and 324,000 units locally. Both wounds broke down and the general condition underwent progressive deterioration. *Ps. pyocyanea*, *Proteus*, and *Bact. coli* were isolated from the wounds on Oct. 18, and *Proteus* group and *Bact. coli* on Oct. 21. A penicillin sensitive coagulase positive staphylococcus appeared on Oct. 24 as a hospital infection, but persisted for less than four days as the patient was on penicillin at the time.

A fourth course of parenteral penicillin—1,600,000 units—was begun on Dec. 11, and sequestrectomy with total suture of the wounds was performed on the left side. *Proteus* was isolated from the wound. The wound broke down completely and the general condition deteriorated still further, necessitating a circular amputation through the site of fracture on Dec. 30. After amputation the patient's general health improved markedly and a successful secondary suture of the stump was performed on Jan. 4, 1945, when *Proteus* group was again cultured. The operation was performed under the protection of a fifth course of penicillin, 2,880,000 units being given.

The wound on the right side continued to discharge the fracture remained open, and union failed to occur. *Proteus* and diphtheroids were isolated on Jan. 26, and *Proteus* alone on Feb. 23 and March 5. On April 5 sequestrectomy was performed. *Proteus* was isolated from both pus and sequestrum taken for examination at the time of operation. Subsequently the fracture remained ununited and a sinus down to bone persisted until the patient was evacuated on June 5.

Case VI

Admitted on Jan. 5, 1945, 45 days after receiving a comminuted compound supracondylar fracture of the right femur involving the knee joint. The general condition was moderate, and there were a high swinging pyrexia up to 103° F (39.4° C), a rapid pulse rate, and a moderate degree of macrocytic anaemia. The fracture was ununited, and was exposed in the depths of the wound. On Jan. 9 a course of parenteral penicillin was begun, 3.84 mega units being administered. Radical excision of diseased bone was performed via A. K. Henry's incision on Jan. 18. This incision and the anterior wound were sutured, while the posterior wound was left open for drainage. While he was still on penicillin treatment suppurative arthritis of the knee developed and the general condition deteriorated alarmingly, necessitating a circular amputation through the site of fracture on Jan. 27. The flaps were left open. A dramatic improvement in the general condition followed this operation, and a secondary suture was successfully performed seventeen days later under the protection of a second course of parenteral penicillin (1.7 mega units).

Before starting penicillin therapy, *Proteus*, diphtheroids, and a non-haemolytic streptococcus were isolated from the wounds, while *Proteus* and diphtheroids were cultured from bone removed at the first operation. *Ps. pyocyanea* was isolated two days before amputation and again at amputation.

In all the above cases Gram negative organisms were isolated on many occasions, and pyogenic cocci, when present, occurred as evanescent hospital infections, and were rapidly controlled in every case by penicillin therapy. In two of the three late cases, Gram negative organisms were isolated from bone removed at operation as well as from the wound discharges. That pyogenic cocci were probably not present in bone in the remaining four cases is strongly suggested by the fact that one of us, in the examination of portions of bone removed at operation in 34 cases of late-infected compound fractures, found that all organisms isolated from the bone had already been identified in the wound discharges of 32. In the remaining two *Staph. aureus* was isolated from the bone though it had not been found up to that time in the wound discharge. In both cases it did, however, subsequently appear in the pus. Anaerobic examinations were performed in two of the recent cases and in one of the late cases. In all three the examination was negative. A series of 70 late-infected compound fractures studied by us at the rear-

base level indicated that non-haemolytic streptococci and diphtheroids did not affect wound-healing under penicillin treatment. The former were present in two of the above cases and the latter in three, each on isolated occasions. In the same series of 70 cases wound suture over a late-infected fracture with the aid of penicillin was successful in 14 out of 15 cases (93%) from which *Proteus*, *Ps. pyocyanea*, and *Bact. coli* were absent at the time of operation (*Staph. aureus* or *Str. haemolyticus* was present in 12 of these). On the other hand, suture was successful in only 28 out of 62 cases (45.2%) in which the above Gram-negative organisms were present. The only failure in the first group was almost certainly due to secondary infection with *Proteus*, which was found in the broken-down wound at the first dressing on the sixth post-operative day. The evidence for incriminating the Gram-negative organisms is therefore extremely strong in spite of the fact that virulence tests were not performed. Moreover, all of the six cases received adequate penicillin therapy, and in not a single instance did any benefit ensue. The three early cases in addition received sulphathiazole treatment, again without benefit. We may thus assume that infection with Gram-negative organisms resulted in illness severe enough to necessitate amputation in all of these six cases and to cause death in one of them.

It is more generally recognized that Gram-negative bacteria can display marked pathogenic properties on becoming established in the peritoneum, the urogenital tract, the meninges, the pleura, and the synovial membranes. The haemothorax infected with *Bact. coli* produces constitutional symptoms only slightly less severe than those produced by the Gram-positive infections. When drainage of an empyema has been established, it is the Gram-negative organisms that frequently are responsible for the persistence of chronic sepsis. *Ps. pyocyanea* and *Proteus* were found to be the infecting organisms in just as many pyopneumothoraces as was *Staph. aureus*. After seeing a number of haemothoraces in which Gram-negative infection had developed following prophylactic instillation of penicillin, it was felt that such instillation did more harm than good. The majority of uncomplicated haemothoraces progress satisfactorily with sufficiently frequent aspiration, and therefore it is unjustifiable to run the risk of introducing penicillin-insensitive organisms along with penicillin solution which may have been prepared under other than ideal conditions. Similarly, the prevalence of these organisms makes the prophylactic use of penicillin in the uninfected joint an unduly hazardous procedure, especially since aspiration alone gives satisfactory results in the uninfected haemarthrosis. The surgeon in the East must be fully alive to the possibility that *Bact. coli*, *Ps. pyocyanea*, or *Proteus* is frequently the responsible organism in a suppurative arthritis. If aspiration and penicillin therapy are used in such cases instead of free opening and drainage, disaster will indubitably follow.

Penicillin-insensitive *Staph. aureus*

Added to the hazards of Gram-negative infection is that due strains of *Staph. aureus* which are, or have become, resistant to intramuscular injections of penicillin in doses of 20,000 units three hours.

At the rear-base level it was found that the incidence of resistant strains of *Staph. aureus* was increased for some months after penicillin therapy was instituted in the forward areas in Burma. The overall incidence of strains insensitive to 0.04 unit of penicillin per ml. at the time of admission to the rear base was 17%, the sensitivity being determined by doubling dilution. In a group of 43 cases with late-infected compound fractures admitted to the rear base before penicillin therapy had been instituted no resistant pyogenic staphylococci were isolated, whereas in a similar group to whom penicillin had been administered in the forward areas 9.4% of *Staph. pyogenes* isolated on admission were resistant to 0.04 unit per ml. A point of interest was that of the *Staph. pyogenes* occurring in wounds as hospital infections 30% were resistant to 0.04 unit of penicillin per ml.

Major Ives, R.A.M.C., working in S.E.A.C., noted that among the pyogenic staphylococci isolated by him from wounds between January and June, 1945, the ratio of resistant strains was greater where the cocci were associated with a Gram-negative organism. The accompanying table, compiled by Major Ives, illustrates this point.

One effect of parenteral penicillin therapy in the forward areas is to reduce the rate of pyogenic coccal infection, unhealed wounds on admission to the rear-base hospitals. The degree of reduction is proportional to the adequacy of treatment. Conversely, the incidence of "Gram-negative" wound

Micro-organism	Total Examined for Sensitivity	Number Resistant	Percentage
<i>Staph. aureus</i>	134	53	39.6
<i>Staph. aureus</i> in association with <i>Bact. coli</i>	38	20	52.6
<i>Staph. aureus</i> in association with <i>Ps. pyocyanea</i>	16	8	50.0
<i>Str. viridans</i>	23	5	21.7
<i>Str. pyogenes</i>	50	0	Nil

is proportionately increased. In those wounds in which pyogenic cocci persist in spite of penicillin treatment the incidence of resistant strains is increased. It is thus debatable whether the association of resistant strains of *Staph. aureus* with Gram-negative organisms is due to the presence of the latter or to the previous inadequate penicillin treatment.

Penicillin-insensitive strains of *Staph. aureus* were found at the forward-base level in wounds affecting any part of the body, but it was in the compound femoral fracture that they proved most troublesome. With improved forward surgery, early in 1945, a further attempt was made to carry out delayed primary suture with drainage under cover of a penicillin "umbrella," the drug being given systemically. Many of the wounds appeared clean, and suture was performed on or about the fourth day after wounding. Some cases gave most gratifying results, but many others developed complications ranging from wound break-down to spreading sepsis and secondary haemorrhage, and in many cases this was due to the presence of a penicillin-resistant *Staph. aureus*. It was soon realized that it was unwise to carry out closure of a compound femoral fracture without first excluding the presence of a penicillin-insensitive staphylococcus. In the East delayed primary suture without bacteriological control is a dangerous procedure in the case of compound fractures of the femur; it is much safer to perform secondary suture on the tenth or twelfth day after a knowledge of the infecting microbes has been acquired.

Sensitivity and resistance to penicillin are purely relative terms. Different strains of staphylococci exhibit diverse shades of penicillin sensitivity. Pressure of work prevented routine testing of the degree of resistance at the forward base, but this was carried out at the rear base, where the method of serial doubling dilutions was employed. The range varied from twice as sensitive as the test organism (N.C.T.C. No. 6571A) to between 6,000 and 12,000 times more resistant than the latter, and between these extremes there is every gradation. Moreover, remarkable variations of sensitivity may occur in a very short space of time under the influence of inadequate penicillin therapy. In one case the resistance of an infecting staphylococcus was between 16 and 32 times as great as that of the Oxford staphylococcus; 6 days later it had increased to between 780 and 1,560 times as great as the test organism. During this period the patient was receiving 20,000 units of penicillin every three hours. Several other similar examples were met with and they indicate the importance both of giving an adequate dosage of penicillin and of performing serial sensitivity tests in this type of case.

It has been our clinical experience that where surgery is adequate a dosage of 20,000 units of penicillin every three hours, given by the intramuscular route, will control a staphylococcus whose sensitivity is equal to that of the Oxford staphylococcus, but that it will not control a more resistant organism. The more insensitive strains can be controlled provided that the dosage is stepped up sufficiently.

One patient with a united compound fracture of the upper end of the humerus and a sinus leading down to bone was infected with a *Staph. aureus* twice as resistant as the Oxford staphylococcus. Penicillin therapy was started. In view of the resistance of the staphylococcus 30,000 units were given every three hours instead of the usual dosage of 20,000 units. 48 hours later the sinus was excised, radical removal of bone performed, and the wound totally sutured under no tension and without drainage. After operation pyrexia persisted and a superficial sinus appeared in the wound from

hich a *Staph aureus* was recovered. The wounds showed signs of inflammation. The dosage was increased to 40,000 units every three hours. The temperature immediately fell to normal, the signs of inflammation rapidly disappeared and within four days the sinus ad closed.

A second case of great interest in this respect was that of a patient who had an infected compound fracture of the neck of the femur. His general condition was very poor, and was deteriorating rapidly in spite of the fact that he had been on penicillin treatment for 28 days. He was receiving 20,000 units every three hours. At this stage one of us was asked to see the case. There was a high swinging pyrexia of up to 102° F (38.9° C), the pulse rate was rapid and the general condition was the cause of grave concern. Infection was due to a *Staph aureus* 16 times more resistant than the Oxford staphylococcus. The dosage was increased to 200,000 units every two hours—i.e., almost sixteenfold—and maintained at this level for 19 days. There was an immediate response on the temperature and pulse charts, and a striking improvement in the general condition. Within four days he was fit enough to have the end of the femur removed in safety. The bone was grossly diseased and there was a suppurative arthritis of the hip. His subsequent progress was satisfactory. Massive penicillin therapy probably saved his patient's life. He received the enormous total dose of 23.2 mega units.

It is clear that the dosage of penicillin necessary to control infection due to *Staph aureus* is dependent upon the sensitivity of the organism and whenever it can be done the sensitivity should be tested before starting treatment. It should be possible to compile tables equating dosage to sensitivity. In treating infections due to resistant strains of *Staph aureus* continuous administration of penicillin would achieve a more exact equation between resistance and dosage, and great economy in expenditure of the drug. This would be the ideal technique of treatment were a satisfactory method of continuous administration available. Staphylococci up to, say 16 times more resistant than the Oxford staphylococcus are within reach of effective penicillin therapy provided the dosage is stepped up to meet the occasion.

Inferences

The Gram negative bacilli are a common cause of prolonged low grade infection in bone following compound fractures in the East, and are capable of producing severe spreading infection serious enough to lead to death or amputation.

Penicillin insensitive strains of *Staph aureus* are frequent. The less resistant strains can be controlled effectively by stepping up the dose of penicillin to a suitable degree.

Further work devoted to the control of penicillin insensitive organisms is urgently required.

We wish to thank Lieut-Gen G Wilson, DMS India Command, for permission to publish this paper, and to acknowledge the help given by Brig F Harris D D H A P, India, Brig Grant Massie Consulting Surgeon, India Command, Brig J Bruce Consulting Surgeon, Fourteenth Army, and Brig M F Nicholls Consulting Surgeon Allied Land Forces South East Asia under whose direction this work was carried out.

MUNICIPAL HOSPITAL MEALS

As a result of a special inquiry the Manchester Public Health Committee has made a number of recommendations on hospital meals. One of them is that a catering supervisor be appointed to each of the city's municipal hospitals. It is also suggested that, when conditions permit all patients should have their meals served on individual trays and also that a full rotation of diet should be resumed, with a choice of two dishes. "It is not enough," says the report, "that patients on leaving hospital should be in such a condition that the clinical symptoms of illness have been cleared up or that a surgical operation has been successfully performed and the site healed sufficiently to permit of removal to home. The diet and treatment should be such that the strength of the patients is built up sufficiently to restore the wasteage caused by illness and to send them away from the hospital as fit as possible." Commenting on the Public Health Committee's recommendations, the *Manchester Guardian* says in an editorial, "It will always be easy to find excuses for continued neglect of the patient's nutritional needs unless some permanent body or official is specifically charged with the duty of seeing that this document's admirable recommendations are put into effect." According to the *Hospitals Year book*, dietitians are at present employed at only two of Manchester's voluntary hospitals and none at all are to be found at the municipal hospitals. London has dietitians at only fifteen of its hospitals.

MALNUTRITION IN RECOVERED PRISONERS OF WAR AND INTERNEES

REPORT OF 10 CASES EVACUATED FROM THAILAND

BY

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Capt. I.M.S. / I.A.M.C., Medical Specialist

This work on malnutrition in R.A.P.W.I., British other ranks, was undertaken at the request of Lieut-Col G A Ransome, I.M.S., Local Adviser in Medicine to XII Army, who, during his tour of P.O.W. camps in Thailand after the Japanese capitulation, considered it advisable to send an experienced team of medical officers and nursing sisters to deal with the serious cases in Prachuab Kirikan. The military situation at the time, however, did not permit the entry of nursing sisters into the area, and only two medical officers were sent.

With the conditions in the camp and the lack of facilities for treatment and nursing, it was decided to risk immediate evacuation by air, to give these men a better chance of survival. This was accomplished successfully, and no undue distress was noticed in the patients. The maximum height attained by the aeroplane never exceeded 10,000 feet (3,050 m). It will be seen from the report that all these patients were anaemic, the lowest with a haemoglobin of 5 g %. Only ten of these cases are described below.

These patients were taken prisoner at Singapore in February, 1942. The majority of them kept in good health for that year, but repeated attacks of malaria and hard physical labour while on a poor rice diet caused an increasing sick rate. Deficiency diseases appeared by the middle of 1943, with the general health progressively deteriorating but with periodic augmentation of the diet by additions of meat and eggs and Red Cross supplies (received twice only) some improvement followed, though relapses occurred soon after. Bowel disorders, once started, made conditions worse, and supervening chronic diarrhoea produced a picture of severe malnutrition.

After the capitulation these patients received a complete course of antimalarial treatment and intensive vitamin therapy (oral and parenteral) for about one week before being evacuated into this hospital at Rangoon. The clinical descriptions as given in this report are of cases seen from the time of admission into this hospital. Some of these patients had already started improving. While in this hospital every patient received 12 tablets of multivitamin daily and suppressive mepacrine in addition to the specific treatment enumerated with each case.

All pathological data are recorded in tabular form with a synopsis of the patients' clinical state and past history for easy reference. The diet while in P.O.W. camps was variable, but chiefly consisted of rice. The average daily diet, light diet, and high-protein diet which they received in this hospital are given at the end of the paper.

Case I

Cpl A, aged 34. *Past History*—Maintained fairly good health in 1942. In 1943-4 suffered from repeated attacks of malaria and one attack of clinical dysentery, with progressive deterioration of health and marked weakness but without much loss of weight. In April, 1945, he had scrub typhus, after which he developed swelling of both feet and legs and a marked degree of anaemia. He had 1,000 ml of blood transfused before coming to this hospital.

Clinical Features—Still severely anaemic, Hb, 5 g %, red cells, 1,650,000 per cmm, marked oedema of the lower extremities and slight ascites. Tongue pale and flabby, but no redness. No visual complaints, but suffered from slight deafness. Heart slightly dilated, apex in the nipple line, with a diffuse cardiac impulse, no clinical enlargement of the right side. Haemic murmur present. BP 118/76. Lungs clear. Abdomen slightly distended, liver and spleen not palpable, tenderness over the lower abdomen, with a thickened caecum. Reflexes all present and equal. No sensory changes. Skin generalized pedicular infection, texture normal.

Treatment—Injection of thiamine chloride 50 mg. for 1 day, followed by 20 mg. daily for 5 days. Reconstituted double-strength human plasma 250 ml. This was repeated one day later, and 500 ml of citrated whole blood was transfused next day. Light diet was given for three days, which was well tolerated, this was followed by minced high protein diet and iron by mouth.

Progress.—The oedema disappeared after plasma transfusion, and in two weeks the patient showed marked clinical improvement; anaemia improved and blood protein reached almost normal level.

Case II

Pte. B., aged 26. *Past History.*—No illness in 1942; had repeated attacks of fever in 1943, once diagnosed as M.T. malaria. In 1944 had several attacks of fever and beriberi, with oedema of legs, which improved with rest and the diet supplemented by milk and eggs. In 1945, six weeks before capitulation, started diarrhoea, which had been persistent. Later developed oedema of lower extremities and genitals, with ascites.

Clinical Features.—Patient grossly emaciated; pinched facies and prominent ribs; hands and legs swollen. Tongue magenta red and depapillated. Heart normal. Lungs clear. Abdomen: Scaphoid and tense; marked loss of areolar tissue; free fluid present; liver and spleen not palpable; tenderness over the entire colon; caecum thickened, also tender. Bowels: Loose watery stools, over 20 a day. Reflexes could not be elicited because of extreme wasting of the muscles. Skin dry and scaly.

Treatment.—Injection of thiamine chloride 50 mg. for 3 days, 20 mg. for 10 days, and 10 mg. for 6 days. Nicotinic acid 300 mg. daily for 10 days, followed by 6 injections of nikethamide 1 ampoule daily. Routine course of sulphaguanidine for 7 days, followed by sulphathiazole 4 days, checked the diarrhoea; but later *E. histolytica* cysts were found in the stools and specific treatment was started. Reconstituted double-strength human plasma 1,500 ml. was given in six injections of 250 ml. daily. Diet: In the early stages this consisted of drinks of whey, vegamite soup, and curds; pulped liver was then added, and the diet gradually increased to a minced high-protein diet including 8 oz. of fresh liver daily. The patient tolerated this diet after two weeks' stay in hospital.

Progress.—The oedema subsided slowly and steadily. Appetite was regained, and with the diarrhoea controlled he has made steady progress. (Still in hospital.)

Case III

Gnr. C., aged 37. *Past History.*—Had repeated attacks of malaria 1942-4; dysentery and beriberi in 1945, one month before capitulation.

Clinical Features.—Extremely emaciated, with sunken features, prominent ribs, and "matchstick" legs. Slightly dehydrated. Anaemia marked; Hb, 7 g. %. Complained of slight deafness and dimness of vision. Had been using glasses: vision 6/9; with glasses 6/6 previously, but now 6/9 not improved with glasses. Disks healthy. Tongue: Atrophic glossitis with multiple shallow furrows and marginal redness. Heart: Diffuse apical impulse; boundaries and sounds normal. Complained of slight cough, but lungs clear; x-ray report, "lung fields normal." Abdomen: No distension; liver just palpable; spleen not felt; no tenderness of colon. Bowels loose, watery; 6 to 7 stools per day. Reflexes normal. Oedema of lower limbs present. Skin rather dry, with pediculus infection and scabies.

Treatment.—Injection of thiamine chloride 50 mg. for 3 days and 10 mg. for 10 days. Six injections of nikethamide 1 ampoule daily. Routine course of sulphaguanidine, and 500 ml. of reconstituted double-strength plasma. Diet: Light diet till diarrhoea subsided, then minced high-protein diet. Iron was given when diarrhoea had stopped, and injections of liver when the anaemia proved to be aplastic.

Progress.—Improved gradually; oedema diminished quickly after plasma transfusion and disappeared after another week.

Case IV

Pte. D., aged 28. *Past History.*—Dysentery, repeated attacks of malaria, and beriberi in 1942. Beriberi every year since; also several attacks of malaria. Admitted to hospital in April, 1945, when oedema of extremities and genitals, with ascites, supervened.

Clinical Features.—Moderately well nourished, with marked pallor; red cells, 2,600,000 per c.mm.; rather dyspnoeic; neck veins empty at 60. Tongue magenta red, with loss of superficial epithelium. Heart dilated; apex 1/4 in. (0.6 cm.) outside the nipple line; no obvious enlargement of the right side; systolic murmur present over mitral and pulmonary areas. Lungs: Signs of basal congestion present. B.P. 110/80. Abdomen: Slightly distended; liver enlarged 2 cm. and spleen 4 cm. below the costal margin; caecum and sigmoid colon not palpable. No diarrhoea on admission. Reflexes present but sluggish. Skin normal. Patient had a fever with rigor, and a blood specimen showed B.T. trophozoites.

Treatment.—Complete antimalarial course. Injection of thiamine chloride 50 mg. for 3 days and 20 mg. for 14 days; nikethamide, 6 injections of one ampoule daily. While on a high-protein diet relapsed into a diarrhoea, which settled with nikethamide injections and light diet. Later tolerated high-protein diet.

Progress.—Improvement slow but steady. No dyspnoea, subsided and tongue became more normal. Heart remained slightly dilated; oedema of legs disappeared gradually in a week.

Case V

Gnr. E., aged 37. *Past History.*—Had synovitis in the right knee in 1942, which has been recurrent. In 1943 had malaria thrice and dysentery four times; in 1944 malaria nine times; and in 1945 scrub typhus and several attacks of malaria.

Clinical Features.—Extremely emaciated, with moderate anaemia. Red cells, 3,500,000 per c.mm. Tongue sore, with marginal redness. Heart and lungs normal. Abdomen: Slightly distended; liver and spleen not palpable; caecum and sigmoid colon tender with thickening. Bowels: Loose watery stool 8 to 10 times a day. Flexes all present but sluggish. No sensory change. Skin rough dry, with scabies. No oedema. Right knee-joint swollen and tender, with marked spasm of the quadriceps. Two oz. (57 ml.) of viscous yellow fluid was withdrawn on aspiration. Examination of the fluid showed no organisms, no acid-fast bacilli, few cells (polymorphs and lymphocytes, the latter predominating). Culture sterile. X-rays: Right knee—an area of rarefaction seen below the intercondylar eminence just medial to the midline; chest—apart from generalized increase in the lung markings no abnormality seen.

Treatment.—Injection of thiamine chloride 10 mg. daily for 10 days; nikethamide, 6 injections of 1 ampoule daily. Diet: Light diet till diarrhoea controlled, then minced high-protein diet and iron.

Progress.—Slow improvement; diarrhoea stopped, tongue became normal. Very little gain in weight. The knee showed little change.

Case VI

Sgt. F., aged 25. *Past History.*—No illness in 1942. Several attacks of malaria and occasional diarrhoea in 1943-4. No dysentery or beriberi in July, 1945.

Clinical Features.—Extremely emaciated and slightly dehydrated. Anaemia marked; Hb, 6.5 g. %, with an icteric tinge of the skin and sclera. Tongue: Mild atrophic glossitis; no soreness. Heart: Mild tachycardia; size normal; haemic murmur present. Lungs: Occasional moist sounds. X-ray chest: "Lung fields clear." Abdomen: Scaphoid, with marked loss of fat; liver and spleen not palpable; caecum and sigmoid normal. Reflexes brisk. No sensory change. Skin lax, rough, and dry, with scabies and a few septic spots.

Treatment.—Minced high-protein diet. Citrated whole-blood transfusion 500 ml. and iron from the fourth day of admission.

Progress.—Diet tolerated well. Rapid improvement followed blood transfusion.

Case VII

Sgt. G., aged 25. *Past History.*—Several attacks of malaria in 1942. In May, 1943, first attack of dry beriberi, and repeated attacks of malaria. In 1944 an attack of dysentery and also malaria. In April, 1945, had dysentery again, followed by chronic diarrhoea and pain in the legs (pellagra).

Clinical Features.—Markedly emaciated and anaemic; Hb, 8.6 g. %. Dimness of vision correctable with glasses (had used glasses before). Tongue normal. Heart normal. Lungs clear. Abdomen: Slightly distended; liver edge just palpable, not tender; spleen not palpable; caecum and colon normal. Reflexes: Knee-jerks could not be elicited owing to extreme atrophy of muscles; ankle-jerks present but sluggish. No sensory change. No oedema. Skin normal.

Treatment.—Tolerated light diet very well, and after four days was on high-protein diet and iron.

Progress.—Steady improvement; uneventful.

Case VIII

Pte. H., aged 29. *Past History.*—Had dysentery and dengue in 1942, beriberi in 1943, with several attacks of malaria and an attack of typhus fever. In 1944 had several attacks of malaria. In 1945 had malaria thrice and was unconscious every time. In July developed oedema of lower extremities and ascites.

Clinical Features.—Fairly well nourished; slightly anaemic. Hb, 11 g. %; red cells, 2,700,000 per c.mm.; colour index, 1.45; M.C.V., 118 c.μ. Tongue normal. Heart normal. Lungs clear. Abdomen: Distended; free fluid present; liver not palpable; spleen enlarged 2 cm. below costal margin. No diarrhoea. Swelling of feet at legs. Reflexes normal. Skin: Texture normal.

Treatment.—Minced high-protein diet tolerated well from the beginning. I.V. quinine 6 gr. (0.4 g.) daily for 6 days. I.M. injection of liver extract 32 ml. first week, 16 ml. second week. Iron was given from the fourth day.

Progress.—Although on suppressive mepacrine after a complete course of antimalarial treatment, the patient was running a slight

Laboratory findings

[illegible]

Clinical Features

[illegible]

Past Illness

	Over 40 times	30-40 times	20-25 times	Over 40 times	20-30 times	25-30 times	35-40 times	Several	10 times	1
Malaria	1	Nil	1	1	Nil	Nil	2	1	1	1
Dysentery	Nil	Several	Nil	Nil	1	Nil	Chronic, 1915	Nil	Nil	"
Jaundice	Nil	1	1	1	1	Occasional	1	"	2	"
Beriberi	"	Nil	Nil	Nil	"	Nil	1	"	Nil	"
Yellagra	1	"	"	"	1	"	Nil	1	"	"
Typhus fever	1	"	"	"	1	"	Nil	1	"	1

(a) — Observations on admission, (b) — Observations two weeks later, before evacuation Stool: — no ova or cysts; no pathogenic organisms,

fever on alternate days. Blood films showed no parasites, but the temperature responded to quinine therapy. The megalocytic anaemia improved with liver. Very good response to treatment.

Case IX

Fus. I., aged 30. *Past History*.—No illness in 1942. In 1943 had ulcers on both legs and beriberi. In 1944 had malaria 16 times; in 1945 malaria 20 times and dysentery once followed by beriberi.

Clinical Features.—Moderately emaciated; slightly anaemic. Hb, 10 g. %. Tongue red, depapillated, and sore. Heart and lungs normal. Abdomen: No distension; liver and spleen not palpable; tenderness over the lower abdomen. Bowels normal. Reflexes normal. No oedema. Skin normal.

Treatment.—Minced high-protein diet and iron from the fourth day.

Progress.—Satisfactory improvement.

Case X

Sgt. J., aged 45. *Past History*.—No illness in 1942-3. Had malaria twice in 1944, and an attack of cerebral malaria in 1945, when he developed a bed-sore.

Clinical Features.—Moderately well nourished; wasting of the left pectoral muscles. Moderate anaemia. Hb, 8.3 g. %; red cells, 3,700,000 per c.mm. C.I., 0.8; M.C.V., 64.7 c.μ. Tongue: Marginal redness, and depapillated. Heart normal; slight tachycardia. Lungs: Scattered crepitations; had haemoptysis once while in this hospital. Sputum: Acid-fast bacilli present. X-ray chest: "Tuberculous infiltration left apex." Abdomen: No distension; liver not palpable; spleen just felt. No diarrhoea, no oedema. Reflexes normal. Large bed-sore, granulating. Skin normal.

Treatment.—Absolute rest; high-protein diet with extra fat (total calories, 4,500); linct. codein. at night; morphine 1/4 gr. (16 mg.) subsequent to haemoptysis; iron mixture.

Progress.—With rest the temperature came down to normal, which was subsequently maintained. Appetite was good, and he appeared to have gained weight. Anaemia improved.

Light Diet as Given in Hospital

(Approximately—170 g. Protein; 3,000 Calories)

8.00 a.m.	Porridge made with milk	.. ..	8 oz. (227 g.)
	Scrambled or lightly boiled eggs	.. ..	2
	Bread	.. ..	2 oz. (57 g.)
	Butter	.. ..	1 oz. (28 g.)
	Tea with milk and sugar	.. ..	10 oz. (284 g.)
10.00 a.m.	Curds or Horlick's	.. ..	10 oz.
11.00 a.m.	Tomato juice with milk	.. ..	10 oz.
12.30 p.m.	Minced chicken or raw pulped liver	.. ..	6 oz. (170 g.)
	Creamed potato	.. ..	3 oz. (85 g.)
	Carrots or peas	.. ..	2 oz. (57 g.)
	Egg custard with jam	.. ..	6 oz. (170 g.)
3.30 p.m.	Egg flip	.. ..	10 oz. (284 g.)
6.00 p.m.	Chicken soup	.. ..	6 oz. (170 g.)
	Minced liver	.. ..	6 oz.
	Creamed potato	.. ..	4 oz. (114 g.)
	Egg custard	.. ..	4 oz.
	Fruit jelly	.. ..	4 oz.
8.00 p.m.	Ovaltine with milk	.. ..	10 oz. (284 g.)
10.00 p.m.	Horlick's	.. ..	10 oz.

High-protein Diet as Given in Hospital

(Approximately—215 g. Protein; 4,000 Calories)

8.00 a.m.	Porridge made with milk	.. ..	8 oz. (227 g.)
	Eggs, poached or scrambled	.. ..	2
	Bread	.. ..	4 oz. (114 g.)
	Butter	.. ..	1 oz. (28 g.)
	Tea with milk and sugar	.. ..	10 oz. (284 g.)
10.00 a.m.	Curds or Horlick's	.. ..	10 oz.
12.30 p.m.	Boiled chicken or fish	.. ..	8 oz. (227 g.)
	Creamed potato	.. ..	4 oz. (114 g.)
	Carrots or peas	.. ..	3 oz. (85 g.)
	Milk pudding	.. ..	6 oz. (170 g.)
	Bread	.. ..	2 oz. (57 g.)
	Butter	.. ..	1 oz. (28 g.)
	Tea with milk and sugar	.. ..	6 oz. (170 g.)
2.30 p.m.	Egg flip	.. ..	8 oz. (227 g.)
4.00 p.m.	Bread	.. ..	2 oz. (57 g.)
	Butter	.. ..	1 oz. (28 g.)
	Jam	.. ..	1 oz. (28 g.)
	Tea with milk and sugar	.. ..	10 oz. (284 g.)
6.00 p.m.	Chicken soup	.. ..	8 oz. (227 g.)
	Fried liver	.. ..	6 oz. (170 g.)
	Potatoes	.. ..	4 oz. (114 g.)
	Green vegetables	.. ..	6 oz. (170 g.)
	Egg custard	.. ..	6 oz.
	Fruit jelly	.. ..	4 oz. (114 g.)
	Bread	.. ..	2 oz. (57 g.)
	Butter	.. ..	1 oz. (28 g.)
7.00 p.m.	Tea with milk and sugar	.. ..	6 oz. (170 g.)
10.00 p.m.	Horlick's or ovaltine	.. ..	10 oz. (284 g.)

Average Daily Diet in P.O.W. Camps

Breakfast: Pap rice with 1/2 tea-spoonful sugar and tea		
Tiffin: Rice, vegetable stew, and tea		
Dinner: Rice, meat stew, rissole, and tea		
(Risssole—Rice and meat or vegetables mixed and fried into a cake)		
Rice	.. ..	14 oz. (400 g.)
Vegetables	.. ..	6 oz. (170 g.)
Meat	.. ..	3 oz. (85 g.)
Cooking oil	.. ..	1 oz. (28 g.)
Sugar	.. ..	1 oz. (28 g.)

In the early days of 1942 the diet in P.O.W. camps was supplemented by rations which our troops were allowed to carry with them. When these were exhausted they lived on polished rice. In the beginning the allowance for fish or meat was 4-6 oz. (114-170 g.) this being gradually reduced to 1-3 oz. (28-85 g.) and, the supply being irregular, often 7 to 8 days passed without meat or fish. In places where supplies were steadier the average health was fair. The issue of rice varied from 12 to 17 oz. (340 to 480 g.) per head per day in different camps, but individuals rarely consumed their total allotment, thereby losing the energy value. Milk was scarce, and the allowance of sugar of 1 oz. a day diminished towards the end and was finally cut out entirely. Animal protein, even when rations were available (3 oz. of meat per head per day), was inadequate. More often than not a plate of meat stew hardly contained a piece of meat. Vegetables issued were of a poor quality—e.g., pumpkin, radish, sweet potato, and marrow. Green leafy vegetables, if any, were negligible in amount. The vitamin content of the diet was very low, and with the increasing needs during repeated attacks of fever and wastage associated with bowel disorders, deficiency diseases appeared. About the end of 1942 there was an outbreak of avitaminosis—sore scrotum, sore tongue, angular stomatitis, etc.—which terminated after treatment with rice polishings, palm oil, and peanuts. Through local purchase and with the small sum of money they received, some were able to supplement their diets in small quantity with peanuts and bananas when available, and thus avoid the maladies of chronic starvation. The treatment of the sick was poor and inadequate, and convalescence, when allowed, was too short; the result being that, once ill, a man hardly had a chance of complete recovery. Thus repeated attacks of malaria and dysentery caused a large number of deaths.

Summary

Although a large number among the R.A.P.W.I. showed evidence of minor degrees of malnutrition, only ten cases from the severe group are reported.

The clinical pictures as presented are not those characteristic of a single vitamin deficiency, but are those that would follow a vitamin complex deficiency (multivitamin deficiency). Large doses of vitamin were therefore administered. Aneurin was given to aid metabolism—assuming that the reserves would be low though specific signs were absent.

In P.O.W. camps the diet was extremely low in proteins. Consequently, hypoproteinaemia and wasting resulted, the oedema of legs being the result of low blood proteins. The plasma proteins of all these patients were low—average 5.5 to 6.5 g. %, the lowest being 4.3 g. %. The presence of oedema was not proportional to the total plasma proteins (Case III, with plasma proteins of 5.2 g. %, had no oedema, while Case I had marked oedema even with plasma protein of 5.9 g. %); but, from previous extensive experience of such cases, one can say that a correlation would have been revealed by estimations of the A.:G. ratio, which unfortunately could not be done here owing to lack of proper facilities.

Response to high-protein diet, and plasma transfusion in severe cases (I, II, and III), has been satisfactory.

Anaemia was present in all cases, both megalocytic (III and VII) and microcytic (V and X). Response to haematonic therapy was good in both groups.

Weights have not been recorded owing to the lack of a reliable weighing machine, but a gain in weight was noticed in all cases except Case V.

Most of the patients gave a history of beriberi, which appears to have been diagnosed on the presence of oedema of legs only. It has been included in the past history on the patient's own statement.

While an adequate follow-up of the cases was impracticable, the progress of all patients between admission and evacuation two weeks later was satisfactory. Therapy designed to correct the deficit protein, vitamin, and haemoglobin contents of the body produced the anticipated improvements. The multiple deficiencies in each case necessitated multiple medication, and for this reason accurate appointment of the credit to any one therapeutic agent is not possible.

I should like to end with an expression of gratitude to all those who made this investigation possible. The valued contribution of Capt. J. C. Valentine, I.A.M.C., on haematology and biochemistry and the co-operation of the nursing staff, have been very much appreciated. I should also like to thank Lieut.-Col. G. A. Ransom, I.A.M.C., for his continued help and encouragement. My special thanks are due to Major-Gen. W. E. Tyndall, C.B.E., M.S., Director of Medical Services, Headquarters, Allied Land Force South-East Asia, for permission to publish this article.

R.A.P.W.I.: AN IMPRESSION

BY

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These recovered Allied prisoners of war and internees were a group of people who had been in Japanese hands for the last 3½ years. The majority were captured at Singapore in February 1942. The cases were British other ranks and civilian men, women, and children. The total number was about 1,000. Much of the material on which these notes are based has been the subject of clinical research—particularly by neurologists, ophthalmologists and biochemists. Some interesting information has been obtained and will be published in detail elsewhere. The purpose of this article is to put on record the general impression of a group of such patients admitted to a British general hospital in Southern India.

Conditions

These varied from forced labour on the notorious Burma-Siam Railway, which is said to have cost a life for every sleeper laid, to comparative comfort in some civilian internment camps. The appreciation and gratitude of the patients varied inversely with the conditions from which they had been rescued. The British other ranks were all happy and contented. Their standard of discipline, judged by turn out, saluting etc., was higher than the majority of garrison troops. Most of the civilians were good patients, too, but a few were extremely difficult. One man went so far as to suggest he was better treated by the Japanese. This was countered by the suggestion that he must have been a collaborator, and no more was heard from him on the subject. It must be remembered that most of them had been leading a life of luxury right up to the time of internment, whereas many of the soldiers had been through hell even before they were captured. The main hardships in the camps were lack of food, bad living conditions and sanitation and the harsh and often brutal treatment by the Japanese guards. Rations varied in different camps and also with the work being done, those on heavy work getting more than those on light duties. Anyone admitted to hospital was immediately put on half rations. This undoubtedly increased the mortality in diseases such as pulmonary tuberculosis. It may be said in passing that the Japanese appear to have treated their own sick with equal callousness.

Rice was the main food. In 1942 18–20 oz (510–570 g) a day was the average. The ration was cut in 1943 to 12 oz (340 g), thus a man going sick got only 6 oz (170 g). For a long time soup made from potato tops was the only regular addition. Later small quantities of meat, fish, and sugar were added, and later still they began growing their own vegetables. The common feature of all diets was gross deficiency in fat, protein, and vitamins, all patients showed great loss of weight, and most had signs of hypovitaminosis. One patient, aged 31 who had no serious illnesses managed to keep a record of his weight—Before capture, 12 st 10 lb (79.8 kg), August, 1942, 10 st 4 lb (65.3 kg), February, 1944, 10 st (63.5 kg), December, 1944, 9 st 7 lb (60.4 kg), May, 1945, 8 st 6 lb (53.6 kg), June, 1945, 7 st 10 lb (49 kg), July, 1945, 6 st 7 lb (41.3 kg). Overcrowding occurred in all camps and sanitary arrangements were bad. Medical supplies were practically nonexistent, but British medical officers were generally available.

Discipline was rigid, and failure to bow to the guards, even if unintentional, met with severe retribution. Punishment for the most trivial offences was brutal. One British NCO had his jaw smashed with a rifle butt for stealing a turnip, and another was severely beaten up for protesting against his party being taken on a double work shift. Cases of maltreatment without any excuse at all seem to have been rare. The Japanese attitude to most of the women internees was one of indifference. To the children they were kind. The latter were easily the fittest of our patients. While this was due partly to sacrifices by their parents, there were cases where Japanese guards gave presents of sweets and other luxuries to them. On one occasion when Japanese generals visited a camp they distributed chocolate to the children. The fact that this had been obtained from looted Red Cross parcels was only known later.

The first to arrive at this hospital was a batch of 200 British other ranks who had come on an aircraft carrier. They were all walking cases, and anyone who saw them could never forget the experience. All showed emaciation, and some had oedema of the legs, but their morale can only be described as terrific. There was great superficial gaiety, but beneath this was a deep rooted fear which showed itself when their faces were at rest. The frequent blinking and the shaking hand were a legacy of what they had been through. Their condition was aptly compared to that of the whipped dog returning to his master. The policy adopted by this hospital was to give them as much liberty as possible, and they were allowed to come and go as they pleased. While this made things difficult for the medical officer who never found all his patients in the ward at any time it was very good for the patients' morale. Special rations were provided, and with the aid of Red Cross parcels a generous and varied diet was supplied. All who were considered fit to travel were passed on as rapidly as possible. "Fit to travel" was the only criterion. Much good work was done by the ladies of the British Red Cross, who were always around helping to entertain the patients and ease their readjustment. An impromptu dance held on the day after they arrived was well supported and a great success. Cinema shows in the wards were given twice a week.

Medical Aspects

All patients showed malnutrition. As most had been released 10 to 14 days before admission to this hospital they had already gained weight—some as much as a stone (6.4 kg). In addition the Japanese had increased their rations and released a number of Red Cross parcels during their last weeks of imprisonment.

Nutritional oedema due to hypoproteinaemia was very common. Most of these cases came to us labelled 'beriberi'. In some cases the oedema had been accompanied by hepatic enlargement and ascites. A number of these had telero-diagrams taken of their hearts, which were found to be normal in size and shape. Not a single case of proved cardiac beriberi was seen. Macrocytic anaemia was present in many cases with colour indices as high as 1.5. With improvement in the general condition the blood showed an increase in red cells and haemoglobin, and also a return towards the normal picture.

Jungle sores were common. In some cases they were infected with the Klebs-Loeffler bacillus, which had given rise to local or generalized peripheral neuritis. A history of pellagra was often obtained, but here again objective evidence was slight. Scurvy was not seen.

Neurological Conditions

The most striking cases were those showing degeneration of the nervous system. They fell into three groups, of which the following were the main characteristics: (A) amblyopia, ataxia, and nerve deafness, (B) spastic paraplegia, (C) peripheral neuritis. Examples of Group A syndrome had been reported in prisoners released earlier from Rangoon gaol, so further cases were expected. Different parts of the nervous system appeared to show varying degrees of vulnerability, and the optic nerve, posterior columns, and auditory nerve tended to suffer in that order.

The amblyopia cases all complained of some degree of visual deterioration. It had started usually 6 to 9 months after capture, and had gradually increased. In others the onset had been sudden. Some degree of improvement was the rule, but complete recovery rare. Men who had not worn glasses previous to capture were now unable to read, others could read headlines only. Many complained that they could see things better at the side than in front. On examination they were found to have reduction of visual acuity, a central scotoma, and pallor of the temporal halves of the optic disks. This temporal pallor, which was striking, was also seen in a number of men who did not complain.

The ataxia, which was most pronounced in the legs but was seen also in the arms in some cases, was associated with loss of sense of position, vibration, and deep pain. The area of loss to vibration usually ended sharply at a level corresponding to some spinal segment.

By comparison with amblyopia and ataxia, nerve deafness was rare but a few cases of the complete syndrome were seen.

In one of these cases the ataxia was thought to be partly vestibular in origin. It would indeed be surprising if the vestibular branch of the eighth nerve escaped entirely when the auditory branch was involved in the degenerative process. This syndrome was regarded by neurologists as a deficiency disease. There was some difference of opinion as to its nature. Lack of vitamin A was considered at one time, but the consensus of opinion was that it was due to shortage of the B complex.

The cases of spastic paraplegia formed a small but sharply defined group. They all came from two camps, and had developed about the same time within a period of six months. They showed gross spasticity, walking on the tips of their toes and unable to put their heels to the ground. Deep reflexes were exaggerated and plantar responses extensor. Cases occurred in men who had suffered less privation than average. One N.C.O. had been in charge of a cookhouse and fed comparatively well. It seemed probable that the cause here was some toxic factor, and neurological opinion favoured the diagnosis of lathyrism.

The cases of peripheral neuritis were not infrequently associated with signs of Group A syndrome, giving a mixed picture. Others, as already stated, were due to diphtheritic infection. A number were left, however, in which a diagnosis of neuritic beriberi seemed justifiable.

Diseases Present

Pulmonary tuberculosis was the most serious disease occurring commonly among them. This had already taken a considerable toll of lives before release. More than 50 cases were received here, showing all stages of the disease. The high incidence is not surprising considering the lowering of resistance by malnutrition, overwork, and intercurrent infection, particularly malaria. The overcrowded living conditions predisposed to the spread of the disease. Most of the cases are now doing well on sanatorium treatment, and it would seem reasonable to assume that the majority of these patients would never have developed the disease had they been leading normal lives. Thus it may be argued that as a group they have a higher basic resistance than a comparable group who have developed the disease in civil life.

The military patients had nearly all had repeated attacks of malaria. Some reported as many as 50 attacks. Though accurate counting becomes difficult after five or six relapses, it is certain that the majority of them had had many attacks. In sharp contrast were the civilians, most of whom had been living in Malaya for years before the war. Many of them had not had a single attack, and few had had more than one or two. This suggests an acquired resistance to the local strains. All Service cases were given a full course of mepacrine, if they had not already had it, and were instructed to take a suppressive dose for a further six weeks. It was felt that this would make freedom from relapse fairly certain during the journey home.

A remarkable feature of our series was the low incidence of dysentery. Our dysentery ward never had more than a dozen cases in it at any time. A considerable number of patients gave a history of proved amoebic dysentery. This had cleared up completely without any specific treatment, and full examination, including sigmoidoscopy, showed no abnormality. This confirmed an impression already gained—that in this disease the soil may be more important than the seed.

A few cases of sprue were seen, all in civilians, and they were our only patients who had suffered from being released. The sudden change-over to a full diet was too much for them and had a disastrous effect. One arrived in *extremis* and died within 24 hours of admission. Two others gave us a great deal of anxiety before they turned the corner. With strict dieting and transfusion they eventually made a good recovery.

Conclusion

To summarize, it may be said that the condition of these patients was, on the whole, better than might have been expected. The greater resilience of youth was seen in the more rapid recovery in Service cases. This was particularly marked in those showing nutritional oedema.

The medical attention these men and women had received from British doctors in the camps calls for the highest praise.

Working usually without x rays or other equipment, they made accurate diagnoses, which were confirmed when full investigation was possible. Where screening could be done pneumothoraces had been induced and maintained. The full and careful notes which the patients brought with them of inestimable value to us in carrying on with their treatment. Finally, it may be said that our patients presented an example of survival of the fittest.

My thanks are due to Col. W. J. Officer, O.B.E., commanding 114 British General Hospital, for his help and criticism.

TREATMENT OF ACUTE OTITIS MEDIA BY DECONGESTION

BY

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The role of ephedrine as a decongestive agent in the nose is well recognized. Its value in the treatment of middle-ear inflammation does not seem to be known.

Some three years ago I first used it to decongest the mucosa "pouting" through perforations in the acutely inflamed tympanic membrane in acute otitis media. The anticipated result was obtained. The mucosa became less turgid, the opening through the membrane was correspondingly enlarged, and drainage was facilitated. Resolution was thereby accelerated. The effect was the same, of course, whether the opening followed myringotomy or rupture of the drum. It may well be that some of the ephedrine solution also found its way into the middle ear itself and exerted its helpful decongestive action on the mucosa lining the cavity and the tympanic end of the Eustachian tube, with consequent improved drainage through the latter. Having enlarged the opening through the drum as described, the process of drainage was further enhanced by the instillation of glycerin drops after the ephedrine. These, of course, are helpful by virtue of their osmotic action. To this combination of ephedrine followed by glycerin the term "decongestion-osmosis" is applied.

The experiment was later tried of instilling the ephedrine solution into the ear in early cases of acute otitis media with an intact, congested, but not yet distended tympanic membrane. The effect was surprising. After a few applications, at four hourly intervals, the drum became decongested, inflammatory appearances were dispelled, the landmarks became more clearly apparent again, and all evidences of a process towards resolution were demonstrated. Pain disappeared and the patient felt better. In the majority of cases the condition cleared up, being apparently aborted by the treatment. The term "decongestion" is applied to this procedure.

The rationale of the latter cannot readily be fully explained. It is empirical. My assumption is that the reduction in hyperaemia which takes place (obviously) on the outer surface of the drum results in a reflex mucosal decongestion inside the tympanic cavity and adjacent Eustachian tube, with consequent re-establishment of drainage through the latter. The irreversible process of an inflamed middle ear with exudate shut off beyond a blocked Eustachian tube is thus not allowed to develop, and so resolution by the usual sequence of events which takes place in favourable cases of inflammation can proceed unhampered.

Details of Treatment

The solutions used are 2% aqueous solution of ephedrine alkaloid or of ephedrine sulphate for the decongestion and pure glycerin when osmosis is also required.

(a) *Decongestion-osmosis*.—This is indicated in established cases of acute otitis media when there is a perforation or a myringotomy opening which is inadequate owing to inflammatory congestion. Clean discharge from the meatus. Then, with the patient lying on his side with the affected ear uppermost, instil a few drops of the ephedrine solution into the meatus. After ten minutes' interval instil a few drops of glycerin. The sequence should be repeated at least thrice daily until a freely flowing mucopurulent discharge is obtained. This should be achieved within the maximum of a few days. The usual lines of treatment may then be followed, I myself being partial

to the use of guttae argyrol 5% at this stage—either simply instilled or, when all signs of acute inflammation have gone, by the displacement method (Reid, 1939).

(b) *Decongestion*.—This is indicated in early cases of acute otitis media (i.e., within the first 48 hours usually) with an intact but inflamed non-bulging drum. The ephedrine solution only is instilled into the affected ear, in the same way as above described—a few drops being left to act for about five minutes. Repeat at least three daily. The case should be reviewed in three days, the patient being told to report earlier if the pain has not gone after the first three treatments.

Both the above procedures can be simply carried out by the patients with the assistance of someone at home, but they must, of course, report within the times specified—or earlier if pain persists.

Results

These are excellent. The logical decongestion-osmosis always proves beneficial when indicated. As regards the decongestion, it can be claimed that the majority of cases of acute otitis media abort with this treatment if it is instituted early enough. Also, no risk would appear to be involved. In no case has mastoiditis developed in consequence of delay in applying other lines of treatment because of decongestion having been employed. With this method of treatment myringotomy is much less often necessary, rapid resolution with an intact tympanic membrane being the rule.

The following figures of myringotomies done in the out-patient department theatre at the Children's Hospital, Birmingham, in 1944 and 1945 show the striking drop in the number of those operations since I introduced decongestion therapy in April, 1945.

	1945	1944
January	98	184
February	94	116
March	110	230
Decongestion therapy introduced		
April	63	147
May	36	137
June	17	155
July	14	78
August	14	73
September	8	43
October	17	92
November	12	89
December	20	66

The figures for January and February of 1946 are 16 and 8 respectively, compared with 98 and 94 for the corresponding months in 1945, when decongestion was not used.

Finally, it should be mentioned that this line of treatment is not advocated in conjunction with chemotherapy, in view of the masking effects of the latter on the middle-ear appearances, the changes in which should be carefully observed. Anyway, the use of chemotherapy should be reserved for only the more virulent forms of acute otitis media.

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A CASE OF INDIGENOUS MALARIA IN NORTHERN IRELAND

BY

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The "ague" has been present in England throughout historic times, but in recent generations it was little heard of until 1917. From September that year onwards until 1919 almost 600 locally contracted cases of malaria occurred in England. The cause of that outbreak was the return of large numbers of infected military personnel from malarious areas abroad, chiefly Greece, Mesopotamia, and Africa, to areas in England where anopheline mosquitoes were prevalent. Cases were scattered over South-East England, especially in coastal areas, and a small epidemic occurred in the Isle of Sheppey, in Kent. This outbreak was described in a report to the Local Government Board (1919).

Cases of endemic malaria were rare between the wars, but Shute (1944) drew attention to the possibility of an increase

of indigenous malaria after the war then in progress was ended and when large numbers of infected Service personnel would be returning from abroad. One such case is here described, and it is considered to be of especial interest as it occurred in Northern Ireland—an area in which malaria does not appear to have been previously recorded.

Case History

The patient was a member of the W.R.N.S., aged 24, who was admitted to a naval auxiliary hospital in Londonderry on July 16, 1945. She gave a history of headache and attacks of shivering and sweating for a week previous to admission. Her temperature, which was 101° F. (38.3° C.) on admission, was normal next day. It rose to 105° F. (40.6° C.) on July 18. The tongue was heavily furled, but no physical signs were found to account for her pyrexia. She was well again on the 19th, but on the 20th her temperature rose to 104° F. (40° C.). The temperature chart was by now typical of tertian malaria, and a blood slide taken that day showed a heavy infection with benign tertian parasites. She responded well to treatment and there were no complications. The spleen was not palpable at any time. Blood counts showed 4,500,000 red cells per cmm. and a haemoglobin of 90%. The patient had never had any similar illness before, and she had never been outside England and Northern Ireland.

Comment

The chief point of interest in this case lies in trying to trace the place where infection occurred. For the transmission of malaria the necessary factors are: (1) the existence of human carriers of malaria with gametocytes in the peripheral blood; (2) the existence of suitable mosquito vectors; (3) certain further conditions which are not yet fully understood, but which include a suitable temperature for the development of the parasite in the mosquito. Studies of malaria in England and in other temperate climates have shown that, under the conditions there, cases of malaria tend to occur in two main seasonal groups. Primary infections may develop symptoms either in the late summer and early autumn—that is, when conditions for transmission are most suitable—or in the spring months of March, April, May, or even June. It is presumed that this second group of cases have been infected during the previous summer but that the infection has remained latent for a period of from 6 to 9 months. This phenomenon has been discussed by Shute (1939).

The subject of this present case had spent 1944 at Southampton and Newhaven, with occasional brief visits to her home at Braintree, in Essex—an area where malaria is known to occur. In March, 1945, she was drafted to Londonderry and remained there until she took ill, except for a visit to Braintree from April 20 till May 1, on leave. That visit may be left out of consideration as a possible time of infection as the early summer mosquitoes would not yet be hatched out. It remains to decide whether this patient was a latent case, infected in England during the previous summer, or was, in fact, infected in Northern Ireland.

Her work kept her in the naval dockyard by day, while her living quarters were in a Nissen hut, one of eight in the grounds of a large house about a mile north of the centre of the town. Search of the area around these quarters showed that anopheline mosquitoes were breeding in a small pond about 200 yards away. Larvae from this pond were kindly identified for me by the Ministry of Health Malaria Laboratory, Horton Hospital, Epsom, as *A. maculipennis*. This is the most usual British malaria-carrying mosquito, and it was no doubt breeding in other suitable places in the district. Carriers of malaria were numerous in the Londonderry area during the spring and summer of 1945, as during the previous autumn the local Territorial regiment, numbering several hundred strong, had returned home after five years in the Middle East and Italy. Of these men some had been demobilized, while others were home on leave from time to time. Moreover, primary and relapse cases of malaria were almost always under treatment in the hospital from among the many hundreds of naval and Air Force personnel stationed in the area, of whom a large proportion had served in malarious areas abroad during the war.

It must now be considered whether it is likely that the processes of infection of a local anopheline, development of the parasite within it, infection of the patient, and incubation of the disease could have taken place before July 9, which was the date on which the first symptom appeared. The time taken for the parasite to develop in the mosquito is largely governed

by temperature. At an average temperature of 70–80° F. (21.1–26.6° C.) the cycle for B.T. parasites is completed in about 10 days. At 60° F. (15.5° C.) it takes 30 days. It has been stated to take about 14 days at 62–68° F. (16.6–20° C.). The spring of 1945 was an unusually mild one, and so too was the month of June. Records supplied by the meteorological officer of a nearby naval air station showed that from June 3 to 7 the maximum daily temperatures were from 61 to 65.6° F. (16.1 to 18.6° C.), and that from June 17 onwards the daily maximum was never below 60° F. (15.5° C.). There was a spell of warm weather from June 18 to 24, when for a large part of the day the temperature was 65° F. (18.3° C.) or higher and twice exceeded 70° F. (21.1° C.). These temperatures, however, do not necessarily represent those at which the adult female mosquitoes were living during this period, as they spend much of their time indoors, in buildings where they can get meals of blood, especially in animal-houses. In the absence of such accommodation it may be assumed that they would find the Nissen huts, warmed by stoves and containing sleeping Wrens, acceptable alternatives, and with temperatures generally higher than out of doors.

Mosquitoes which came out with the first wave of summer hatchings, usually in the first week of June, could be given a week in which to become infected, and, allowing 12 days for the incubation period in the patient, would still have 17 or 18 days in which to develop the parasite within them. At the temperatures of June, 1945, that does not seem an unreasonable period to allow. The first week of July was also warm, with maximum temperatures of over 70° F. (21.1° C.) on two days.

I believe that such evidence as is available supports the contention that this case of malaria was infected in Northern Ireland. It would be well for practitioners there, as elsewhere in the British Isles, to be on the look out for similar indigenous cases this spring and summer.

I am indebted to the Medical Director-General of the Navy, for permission to publish this case.

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Medical Memoranda

Coma as Onset in a Case of Malaria in England

Although many medical men in this country are becoming increasingly familiar with the signs and symptoms of malaria, it is possible that some may not recognize as being due to that complaint a case of coma in a patient not previously suspected of malaria. The following case history is that of a patient in whom two brief periods of fever and, later, some degree of anaemia were the only pointers to the possibility of malarial infection—until the evening on which a sudden coma resulted in blockage of the cerebral vessels with the merozoites and corpuscular fragments, and a very high fever developed.

CASE HISTORY

A previously healthy young male subject, aged 23, had spent eleven months in West Africa and had returned to England six weeks before his admission to Redhill County Hospital. During his stay in West Africa he had taken 10 gr. (0.65 g.) of quinine daily as prophylaxis, but discontinued this on leaving Africa. A few days after his return to England he had two very brief bouts of fever. He felt apathetic and rather sleepy often during the succeeding weeks, and for a week before his admission to hospital he had been resting at home on iron therapy from his own doctor for anaemia. Twenty-four hours before admission he complained of some pain in his right arm, but the coma and the high fever (105° F.: 40.6° C.) which occurred on the following evening were unexpectedly sudden in their development.

At admission he was lying still, deeply comatose, very pale, and showing a temperature of 104.2° F. (40.1° C.). Breathing was rapid (36), deep, and very noisy. Pupils were moderately dilated and did not react to light. There was no neck rigidity. Tendon jerks were all grossly exaggerated and there was bilateral ankle clonus. Plantars were both definitely extensor and abdominal reflexes were all absent. The spleen tip was felt 3 in. (7.6 cm.) below the left costal margin. The lungs showed only a little bronchitis.

A blood film was taken, and 20 gr. (1.3 g.) of quinine bihydrochloride was given intravenously. Increased hyperventilation followed

the injection, but with subsequent tepid sponging the temperature fell and the patient rapidly recovered consciousness. The blood film showed large numbers of malignant tertian parasites.

Next morning the patient was quite alert and bright, but was very pale and the conjunctivae showed a trace of bile. The spleen was still 3 in. below the costal margin. The blood count was: Hb. 40%; R.B.C., 1,720,000; C.I., 1.17; W.B.C., 3,260 (P. 52%, L. 40%, M. 8%). Tendon jerks were still increased, but much less than the previous night; there were only a few catches of ankle clonus on each side, and the plantars were now flexor.

The succeeding days on quinine bihydrochloride 10 gr. (0.65 g. t.i.d. and mepacrine 0.1 g. t.i.d. were marked by steady improvement. The size of the spleen gradually diminished, the tendon jerks slowly became normal, and the colour improved. On the third day the quinine dose was reduced to 5 gr. (0.32 g.) t.i.d., and ferri ammon. cit. was given, at first 45 gr. (3 g.) daily, but soon the dose was raised to 90 gr. (6 g.) daily. Six days after admission the spleen could no longer be felt, but there was still a tendency to exaggeration of tendon jerks in the legs. The abdominal responses were now normal.

The patient was discharged on the seventeenth day, after a further five days on 0.02 g. of pamaquin (thrice daily); and by then his blood count was: Hb. 70%; R.B.C., 3,860,000; C.I., 0.92; W.B.C., 6,450 (P. 72%, L. 20%, M. 7%, E. 1%). The temperature remained normal after the second day, and after the first examination no parasites were found in the blood. When seen two months after the attack the patient showed no anaemia and reported no further relapses.

COMMENT

A case of malignant tertian malaria is described which had been suppressed by prophylactic quinine, but which, about eight weeks after the end of prophylaxis, suddenly revealed itself by the symptoms of profound coma with quadriplegic tendencies, hyperpyrexia, and overbreathing. The diagnosis, which was immediately suspected because of the development of these symptoms in a patient lately arrived from West Africa, appeared most probable when it was found that he was also profoundly anaemic, and showed marked splenomegaly and some signs of bronchitis. Strong antimalarial treatment was immediately beneficial, and subsequently his progress has been uninterrupted.

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Delayed Healing of a Vesico-vaginal Fistula by Inflammatory Reaction

This case is worthy of record because of the notorious chronicity of vesico-vaginal fistulae, and also because of the very extensive surgical procedures required when vaginal closure is not possible.

A native girl aged 19, a para-1, was seen by me early in May, 1945. She gave a history of a long difficult labour about nine months previously, and of continual incontinence of urine dating from about the time of her puerperium. Vaginal examination revealed a large vesico-vaginal fistula, easily admitting the tip of my middle finger, in the anterior fornix. Although palpation led me to suspect considerable scarring, I decided to attempt operation. I then found, however, that the cicatrization made it impossible to pull down the cervix and see the fistula. I attempted to suture, working "blind," but abandoned this as technically impossible. Two sutures which I managed to insert cut through the friable tissue when tied. I then scraped the edges of the fistula with a small sharp scalpel in the faint hope of causing enough tissue reaction to close it or to reduce it in size.

For some weeks after this operation there was no sign of improvement, and I began to consider intravesical closure, and, if that failed, colpocleisis as recommended by Cameron (1925) in such cases. It was, however, suggested to me by a colleague that ureteric transplantation might offer a better chance of cure, and it was decided that this should be attempted in two months' time. The girl meantime went home to her village.

She returned at the end of August, saying she was now better. To my surprise vaginal examination revealed that the fistula had indeed closed and there was nothing to be felt in the anterior fornix but a mass of scar tissue. While the fistula had undoubtedly closed, I gave a very guarded prognosis with regard to its remaining so, especially in the event of another pregnancy.

This case is interesting because of the considerable size of the fistula, and because all sign of reaction to operative intervention locally had disappeared long before she was sent back to her village. It suggests that in cases of inaccessible vesico-vaginal fistulae it might be well to try to promote a local reaction and then wait some considerable time before undertaking more drastic procedures.

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Reviews

PHYSICAL CHEMISTRY OF CELLS AND TISSUES

Physical Chemistry of Cells and Tissues By Rudolf Höber. With the collaboration of D. I. Hitchcock, J. B. Bateman, D. R. Goddard and Wallace O. Fenn (Pp 676 42s) London J and A Churchill 1945

Many readers will welcome this book. Physical chemistry is not represented in the biological or medical field by a separate subject, nor would such a specialization be desirable. Cells and tissues are heterogeneous systems composed of aqueous and lipid phase, of fibres, and these structures are the material of all who study the properties of living matter, whatever their own method or approach.

This book is subdivided into a number of sections written by five different authors. The first section, by D. I. Hitchcock, is an outline of the biologically important basic principles of physical chemistry. The mathematical treatment of the subject would have been made clearer by examples and by being less condensed. The reader is often referred to other textbooks when a more extended treatment is needed. J. B. Bateman's contribution is entitled 'Large Molecules', it deals with the electrical and chemical forces determining the properties of these molecules and with the way in which they interact. This section also contains a discussion of the use of x ray methods for the study of fibres and of the properties of monolayers and similar membranes.

These two physical sections are followed by the discussion of biological systems, R. Höber has written admirably on the properties of the protoplasm and its surface, on the response of cells to environmental factors, in which he includes a discussion of great value on the action of narcotics on cellular activity, and on the transport of substances across cell membranes (passive transfer, absorption, secretion). D. R. Goddard deals with cell respiration and respiratory enzymes, this account is extremely instructive. There is a section on contractility by W. O. Fenn which was unfortunately written in 1942, for since then a great deal has been discovered concerning the biochemical properties of muscle proteins especially myosin and this knowledge is to-day the central point of discussion on contractility.

The book contains a great number of references, and it is an especially pleasing feature that the valuable pioneering work of earlier generations is given full recognition. In the preface the editor gives a brief exposition of the point of view from which this book has been written, and he stresses the fact that it is chiefly the outlook of the physicist which has been adopted. In the study of living matter the dividing line between chemistry and physics becomes so blurred as to be of little significance, but it is true that the successes of the biochemist and the organic chemist, in the field of therapeutics and in applied biology in general, have tended to stress the importance of the organic chemist. There is little doubt that the book will help in correcting this tendency and that it will be of use to all—chemists, physicists, and biologists alike.

PROTOZOOLOGY

Protozoology By Richard R. Kudo, D.Sc. Third edition, revised and with two new chapters. (Pp 778, illustrated. \$9.00) Illinois: Charles C. Thomas

The popularity of Prof Kudo's textbook is evidenced by the fact that though first produced only seventeen years ago a third edition is now issued. The present volume is some 80 pages longer than the last edition, and is profusely illustrated with more than three hundred excellent black and white figures, and four new half-page colour plates of the human malaria parasites.

Part I some 190 pages, discusses very thoroughly in six chapters the appearance, habits, physiology, and reproduction of protozoa generally. Part II deals systematically in 44 chapters with the taxonomy and special biology of the very numerous genera and species of free living and parasitic protozoa. Each chapter ends with a list of references to literature concerning the organisms discussed. The final chapter is devoted to a discussion in 30 pages of the technique of collection, cultivation, and observation of protozoa. A 47 page index terminates the book.

The medical protozoologist deals with a very small number of protozoa, but concerning them he requires detailed information. On the other hand, the parasitic protozoa of man and domestic stock form for the systematic protozoologist only a small section of his subject and, therefore, only some 80 pages are devoted in this book to these parasitic forms. The human intestinal amoebae (10 pages) and the human malaria parasites (11 pages) are fairly fully described, but only four pages are allotted to the human trypanosomes, and *T. rhodesiensis* is dismissed in 12 lines. Most of the important trypanosomes of domestic stock are mentioned—some are omitted—but the description of the morphology of these species is insufficient for the purposes of identification. The book cannot, therefore, be recommended to the medical man or veterinary surgeon wishing detailed information about protozoa in his particular field. It will, however, be of value for reference to the medical or veterinary protozoologist, since it covers systematically the whole field, relates together the various orders, families, and species, and describes large numbers of organisms which may occur as contaminants in material sent for examination. The sections on the free living protozoa of water will be of value to those responsible for water supplies.

In spite of its increased length the work still retains its compact form and excellent print.

PRACTICAL OBSTETRICS

The Midwife's Textbook of the Principles and Practice of Midwifery By R. W. Johnstone, M.D., F.R.C.S. Ed., F.R.C.O.G. Second edition. (Pp 311, illustrated. 18s) London: Adam and Charles Black.

Prof Johnstone's excellent book is written for pupil midwives but its text is so clear, concise, and so well illustrated, and its teaching so logical and effective, that it can be recommended to a much wider circle of readers. Medical students and bus practitioners alike would find much of profit in these pages. The author has omitted discussion of general anatomy, physiology, and pathology, referring those who may wish for further details of these to the books already published for pupil nurses. In their place he has introduced more obstetrical details of interest and importance than one usually finds in a work of this size. The anatomy of the pelvis and the physiology of menstruation and pregnancy are dealt with in the first 48 pages of the new edition. The succeeding chapters deal with the foetus, the principles of antenatal care and hygiene, labour in the various presentations, the normal puerperium, asphyxia neonatorum, pathology of pregnancy, pathology of labour, pathology of the puerperium, drugs and solutions in common use in midwifery, obstetrical operations in domiciliary practice, antenatal and postnatal exercises, the newborn child and radiography in obstetrics. Two valuable concluding chapters are those on midwifery in relation to public health and the history of midwifery.

The section dealing with post partum haemorrhage is excellent, and particular mention should be made of the valuable advice on preventive treatment. The midwife is reminded that good midwifery in its widest sense, antenatal and intrapartum is necessary to reduce the incidence of post partum haemorrhage to a minimum.

ELECTRICAL INJURIES

Der elektrische Unfall als pathologisch-anatomisches, klinisches und rechtliches Problem. By Dr. Fritz Jenny. (Pp 144, illustrated. 12.50 Sw francs) Bern: Medizinische Verlag Hans Huber.

To readers who understand German there are one or two volumes available on the subject of electrical and lightning injuries. To these may now be added this little book written by Dr Jenny of Lucerne. The author deals in orthodox fashion first with the technical details which determine the severity and location of electrical injuries. This preliminary section is followed by a description of the effects as they appear in the various organs and tissues. Brief case reports are given and there are a number of excellent illustrations. The vexed problem of the cause of death after electrocution is considered in a special chapter. There is some reference to the subject of electroneurosis, and the studies of Cerletti and Bini upon electrically induced convulsions find a place. Dr Jenny does not

have much to say upon the historical aspects of his subject. A useful bibliography is given, but unfortunately it is far from complete. Medical problems connected with lightning-stroke are referred to only very briefly, as are the questions of accidents occurring from x-ray apparatus.

One may summarize by describing this book as a competent introductory thesis, interesting and well produced. In the case of such a specialized subject, however, a full-dress monograph is sadly needed. It is a matter for comment that no manual, large or small, exists in the English language upon electrical injuries. This is a defect which should be remedied, for electrical injuries and their sequelae already play a not inconsiderable part in industrial medicine, and the problem is one we might expect to increase rather than to diminish.

SPRAINS OF THE INSTEP AND OF THE KNEE

Entorses du Cou-de-pied et Entorses du Genou. By L. Léger and C. Olivier. (Pp. 218; 85 figures. 200 francs.) Paris: Masson et Cie.

This interesting monogram is really a study on Leriche's classical discovery that many of the results which follow on a sprain can be abolished by the early injection of novocain into the damaged area. The authors open with a discussion of what is meant by sprain, and give a most precise account of its ascertained anatomy, physiology, and pathology. They then discuss the mechanism by which sprains of the instep are produced, their results and treatment, with, of course, special reference to the work of Leriche.

A similar examination is made of sprains of the knee, including more severe injuries such as those which involve rupture of the crucial ligaments. The late results of such injuries and the most modern methods of repair are fully described, and illustrated by excellent diagrams. In conclusion, chronic arthritis and painful knees of obscure origin are discussed.

This is a monograph of considerable importance. The authors are evidently well acquainted with the whole literature of their subject, which is accurately summarized, and they possess a wide and varied practical experience. The line diagrams by which they illustrate the text are admirably designed and beautifully executed. It is a fine study and a valuable addition to an important branch of surgery.

Notes on Books

The Epic of the Red Cross; or, The Knight-Ernt of Charity, by FERNAND GIGON (Jarrolds Ltd.; 12s. 6d.), is the life story of a Genevan, Jean-Henri Dunant, who in 1864 became the recognized founder of the Red Cross International Society. He was contemporary and the counterpart of Florence Nightingale. Both were roused to action by the sight of thousands of untended wounded and dying soldiers—he at Solferino and Florence Nightingale at Scutari. Dunant had a grim fight in carrying out his propaganda work. No one from the Emperor Napoleon III downwards could withstand his persistence, till at last his plan for the methodical organization of a body of voluntary workers, in aid of wounded soldiers, came into being. His programme was to foster the establishment, during international peace, of charitable societies, whose aim would be to organize bands of well-trained workers. The German Emperor William I, as Grand Master of St. John of Jerusalem, took a deep interest, as did all other European crowned heads, in the Red Cross work of the Geneva Convention. Since the first world war began the work of the Joint Committee of the British Red Cross Society and the Order of St. John, in aid of suffering humanity, has assumed gigantic proportions, reaching a figure of £50,000,000. Fernand Gigon's book is confined to Dunant's epic struggles for the realization of his dream, which came true before he died in 1910 a worn-out but happy man.

A fifth edition has now been published by J. and A. Churchill (12s. 6d.) of *Practical Biochemistry for Students of Medicine*, by A. T. CAMERON and Dr. FRANK D. WHITE, of the Faculty of Medicine of the University of Manitoba. It appeared first in 1930, and the authors' guiding principle continues to be that this book should, if anything, err on the conservative side, employing old tested methods rather than newer, less tested ones. In the new edition they have revised the tests concerned with the clotting of blood, so as to illustrate the chief features of Quick's theory. Brief directions are included for estimating hippuric acid excretion as a measure of liver function, and for estimating urobilinogen in urine, and the account of a basal metabolism determination has been revised to conform more closely to present clinical apparatus.

Dr. BERYL TWYMAN has written a modest little book on *Some Minor Ailments of Childhood* with the subtitle *Being Hints to Mothers* (E. and S. Livingstone: 9d.). It is a happy mixture of common sense and sound teaching on physical and psychological disorders. The poetry quoted at the end serves as a reminder that mothers north of the Tweed have probably had a better general education than their southern sisters. It is a safe and suitable booklet to supply to intelligent mothers at child welfare clinics.

After only three years the South African textbook on *Medical Jurisprudence* by Drs. W. F. RHODES, I. GORDON, and R. T. has reached its second edition and is well on the way to becoming a classic. This edition contains a considerable amount of new material, and the earlier text has been largely rewritten. The chapters on identity, mental illness, workmen's compensation, the constitution and functions of the South African Medical Council, the registration and certification of births and deaths, and medical negligence are new. The book covers that field of forensic pathology which is common to most countries, but not fully enough to compete with the fuller textbooks from this country or the United States. Within the Union of South Africa, however, it is unique and will become increasingly popular and indeed indispensable. The publishers are the Stewart Printing Company of Capetown, and the price is 32s. 6d.

The changes which have been made in the second edition of *Nitrous Oxide-Oxygen Anaesthesia*, by F. W. CLEMENT (Henry Kimpton 22s. 6d.), are those of the detail rather than the scope of the original text. The author is evidently aware of the considerable apprehension on the part of anaesthetists concerning the dangers of anoxia, and of the growing criticism of nitrous oxide on that account. He does not hesitate, therefore, to include a somewhat apologetic chapter in which this question of anoxia is reviewed and the critics are answered. Even though some of the views expressed may not be acceptable to every anaesthetist should read this book, as an excellent exposition of nitrous oxide-oxygen anaesthesia as practised by the McKesson school.

Preparations and Appliances

FINGER TRAPS FOR BANJO SPLINT

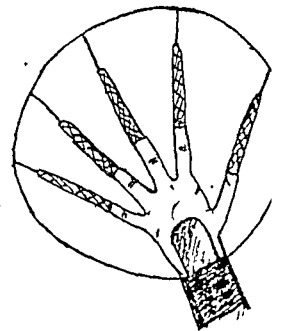
Dr. G. R. P. ALDRED-BROWN, consulting physician, Royal National Hospital for Rheumatic Diseases, Bath, writes:

For many years past, and especially since the rubber shoe age, I have used plaited finger "traps," as they are known in the toy trade, for obtaining extension and correcting alignment of fingers. The banjo splint used is the ordinary type with stout wire circle fixed to a metal palm rest, and the wire attachment consists of either a leather gaiter or a plaited splint.

These finger traps obviate the use of adhesive tapes and rubber band pulleys. The tip of the finger fits into the trap and is gripped firmly. The elasticity is imparted by the plaited raffia, which exerts a continuous traction. The wire ring should be notched in five places to receive the fine string which is threaded through the top of each finger trap by means of a carpet needle. It is advisable to have the wire circle sufficiently large to allow for the length of the fingers plus the length of the finger traps.

The wire can be bent to any required shape, and in fact should be more of a loop than a circle if it is desired to correct ulnar deviation of the fingers.

The finger traps are obtainable, price 9d. each, from Messrs. P. Clive and Co. Ltd., Back 68, Cocker Street, Blackpool.



Messrs. Ward, Blenkinsop & Co. Ltd., of Liverpool, offer phenylmercuric nitrate in solution for sterilizing wounds, for treating vaginal infections caused by *Trichomonas vaginalis*, and for treating tinea and epidermophytosis. It is supplied as a 1% solution in diethyl glycol. They also offer dithranol, which is used for the same purposes as chrysarobin, but chiefly for psoriasis, for which it has been found effective. Dithranol, which is dihydroxyanthranol, is offered in the sixth Addendum to the B.P. 1932.

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THE LORDS ON THE HEALTH SERVICE

Public debate and concern about the Government's hospital proposals continue. Medical and lay opinion has been perplexed by a division of opinion in the medical profession on the Minister's proposal that he should become the owner of all the hospitals in this country. This arose because of the Consultants' Services Committee's resolution that it approved the transfer of ownership of hospitals provided the composition of the Regional Boards is satisfactory. This resolution was submitted to the constituent bodies of this committee. Of these the Royal College of Surgeons, the Royal College of Obstetricians and Gynaecologists, and the British Medical Association have stated their opposition to the suggested transfer. When the matter was debated by the Comitia of the Royal College of Physicians last week the following resolution was passed. "That the College approves the central direction and co-ordination of the general policy of hospitals provided the composition of Regional Boards is satisfactory." The Consultants and specialists, in so far as they are represented by the three Royal Colleges, have, therefore, not approved of the resolution of the Consultants' Services Committee. The Council of the British Medical Association has expressed itself unequivocally in opposition. It is fair, therefore, to say that the majority of the profession through its representative institutions finds itself at variance with the Minister of Health on one of the principal features of the Bill shortly to be debated in the House of Commons.

Many of the grounds for misapprehension were expressed by several speakers in the informative debate opened last week in the House of Lords by the President of the Royal College of Physicians, Lord Moran. The timing of events made a full discussion impossible. As the Government spokesman in the debate observed, the proper occasion for the Government to submit their case was during the second reading debate on the Bill in the Commons, and subsequently when that stage was reached in the House of Lords. At the end of the debate Lord Listowel therefore asked Lord Moran to withdraw his resolution, "in view of the danger of precipitating a premature decision." The Lords, therefore, had to confine their remarks to statements in the White Paper and avoid reference to clauses in the Bill. Lord Moran probably timed his motion in the general anticipation that the second reading of the Bill would take place in the House of Commons before Easter. But this reading has been postponed until May. In spite of these limitations the Lords taking part found the opportunity to express opinion on the various aspects of the

hospital problem in a way which should be most helpful to those who have to carry on the debate in and out of Parliament.

Lord Moran moved to resolve "that this House, while regretting any measure which might impair the efficiency of the general practitioner service, welcomes proposals for the better co-ordination of the hospital services of the country." There could obviously be no dissentient voice to this unexceptionable proposition. Asking whether "a drastic reorganization" of the hospital system of the country was necessary, he concluded that the answer was to be found in the hospital surveys made by the Ministry of Health during the war. He pointed out that one-third of the 93,000 beds in the 1,059 voluntary hospitals in England and Wales were provided by hospitals having fewer than 100 beds. These hospitals, he believed, were too small to fulfil the functions of a first-class hospital, and in many of them major surgery was performed by men without surgical training, "and the duties of physicians are usurped by those who have not had the training of the physician." Of the 152,000 beds in municipal hospitals 78,000 were for general purposes—i.e., excluding infectious diseases, etc. Of the 78,000 beds 29,000 were in public assistance institutions—institutions which provided little but food and shelter. On top of this disturbing state of affairs were the difficult financial circumstances in which the voluntary hospitals were now placed. This meant that they would have to call upon the Government for a considerable sum of money for the hospitals, and with public expenditure on this scale some measure of public control would be necessary.

Lord Moran then asked the question, "Who is to exercise that control?" Was it to be the local authorities or the Minister working through the regions? He considered that "local authorities had behaved with great patriotism in accepting the proposals of the Minister in the White Paper, which must be very unpalatable to them." He went on to observe that professional discussion during the past few years had been dominated by the fear that hospitals would come under the control of local authorities. "It is because this White Paper," he continued, "appears to lift that menace from the profession that so many consultants and specialists are reconciled to the passing of the voluntary system." We should perhaps reiterate at this point the fact that the three Royal Colleges which represent the great majority of consultants and specialists in this country are not only not reconciled but are opposed to the passing of the voluntary system. After discussing briefly why the profession regarded local authority control as a menace Lord Moran stated that if hospitals are not to be controlled by local authorities they must be controlled by the Minister. "But when we proceed to ask the Minister who exercises this control—whether it implies the transfer of ownership of hospitals—an agreement ceases, and there is great difference of opinion in the profession on this particular point."

Pursuing the question of ownership, on which he made it plain he was speaking personally and not for his colleagues, Lord Moran said that if the change of ownership took place they would gain co-ordination of hospitals,

financial peace, progress unhampered by poverty, and freedom from the local authority "menace." "Further, the Minister of Health has refused to blunt the growing edge of medicine, for the teaching hospitals are left alone." Perhaps we should complete this observation by referring to the Minister's proposals to take over the ownership of the teaching hospitals and to appoint their governing boards and chairmen. To the question "What do we lose?" Lord Moran gives his own answer: "We lose the voluntary system." And to his next question: "Why has the name of the voluntary system gone over the world?" he gives the reply that the ablest men in the profession have chosen to work within the walls of voluntary institutions from which "almost every addition" to medical knowledge has come. Further extolling the virtues of the voluntary hospital, Lord Moran observed that it had a personality of its own which "stirs up around it a spirit of service." If they lost the local interest they would lose something of great value, not only to the hospital but to the community. The work of the voluntary hospitals had been the expression in peace of the altruism of war. Coming to the composition of the regional boards, he believed that their members should be hand-picked, and he hoped that information on this point would be forthcoming. He summed up many professional apprehensions in this observation: "I can only envy the Minister in his ready assurance, gained in the few hours he can take off from housing, that by turning a profession upside down he will necessarily provide a better service for the people."

The spirit of voluntary hospitals and the importance of local enthusiasm and loyalties were stressed by other speakers, and there was agreement with Lord Inman's view that waste should be eliminated and that financial obstacles should be removed: he did not see why voluntary support should not continue. Lord Donoughmore deplored the division of the hospitals into two systems, applauded the government of the voluntary hospital by the elected board working in harmony with a medical committee, and doubted whether the medical superintendent of a municipal hospital was a wise substitute for the medical committee. He made the interesting observation that one of the important municipalities in the Midlands has abolished the post of medical superintendent and established a medical committee in one of its hospitals. This, it seems to us, is a pointer to a reform of the municipal hospitals which would remove nine-tenths of the professional objection to them. Lord Donoughmore expressed his alarm at an advertisement in the *Hospital*, in which the Ministry of Health invited applications for posts as "nursing officers," the applicants being warned that they might have to live in any one of ten cities in England. Were these officers going to work under the regional boards or under the Ministry of Health independently of them? Lord Luke, agreeing that there must be some co-ordination of the health services, asked whether it was wise "completely to standardize when at the present moment we have variety." He thought that the voluntary hospitals might be dealt with in the same way as the voluntary schools. The White Paper proposals aimed at legislating out of our country local interest

and pride "for the sake of tidiness in a great scheme for the sake of very remote control." While they had heard much about the endowments which were to be taken over from the hospitals—the figure mentioned was £32,000,000—they had not heard so much about the value of the buildings, equipment, and land also to be transferred. The total value of what it was proposed to take over from the voluntary hospitals was in the nature of £250,000,000. Lord Luke felt that a Government Bill should be framed to encourage all that is best in the existing structure, and not to destroy everything and start from scratch "with a lot of disgruntled people." Lord Horder in a brief speech, thought that Lord Moran had somewhat expanded the wording of his motion, and contented himself with quoting the statements made by the King's Fund and the British Hospitals Association, and in the leading article published in the *Journal* of April 13 (p. 575).

In replying for the Government Lord Listowel said it would be a mistake for the Government to lay down in advance the exact constitution of the Regional Boards because their size and composition would vary according to the needs of the different areas. The boards would consist of people chosen for their individual suitability, not as delegates or representatives of different and possibly conflicting interests in the area. It was extremely unlikely that on any board any one element or interest would be in a position to obtain a clear majority by outnumbering the others. The letters in the *Times* suggesting a larger measure of independence for local management committees would be bound to command respect. For the future administration of the hospitals the Government would aim at securing the maximum amount of devolution and local independence within the regional framework. "Decentralization is itself the goal, and no more central control is wanted than an efficient and co-ordinated service necessitates." Both Regional Boards and Management Committees would have "unfettered financial freedom within the limits of their annual budget." There would be no Treasury interference in the detailed allocation of this. One of the main objects of the Bill was to provide a planned and co-ordinated hospital and specialist service, and this would be defeated if the new services were broken up into isolated and disconnected units.

As the above summary shows, the debate was centred mainly on the hospital service, but a number of speakers also made observations on the White Paper proposals for a general practitioner service. Lord Moran, for example, was satisfied that there was "fairly general disquiet among practitioners about the future." The principal reason for this was the dread that the proposals might lead to a whole-time service. He thought that the life of a general practitioner during recent years had lost something of its colour because he had seen treatment of serious disease pass into the hospitals and out of his hands. Lord Geddes said he felt strongly about the future scheme for general practice. He did not think that the "polyclinics . . . called health centres" would make for confidence between patient and doctor. He could well imagine a man or a woman being unwilling to go to such a centre because of the recording of some malady "on some bit of paper which would pass

through the hands of some not very responsible clerk." He observed that the secretarial service would be provided by the authority owning the centre. If there was something in the organization of the centre which would make the patient feel it was not safe to go to it, harm would be done. Was it not possible instead to provide diagnostic centres? He hoped that when the series of proposals had passed through the necessary stages before becoming the law of the land it would be found that "we are dealing with a medical service in this case, and not with a thing mis-called health service." Lord Piercy, on the contrary, thought that under the new conditions the life of the ordinary doctor would become more interesting and stimulating than it is now. The mass of the population at the moment had to choose between "very inferior doctoring and the out-patient departments of hospitals. The doctoring is inferior and perfunctory because it is under the panel system." He criticized what he called the present condition of private entrepreneurship. Lord Listowel considered there was misunderstanding about the powers of the proposed medical practices committee. This would have no power to direct a practitioner into a particular practice. The function of the committee was negative rather than positive. It would, in fact, be performing the functions of an appointments board or employment agency. It had power to refuse a doctor admittance to certain parts of the country, but there was the safeguard that a doctor whose application was refused had a right of appeal to the Minister.

Many useful facts and opinions came out of the Lords debate, in which slogans and gladiatorial displays were conspicuously avoided. But the temperature of debate is likely to rise in the Commons. Letters to this *Journal* show that medical men dislike the general tenour of the Bill, and constructive criticisms will no doubt emerge at the Special Representative Meeting next week.

PASTEURIZATION DEFERRED

The House of Lords continues to show a lively interest in health matters, and in a debate a fortnight ago brought to the fore the difficulties of providing the people of this country with a sufficiency of safe milk. In a maiden speech Lord Rothschild "rose to call the attention of His Majesty's Government to the urgent need for the compulsory pasteurization of milk in as many parts of the United Kingdom as is practicable"—a motion which Lord Ammon subsequently said the Government was prepared to accept. Lord Rothschild put the yearly number of deaths from drinking tuberculous milk at 1,600, and the number of casualties at between 7,000 and 8,000—casualties which required "months of hospital treatment and were a source of misery and anxiety to their families and great expense to the State." He referred also to other milk-borne infections, such as undulant fever, enteric fever, dysentery, food-poisoning, scarlet fever, and diphtheria. He discounted the objection that pasteurized milk has an unpleasant taste; and to the objection that pasteurization takes "the life" out of milk he remarked it was true that heat treatment did take the life out of the noxious bacteria so often

present in it, although he doubted whether those who put forward such statements meant them in this sense. The view that destroying noxious germs would prevent the population from acquiring a natural immunity to disease was one which he thought would not appeal to the mothers of children who have died from bovine tuberculosis. And he went on to ask why we did not drink water contaminated with the germs of enteric fever. Lord Rothschild proposed that compulsory pasteurization should be instituted in towns of more than 20,000 inhabitants.

Lord De La Warr, speaking from the agriculturist's point of view, said that it was for them, as producers, to supply the nation with the milk the medical profession said would be best for the national health. He drew attention to the position of the producer-retailers. There were about 50,000 of these in the country, and they handled about 20% of the milk supplied, mostly for small or urban communities or rural communities outside the range of the large distributor. If the Government tried to quicken the pace of cleaning up the milk supply delivered by this section of the trade the effect might be to drive these men out of business and so deprive the community of a large quantity of milk. He therefore considered that they should tackle the problem of cleaning up the herds and the farms of the producer-retailer, and, in their case, "provided that the milk is clean I can see no very great reason for pasteurization at all."

Lord Bledisloe, speaking with wide knowledge of the whole subject of milk, observed that the main advantage of improving the health of dairy cattle was to increase the yield of milk. The milk yield of a cow in this country was less than 500 gallons a year during the lactation period, as compared with 750 to 800 gallons in countries like Denmark, Finland, and Holland; and the consumption per head per day was less than that in most civilized European countries. Although 40% of the country's cattle reacted to the tuberculin test, they should, he said, at the same time remember that only one-half per cent. of dairy cattle yielded tuberculous milk. He agreed with Lord De La Warr that pasteurization was not an alternative to the improvement of animal health, but complementary to it. He thought that the opposition of some stock-owners to pasteurization would disappear if the Government would give a firm assurance that they would actively promote improvement in the health of dairy cattle as well as insist upon the pasteurization of milk so far as that was practicable. In view of the shortage of reliable pasteurization plant and of trained technical staff, he believed there was strong justification for "allowing the best milk produced on our British farms to be delivered raw to the consumer, at any rate for the present." Again, he observed that "the soundest practical measure would be compulsory pasteurization of all milk except that coming from tuberculosis-free herds and so far as practicable from herds free from contagious abortion." He also pleaded for the strengthening of the veterinary profession.

Lord Ammon said that of the annual consumption of liquid milk in England and Wales, amounting to about 1,075 million gallons, approximately 725 million were already heat treated. Of the 350 million gallons not heat-

treated about 190 millions were sold by producer-retailers, and the quantity of this up to T.T. standard was about 18 million gallons. A census carried out in 1943 in grant-aided schools and private schools participating in the milk-in-schools scheme showed that 67% of liquid milk supplied to 30,000 schools was heat-treated milk, 6.4% was T.T. milk, and the remainder accredited or non-designated raw milk. Lord Addison drew attention to the fact that the water supply to vast numbers of our farms was most inadequate, and that many of them had no electric supply. In some parts of the country it was not easy to find a farm with a well-equipped and properly constructed cowshed. They had an immense expenditure in front of them in effecting improvements in farm buildings.

In the *Journal* of March 9 we published a table showing the death rates from abdominal tuberculosis between 1921 and 1944 in children under 5 years of age in London, county boroughs, urban districts, and rural districts. For comparative purposes these deaths give the best indication of the prevalence of bovine disease. The figures, supplied by the Registrar-General, show that the death rates have continuously declined in each year. The figures showed that in 1944 the rate for London was only one-tenth of that in rural districts, and that, compared with 1921, the 1944 rate in London was one-twenty-third, and that of the rural districts one-quarter. In other words, the decline in London has been much steeper than that in rural districts. The actual numbers of deaths in 1944 were: London 1, county boroughs 32, urban districts 42, and rural districts 37. By 1938 we may observe that in London over 98% of the milk was pasteurized, and in county boroughs over 50%. It seems undeniable, therefore, that pasteurization of milk is an important factor in controlling the incidence of mortality from bovine tuberculosis, and that the protection of the interests of the small producer-retailers means a lack of protection for the health of those who consume the milk supplied by them. If at short notice under stress we can train technicians and produce equipment for killing other people with explosives, it seems anomalous that the production of pasteurization machinery and the training of technicians should seem to be such an insuperable obstacle in the way of pasteurizing all the milk consumed in this country until that time when we can be sure of drinking milk made safe by other methods.

COBRA VENOM FOR ANGINA PECTORIS

Sublingual nitroglycerin is now generally accepted as the best drug for the relief of angina pectoris, but in cases refractory to nitroglycerin the claims made for any other beneficial drug deserve consideration. Freedberg and Riseman,¹ for instance, find that cobra venom has a limited value in refractory cases, although it is less effective than nitroglycerin in patients who responded to both drugs. In three out of five who benefited from none of the usual remedies, including nitroglycerin, cobra venom diminished the frequency of the attacks and increased the exercise tolerance. In contrast to nitroglycerin, which causes coronary vasodilatation and relieves pain by relieving

ischaemia, cobra venom has an analgesic effect which masks the pain of myocardial ischaemia. The analgesic effect, with its permissive increase in exercise tolerance, may give a freedom which is bought too dearly at the cost of increased myocardial ischaemia. The high cost is shown well in an electrocardiogram of one patient in whom a standard amount of exercise caused a depression of the ST segment and anginal pain; when sublingual nitroglycerin was given the exercise caused no ST depression and no pain; after a course of injections of cobra venom the same amount of exercise produced the ST depression, but there was no pain.

Refractory angina may demand a desperate remedy, but this seems not just to black-out the warning light but to screw down the safety valve. Other serious objections to venom are its delayed action, the lack of maintenance of effect after a few weeks, and the suggestion from the data that the toxic dose may be only a little more than the therapeutic one.

PENICILLIN AND DIPHTHERIA

In view of the success of penicillin in the treatment of so many different infections, and of the statements sometimes made that the diphtheria bacillus is comparatively sensitive to penicillin *in vitro*, many doctors may have wondered whether penicillin might not be used with advantage for the treatment of clinical diphtheria as an adjunct to, or a substitute for, antitoxin. This possibility has recently been investigated by Ercoli, Lewis, and Moench.¹ They confirmed that the growth of the bacilli *in vitro* is inhibited by penicillin in concentrations of just over 1 unit per ml.: although this is 100 times more than is required to inhibit the growth of haemolytic streptococcus, the effective concentration is not unduly high. The lesions of diphtheria, as they occur in man, can be analysed into a small component due to actual multiplication of the bacteria in the body, and a large component due to the absorption of toxin. An experimental bacteriaemic infection can be produced by injecting the bacilli intraperitoneally in mice together with mucin, which handicaps the defence mechanisms of the host; this type of bacteriaemia due to diphtheria bacilli is readily prevented or cured by subcutaneous injections of penicillin or by the oral administration of sulphadiazine, while antitoxin has little effect on it. On the other hand, if diphtheria toxin is injected subcutaneously into rabbits or guinea-pigs, penicillin even in high doses has little or no action in preventing the typical lesions. When a small inoculum of bacilli is injected into guinea-pigs, the course of the infection resembles that in man—that is, there is only limited multiplication of the organisms but the animals die from the toxin produced. In this case penicillin has only negligible action. Arguing by analogy from these experiments, it may be concluded that, though penicillin might possibly be slightly beneficial in prophylaxis for exposed contacts (to prevent multiplication of bacteria), it would have no appreciable value for the treatment of patients with established diphtheria. For these cases, which constitute the vast majority of those which are encountered, nothing should delay the early and ample administration of antitoxin.

We regret to announce the death of Sir Harold Stile, emeritus professor of clinical surgery in the University of Edinburgh and consulting surgeon to the Royal Infirmary.

¹ *New Engl. J. Med.*, 1945, 233, 462.

¹ *J. Pharmacol.*, 1945, 84, 120.

APPARATUS AND ROUTINE FOR DIABETIC WARD-TESTS

BY

TREVOR C. BEARD, M.B., B.Chir.

Former R.M.O., Hertford County Hospital

Most authorities who believe that a high blood sugar (even in the absence of ketosis) is harmful to the diabetic ask for a multitude of tests, which, in a hospital devoid of "student-labour," are apt to encroach severely on the nurses' and house-physician's time. The following routine was adopted at this hospital from the method in use at St. Bartholomew's and has led to great economy of effort. The method of three-hourly tests is that advocated by Dr. George Graham, and the chart is a modification of his. I am indebted to him for his advice and permission to submit these details for publication.

Use of the Apparatus

The urine-testing room of each ward is provided with a waterbath which takes four numbered test-tube racks, the holes of which are stamped with the times of the urine tests. A 5-ml. automatic burette is also provided. This can be bought, if the need is anticipated, about twelve months in advance, but it can easily be made and calibrated in one hour from standard laboratory components and fixed to the reagent-cup-board by spring clips, or placed on a stand. In each ward the following notices are displayed

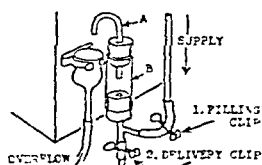


FIG. 1.—Tube B is a 2-inch (5-cm) length cut from a thick-walled test-tube; the spring clips attaching it to the cup-board are not drawn. The supply is by siphon from a winchester bottle on top of the cup-board. When Clip 1 is opened the reagent floods the apparatus and overflows into the thistle funnel, leaving an air-lock in the upper part of Tube B. When this clip is released and Clip 2 is opened the contents of Tube A, Tube B, and the vertical limb of the T-piece are delivered. The overflow is collected in a small bottle and returned to the winchester from time to time. By vertical adjustment of Tube A the size of the air-lock may be varied until the volume delivered is 5 ml.

time the specimen was taken; 5 ml. of Benedict's reagent should then be added from the automatic burette. When a specimen is unobtainable it is safest to remove the corresponding tube from the rack. At the appointed time see that the water boils actively for at least five minutes, then record the results on the patient's chart at once.

Unless specially requested, the 12 midnight and 3 a.m. specimens are not required, but (1) any specimen which may be passed should be tested; (2) two specimens should be tested before breakfast. To fulfil this requirement some patients have to be awakened at 3 a.m.)

Tests for Ketones.—Test every specimen for ketones until these instructions are modified by the house-physician. If Rothera's test is positive, use the ferric chloride test as well (provided the patient is not taking salicylates in any medicine). Record on the patient's chart either a dash (—) or the letter R if Rothera's is positive, or the letter F if both are positive. [Details of Rothera's and the ferric chloride tests are then given.]

If these instructions are followed, time is saved in several ways. All labels, for example, are dispensed with; the times on the rack-holes identify the test-tubes, and the number at the end of the rack identifies the patient. The time-consuming mistake of filling numerous test-tubes with unmeasured specimens is also avoided. The difficulty of distinguishing a tube containing only 8 drops (the right quantity) from one which is merely wet is dealt with by adding the Benedict's at the time of putting up the specimen.

The "appointed time" of boiling the waterbath is a matter of choice. By the second day after admission the information given by a mass test once in twenty-four hours is sufficient to balance most cases. Although the ideal time for this would be at the end of the diabetic day (7 a.m.) it is quite satisfactory if the boiling of all the specimens is delayed until the morning round. The dose for the evening and the following morning is then prescribed. If at any time a patient's condition changes unexpectedly, the "story so far" can always be obtained within ten to fifteen minutes by lighting the bath, and this need not interfere in any way with the rest of the tests.

Method of Recording

A chart is used which gives a graphic representation of the diabetic day, and which has proved itself in practice. Fig. 2 shows only one of the five days which are represented on each quarto-size chart. One might suppose that the asymmetrical change of date would be confusing in an essentially practical chart, but it has been found unexpectedly convenient, starting as it does at the time the day-staff comes on duty. All the (diabetic) prescribing is done on this chart. The carbohydrate

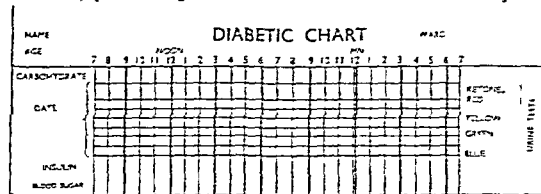


FIG 2

can be written in grammes or in Lawrence's "black lines" (tens of grammes), if these are used. If extra carbohydrate has to be given in the form of glucose, this can be graphed and seen in perspective, as it were, when prescribing for the next day. The carbohydrate line lends itself readily to the straightening of "peaks" of glycosuria, such as occur when changing from soluble to protamine-zinc-insulin. The main advantage of the chart as a whole is that every detail relevant to the case is presented on the same piece of paper in its proper time-interval. This not only is convenient to the physician but also helps the patient to understand what is happening. The patient sees his "sugar rising and falling," and the insulin on one side "pulling it down" and the carbohydrate on the other "pulling it up." Just above the highest line for glycosuria is the horizontal column for the topmost calamity—ketonuria. In this disease, in which self-knowledge is of the utmost value to the patient, the use of a graph saves many words of explanation.

In closing I must thank Dr. Geoffrey Evans of St. Bartholomew's Hospital for his encouragement at all times and in the construction of the devices when I was his house-physician; also Sister Harvey, Dr. Gregson Williams, Dr. Brian Stanley, Dr. E. M. Dimock, and the sisters at Hertford for their assistance and advice.

The waterbath can be obtained in stainless steel from Messrs. David Allan, of 119, Haggerston Road, London, E.2, and the charts are printed in an attractive "ledger-ruled" by Messrs. Simpson, Shand and Co., Hertford.

HOSPITAL APPOINTMENTS FOR DEMOBILIZED M.O.s

It has been brought to the notice of the B.M.A. that there has been some misunderstanding of the position concerning resident hospital appointments for demobilized medical officers who have not been approved for appointment to B1 posts in Class I or Class III of the Government's postgraduate training scheme. It is not the case that all B1 vacancies are reserved for candidates approved under the scheme and that other demobilized doctors have no opportunity of obtaining such posts. It is true that a hospital making an appointment outside the scheme cannot obtain a grant for the purpose of raising the normal salary of the post to the amount provided under the scheme when it is less than that amount. It is true also that a post supernumerary to the approved wartime establishment of a hospital cannot be created except for the benefit of a practitioner entitled to an appointment within the scheme. But there is no question of a ban on applications from other demobilized doctors for advertised vacancies.

TRAVELLING FELLOWSHIPS IN MEDICINE

The Medical Research Council invites applications for the following Travelling Fellowships for the academic year 1946-7.

Rockefeller Medical Fellowships

These Fellowships are provided from a fund with which the Council has been entrusted by the Rockefeller Foundation of New York. They are intended for graduates resident in this country who have had some training in research work in clinical medicine or surgery, or in some other branch of medical science, and who are likely to profit by a period of work at a centre in the United States or elsewhere abroad, before taking up positions for higher teaching or research in the United Kingdom. The stipend will ordinarily be at the rate of £450 per annum for a single Fellow and of £650 per annum for a married Fellow. Travelling expenses and some other allowances will be paid in addition.

Research Fellowships in Tuberculosis

Dorothy Temple Cross research Fellowships in tuberculosis are awarded by the Medical Research Council from a special endowment of which its members are the trustees. The object of the Fellowships, as defined in the Trust Deed, is to give special opportunities for study or research to suitably qualified British subjects of either sex "intending to devote themselves to the advancement by teaching or research of curative or preventive treatment of tuberculosis in all or any of its forms." The Fellowships will, as a rule, be awarded to candidates who wish to make their studies or inquiries elsewhere than in the United Kingdom. They will ordinarily be awarded for one academic year. The Fellowships provide for the payment of stipend, together with an allowance for travelling and incidental expenses. The stipend will ordinarily be at the rate of £450 per annum for a single Fellow, and of £650 per annum for a married Fellow.

Completed applications for Fellowships of either type must be lodged with the Council not later than June 1, 1946. Further particulars and forms of application are obtainable from the Secretary, Medical Research Council, 38, Old Queen Street, Westminster, S.W.1.

Nova et Vetera

A COMMEMORATION AT BART'S

400TH ANNIVERSARY OF THE SECOND FOUNDATION

St. Bartholomew's Hospital has now been in existence for 823 years. It was founded by Rahere in the reign of King Henry I in 1123. It passed through a very severe and almost fatal crisis in the sixteenth century. About the year 1539 King Henry VIII took unto himself lands, rents, and perquisites longed to the hospital because of its connexion with the glory of St. Bartholomew the Great. Without going into detail, such was the parlous condition of the hospital's finances that in 1546 the Mayor, Commonalty, and citizens of London petitioned His Majesty for the restoration of the rights, privileges, and revenues of the said hospital, and on Dec. 27, 1546, Henry VIII granted the petition by "letters patent," thereby restoring the income of the institution and placing the governance of the hospital in the hands of the City Corporation. Henry was at that time a very sick man, and he died one month later.

This year, 1946, is also the anniversary of several other points in the history of St. Bartholomew's Hospital. It is the 150th anniversary of the formation of the Abernethian Society, which has commemorated that great surgeon of the hospital in this manner. It is the centenary of the introduction of chloroform for use as an anaesthetic in the hospital. It is the jubilee of the first use of x rays in diagnosis.

It has been decided to commemorate the second foundation of the hospital 400 years ago on Wednesday, May 8, which date is also the first anniversary of victory in Europe—VE-Day. The old Priory Church of St. Bartholomew the Great is to be used as a setting for some episodes in the history of the hospital and for a commemoration service. A procession will leave the hospital at 11.35 a.m. and will be met at the gateway of the church by a procession of clergy. All attending will be in their seats by 11.45, soon after which the King and Queen will arrive to honour the commemoration with their presence.

Mr. W. McAdam Eccles, senior consulting surgeon to the hospital, has taken an active part in the arrangements for the commemoration, which include a reception in the hospital square and an address on the history of Bart's in the afternoon. It is also hoped that there will be a historical exhibition from 10 a.m. to 5 p.m. on Tuesday, Wednesday, and Thursday of that week. Any inquiries should be addressed to the hon. secretary of the Commemoration, St. Bartholomew's Hospital, London, E.C.1.

Correspondence

The Health Service Bill

SIR,—May I plead, even now, that every member of the profession should take the trouble to read the unabridged Bill itself before undertaking to approve or criticize it? We are supposed to be a learned profession, yet how many of us behaved like educated beings and made the effort to read the Bill and digest it before discussing it? Your correspondent Dr. A. A. Vickers (April 13, p. 584) is generous to assume that speakers who uttered misleading statements had "misread" the Bill; more probably they had not even seen it. At a recent meeting of all practitioners in this district it was indeed "nauseating" (to quote Dr. Vickers) to observe how ill informed several speakers were. Some had not even read the over-optimistic "Summary"; others had swallowed the whole thing—"hook, line, and sinker." (Because it called itself a "Bill for a National Health Service" therefore it must be good.)

I am sure, myself, that if every doctor reads this Bill complete, he will realize with growing understanding just what it is that it sets out to achieve: not to achieve an improved medical service (the B.M.A. has been pressing this for years unheeded); but to ensure total control of both doctors and hospitals. Every "doctor" worthy of the term wishes to improve the services rendered to his patients, but this Bill does not even pretend to do so. It is nationalization from first to last, and what is to happen when once this is achieved is nobody's business.

Finally, here are two practical suggestions. First, let the B.M.A. at once produce an *accurate* summary of the Bill, designed to show how much of it is concerned with improvement of service and how much with control or finance. Secondly, let every member of the profession obtain for himself a copy of the Bill and make it his business to master its contents. He will then be able to discuss it intelligently.—I am, etc.,

Dartford.

G. F. TRIPP.

SIR,—If we are to have much hope of improving the National Health Service Bill the pressure must come eventually from the people and not from the doctors. So far the B.M.A. has failed to impress public opinion, largely because the Council has, quite rightly, been engaged mainly in discovering how far the various provisions in the Bill agree with or differ from the broad Principles laid down. In practice I find that the implications of these Principles are not understood by many doctors, while to the general public they are *unintelligible*. Emphasis on them merely serves to convince the public that this is, as many papers try to suggest, just a quarrel between the doctors and the Government and that it does not affect the public intimately. I believe that if our influence is to have much effect we must go below the broad Principles to the *fundamental* issues underlying the Bill, and there, I think, we shall find material enough to interest and even excite many who are at present apathetic.

May I say at once that I write as one whose ideal has been that British medicine should be the best in the world, that it should be as fully available as possible to everyone, and that it should be available without fear of doctors' bills. Yet I find myself utterly opposed to the present Bill for its methods and not its aims. What follows inevitably over-simplifies matters, but I believe that basically the statements are correct, and I hope that at the Special Representative Meeting on May 1 and 2 many of them will be discussed and clarified.

First of all, with the ostensible aim of abolishing doctors' bills, I find that the Bill contravenes nearly every principle for which trade unions have fought for the past half-century: (1) Freely negotiated settlements. (2) Good and acceptable

conditions for workers. (3) Removal of economic pressure. (4) Removal of the threat of Government pressure (cf. the repeal of the Trade Disputes Act). (5) Liberty of the worker to choose his job, to offer his service to whom he will, to choose his place of residence, and to benefit from the results of his labour.

This country has just fought a war to vindicate the rule of law instead of the rule of force in international affairs, yet this Bill is founded on the use of force and its twin brother confiscation. The forcible taking over by the Minister of all hospitals and their endowments is an act of confiscation only to be paralleled in British history by the Dissolution of the Monasteries, and without any of the justification there may have been for that measure. That the professed aim is to improve the hospital services should not blind us to this fact of confiscation, and the further fact that it would form a precedent for the sequestration by the Government of any and every private benefaction, even the National Trust itself. Only the willing consent of all the governing bodies could make such an act lawful (I do not say legal), and this emphasizes that the future service must, in fact, be established voluntarily and not by the use of Government force.

My next trouble is that the Bill plainly aims to establish a State monopoly for medicine in spite of a few fair words about private practice, for it creates conditions in which such practice cannot do anything but languish. Now a monopoly of medicine is the worst of all State monopolies, except perhaps of religion, for it affects the whole man—body, mind, and largely spirit too—while other monopolies affect but one aspect of his physical or intellectual life. Such a monopoly we and the public must resist to the utmost.

The main urge for a national medical service seems to derive from Assumption B of the Beveridge report, which stressed, among other things, the necessity for improved control of certification. The Bill makes only one small reference to certification (Clause 33 (2) (d)), for all the rules are to be laid down by regulations of the Minister. As sickness absence is now about twice the pre-war level, mostly, I believe, justifiable, and the Social Security Bill allows for only a 20% increase, it does not need much imagination to visualize what sort of regulations these will have to be to close the 80% gap. The welcome return of some millions of healthy workers will, of course, tend to diminish this figure, but the effects of war strain and the re-employment of married women may largely offset this advantage.

That these fears are not groundless is shown by the following fact. In a Bill marked by extraordinary vagueness in nearly every part there is one clause which is full and explicit in every detail—that concerning the prohibition of the sale of practices. The whole clause is worthy of serious study, but I quote one passage only: "... proceedings for an offence under this section may be brought either within one year from the date of the commission of the alleged offence or within three months from the date on which evidence sufficient in the opinion of the Minister to justify a prosecution for the offence comes to his knowledge, and for the purposes of this subsection a certificate purported to be signed by the Minister as to the date on which such evidence as aforesaid came to his knowledge shall be conclusive knowledge thereof." Note the last few words; there is no security for the individual except the long process of the law, but the statement of the executive may not be checked or questioned. This is a sample of the regulations that may be expected from the Minister, which, indeed, many of us would expect from this Minister, and if the doctors and the public accept the Bill in its present form we have said good-bye to the freedom of the profession and the liberty of the subject. I believe that all the purported aims of this Bill could be obtained much better by co-operation than by compulsion and at less cost, and we must always remember that the exercise of ordered freedom is an essential part of health, of communities as well as individuals.—I am, etc.,

Winsford, Cheshire.

W. N. LEAK.

SIR,—The B.M.A. statement on the National Health Service Bill, Dr. Hill's recent speeches, and much of the correspondence on the same subject oppose the Bill mainly on the grounds that it introduces a salaried State service. I have just spent six years in the R.A.M.C., which is a salaried State service,

and while like most officers I found much to criticize, there was also much that was good, in particular the absence of the monetary relationship with patients, which gave a feeling of freedom in treatment never experienced in general practice before the war. It seems to me that the objections advanced against a salaried service have not as much weight as is commonly attributed to them. There appear to be four main ones, to all of which counter-arguments can be offered.

(1) Loss of incentive.—Pursued to its logical conclusion this argument means that the private patient receives more attention than the panel patient, a suggestion which is always vehemently repudiated. Does not a general practitioner increase his income just as often by buying an extra share as by increasing the number of his patients? Is it not true that usually our work occupies our time so completely that any substantial increase is impossible? Loss of incentive is not a necessary accompaniment of all salaried services. Why should it be so in medicine?

(2) Loss of patient-doctor relationship.—(a) Choice of doctor; is not this a limited privilege even at present? And how often is the choice exercised by change of doctor? Need a salaried service, then, exclude all choice of doctor? (b) Certification; the objection that this would be exercised in the interest of the State and not of the patient is a slur on our professional integrity which is unwarranted. Even in the Army, where the primary object is admittedly the efficiency of the service, it is still possible for a medical officer to look after the interests of his men and be trusted by them. Furthermore, would not this objection with regard to certification apply equally in a service remunerated by capitation fee?

(3) Loss of professional freedom and responsibility.—On my Army experience again I would say that this does not necessarily follow; I certainly never found it so.

(4) Direction.—The proposals in the Bill for distribution of practices are complicated and unpleasant. Direction exists, of course, at present based on demand and supply. Could not this be continued by advertisement in the journals of vacancies as they occur in the various areas, application being made to local medical committees, who would then fill the appointments? Similar provisions could be made for assistants.

For my part, then, I feel that opposition to a National Health Service should not be based mainly on the grounds that it introduces—immediately or remotely—a salaried State service. In fact I would suggest that it is opposition on these lines which has led to the much more unsatisfactory proposal in the present Bill for the payment of general practitioners. There are, however, many other points in the Bill, apart from those related to this question of salary, which would detract from the efficiency of the service whether salaried or not, and which must be strongly opposed. They have already been indicated in the B.M.A. circular and in the journals; the most important are: organization and administration as three separate services; local government (clinic, domiciliary, and welfare) services; family practitioner service: health centres, status of assistants, distribution of practices. I suggest that action to amend these points is much more important, will command greater support, and be more likely to be successful than opposition based on objection to a salaried service.—I am, etc.,

Neston, Cheshire.

K. COBBAN.

SIR,—One of the dangers of the National Health Service Bill is that it may lead to the complete split of the general practitioners into two groups: those employed by the State and those employed privately. Admittedly the Bill states that private practice will be permitted for those joining the service, but a principle is involved here which has received far too little attention. Many doctors think that because they do private and panel practice now, it will be equally reasonable for them to do private and State practice in the future. They forget that panel practice is limited to those under a certain income; and that doctors who agree to do panel work should attend those patients who are entitled to the panel in the scheme and not outside it. In the new Government service there will be no income limits, and therefore if doctors choose to join it they should attend their patients under the terms of the service and not follow the bad principle of attending them outside it for a private fee.

From a political point of view it may be desirable to create a new type of general practitioner—i.e., one who is paid by

the State and is under its control, and from whom anyone could obtain free treatment. From a medical point of view it is an unwise step to take at present, for it will lead to a relative shortage of doctors, since the majority of them now do both panel and private practice.—I am, etc.,

London, W 8.

H. STEPHEN PASMORE.

SIR,—The report (April 6, p. 535) of the excellent address by Dr. Guy Dain to the meeting of Bournemouth practitioners contained a misprint, or else Dr. Dain made a most serious error. He referred to a population of over 40,000,000. In the National Insurance Bill, 1946 (Report by the Government Actuary on the Financial Provisions of the Bill, page II, Table V), the population is given as 48,200,000. The importance of this figure is, of course, in connexion with remuneration. The estimated remuneration for the G.P.s, chemists, dentists, and supplementary eye services is £45 million (National Health Service Bill, page III)—that is, 18s. 8d. per head per annum, or 4.3d. per person per week for the four services.

What proportion of this will the general practitioner get? Would one be far wrong in saying that it will be £30 million for the doctors and chemists (as proposed in the Coalition White Paper of February, 1944) and £15 million for the dentists and ophthalmic services? Dividing the £30 million in the proportion now obtaining in the present N.H.I. scheme would give £23½ million to the general practitioners and £6½ million to the chemists. The sum of £23½ million represents for 48,200,000 people a capitation fee of 9s. 9d. per annum or 2½d. per week, by whatever method it may be paid. As a comparison I would take the National Insurance Bill, 1946 (p. 7), where the cost of administration is given for employed men and women as 5.0d. per week, whereas the general practitioner is offered less than half this amount and out of that has to pay all his expenses—surgery, equipment, clerical, postages, telephones, motor-car, and locumtenent during holidays and illnesses. May I also point out that the service contemplated in the Bill is a 24-hour-a-day service, 7 days a week, 365 days a year.

By all means let us fight for Principles, but let us not forget that we cannot live on Principles, and that it is high time that the report of the Spens Committee was forthcoming, with the Ministry of Health pronouncement on that report, so that we know exactly where we stand.

May I emphasize what Dr. Nigel Cridland said in his letter (p. 541) and recommend that every member of the profession should read the Bill itself and not the highly glossed and polished summary—I am, etc.,

RhyJ

J. G. MACQUEEN.

SIR,—I attended the meeting in Wimbledon and heard Dr. Hill's magnificent exposition of the Bill; but while I am 100% opposed to it, as thousands of other doctors are, I feel we, as a profession, are being destructive and not constructive. Some reconstruction is necessary, but what proposals have you put forward by our profession as a whole? As I pointed out in a previous letter, once the Bill such as now drafted comes into force the doctor—whether G.P. or specialist—becomes nothing more than a puppet of the State and his individuality and his personality are gone for ever.

The public do not want the Bill, the doctors do not want it, because both parties realize that "mass production" in medicine does not benefit the patient. If one associates outside one's own sphere to any extent the cries of the panel patient are heard long and loud in the wilderness, that because they are "panel patients" they don't get "good attention." How can they, when a G.P. can have a panel of 2,500 with a grandiose remuneration of 7s. 6d. (more now, granted) *per caput per annum*? Yet the proposed Bill makes the 40,000,000 inhabitants of Britain "panel patients."

Certain reforms are necessary, the main ones being the hospitals. One has merely to look at the "palaver" that is necessary to get a patient into hospital. A G.P., perhaps of 20 years' or more experience, wants to get a case of strangulated hernia admitted. He has to ring up the house-surgeon, who invariably is a young man just qualified, who questions the diagnosis, asks the pulse rate, and inquires if the patient is vomiting. After securing this information he goes away "to see if there is a bed," and it remains to his whim either to admit or to refuse admission to the patient. Such a state of things should not

prevail. A doctor with experience should not be cross-questioned on such details. He would not seek to get the patient admitted unless he considered it a hospital case. Let the State control the hospitals. The voluntary hospitals seem always in debt, and there exists little or no free hospital treatment to-day, because when a patient is admitted to a public ward an almoner appears and seeks to know the unfortunate patient's income, his outgoings and so on, and how much he can pay. Surely if a panel patient gets free treatment when at home he should get specialist treatment free in hospital.

I should like to put forward suggestions for modification of the Bill: (1) Hospitals to be taken over by the State and free treatment given to persons who avail themselves of the State service. (2) The panel system to be extended to persons with a salary not exceeding £750, with full liberty to "contract out" of the system if so desired on a basis of the "own arrangements scheme" at present prevailing. Persons with incomes over £750 to be permitted, if they so desire, to join the service. (3) The panel to be limited to 1,000 persons with a decent capitation fee—say, 15s. or £1 *per caput*. (4) Doctors to be free to join or resign from the State service. (5) Doctors to be permitted to do part-time State service and carry on their private practices independently. (6) Free sale and purchase of practices (private) to continue. (7) Where no central clinic is available doctors to get extra payment for the use of their surgery, etc., when compelled to see patients in their own houses. (8) Midwifery to be done by any practitioner and remunerated by the State.

The above are not meant to be comprehensive but a basis for a plan or scheme to be amplified and submitted to the Minister. We do not, as Dr. Hill says, want to talk about "striking," but this is the time in the history of our profession when, more than ever, unity is strength, and if our disunited profession will stand together in this hour of crisis—as Britain did in 1941—we can become victorious, knowing we are acting in the best interests of our profession and of the patients who rely on us to give our best to them.—I am, etc.,

CHARLES J. DE VERE SHORTT,
Barrister at Law.

London, E C

SIR,—As I left the meeting of my Branch, which had just approved by an overwhelming majority the Council's report, I overheard one member say to another: "The trouble with us is we can't trust each other." Cynical, perhaps, but how devastatingly true!

At this the most critical time in the long history of our profession we do not trust each other. The average man does not whole-heartedly trust the Negotiating Committee or the Council and the Representative Body of the B.M.A., though he is largely responsible for the constitution of these bodies. He thinks along these lines: "They let us down last time; they will let us down again. They will compromise and appease and in the end they will accept this Bill substantially as it stands. They have never got the better of any negotiations with any Minister of Health."

Surely the time has come to face the reality of the situation while there is yet time. Let us nail our colours to the mast: let us say, "We will not work this Act." Let us convince ourselves that we will fight. We shall then achieve that unity without which we must inevitably suffer defeat.—I am, etc.,

W. B. A. LEWIS,
President of the
Shropshire and Mid-Wales Branch, B.M.A.

SIR,—The following points in the Health Bill require serious consideration, and efforts should be made to have them modified.

Clause 18.—Blood for transfusion and any other substance or preparation not readily available in an emergency may be made available to general medical practitioners who require them in cases of emergency, "on such terms, including terms as to the payment of charges, as the Minister thinks fit." Surely to make a charge for anything (let alone blood for transfusion) for emergency and consequently life-saving treatment is not in the best interests of efficient medical treatment. These supplies are free to hospital and specialist services but must be paid for by the general practitioner.

Section 28.—(1) "A local authority shall make arrangements . . . for the care of persons suffering from illness. . . . (2) "

local health authority may, with approval of Minister, recover . . . charges from persons availing themselves of the services." We have here the position of, say, a husband developing pneumonia and being removed to hospital for treatment. A few days later his wife contracts the disease, but because there are no beds available in hospital she has to be treated at home. Circumstances require the local authority to help. Both recover, and if the man can afford it he has to pay for his wife's case at home; he was treated free in hospital. In other words, he has to pay for the fact that sufficient beds were not provided in hospital. The Minister evidently expects much remuneration from this section; otherwise it would not have been included. I suggest that para. (2) should be omitted from the Bill.

Section 42.—Reading the Bill, the only people from whom inefficiency is expected are those outside the hospital and specialist section, for only in respect of them is provision made for inquiry into their work and removal from the service. A tribunal of three persons is appointed which must inquire into complaints received from an Executive Council, and may inquire into complaints made by *any other person*. The offending doctor can be heard by the tribunal, and can appeal to the Minister and be heard by his representative. No provision is yet made for the accused: (1) to bring witnesses; (2) to question his accusers; (3) to be legally represented. Apparently there is no appeal from the decision of the Minister's representative. There is no appeal to the courts. The specialist services are in a much more favourable position, because no provision is made for inquiring into their work or dealing with complaints thereon from either official bodies or any other persons. As the Minister is to own the hospitals, he is certainly not going to provide for criticisms to be voiced.

Section 13.—The Regional Hospital Board and Boards of Governors, which control the specialist branch, although servants of the Crown, are expressly stated to be able to sue and be sued at law: "Shall be liable in respect of any liabilities incurred (including liability in tort)"—that is, wrongs against the person. This means that the specialist can sue these bodies for wrongful dismissal, breach of contract, and can question any of their decisions which cause him professional damage, and this can be done in the law courts with subsequent reinstatement and damages if the case goes in his favour. It is surely not too much to ask that these ordinary privileges of a British citizen should not be denied to general practitioners working the scheme.

The patient pays for the services but seems to have no say in what he wants; he is made to fit into the scheme. During the past week a notice was placed in my surgery stating that it was proposed in the new Bill that consultations should take place in a health centre. Patients were asked to express their opinion on this clause. Two books were provided: (a) for those who wished to attend a health centre; (b) for those who wish to continue as at present. The result is interesting: 136 wish to continue as at present and one wished to attend a health centre.

Regarding patients who remain outside the scheme of general medical services, are they to be permitted to take advantage of the "free" hospital-specialist services? The Minister has conceded one side of the arrangement, for he permits specialists to take private patients and treat them in hospital. A definite ruling on this point should be included in the Bill, for by denying them the hospital scheme indirect pressure could be exerted to force patients into the complete scheme. Patients remaining outside the scheme should be eligible for monetary benefits under the National Insurance Bill, and the certificates of their doctors, whether in the scheme or not, should be accepted for the purpose of securing this benefit.

Once the Bill is passed there will be very little hope of having any clauses altered; therefore arrangements should be made to try to modify or delete those which are undesirable.—I am, etc.,

Weybridge.

H. GORDON.

premiums, can be achieved with advantage to all interests. With reference to (1), civil law, the G.M.C., and professional and public opinion are safeguards proved adequate by time. With reference to (2), if we continue to give medical help to all who need it and at the same time refuse to give any form of certificate, the present proposals, together with the present contractual relations between doctors and insurance committees, would cease to prejudice the interests of patients, and details of a workable scheme could be arranged.

It is quite fallacious to think that the State would pay and should therefore have control. The State does not pay; the patient would and should pay. The State merely provides collecting and distributing services (for payment) as a matter of convenience; it has no title to domestic control of a purely personal and intimate relationship.—I am, etc.,

London, W C 1.

T. J. TAUNTON.

Postgraduate Medical Training

SIR.—On reading the description (April 13, p. 581) of the new British Postgraduate Medical Federation I am astounded to find that only a part of one sentence refers to the needs of general practitioners, while several hundred words are concerned with the training of specialists. In the statement of general policy to be followed, the teaching of specialists and specialist methods come first and second, respectively, while courses for general practitioners are only third on the list.

Why do we have all this emphasis on "new specialist institutes" and "special hospitals"? It is not difficult for the embryo consultant to get his postgraduate education. There are a number of posts in various hospitals which cater for him already. The man who needs all the help is the family doctor. As Osler said, "He still does the work; the consultants do the talking and writing, and take the fees." It is very hard not to get rusty in a busy general practice. Surely the primary aim of postgraduate training is to improve the professional standard of the ordinary doctor; to enable him to make use of all the recent advances in medicine and surgery; to bring to his notice those points which may have escaped him, busy in the routine of his practice.

After all, the great bulk of the medical work in this country is done by the general practitioner. This obvious fact seems to have been forgotten by those who drew up the policies of the new federation, whose organization makes it sound like a school for specialists. Education of the family doctor should be priority No. 1 on the list and not an afterthought. I wonder how many of those concerned with postgraduate teaching under this scheme will have knowledge or experience of the problems peculiar to general practice?

The other point which surprised me was the failure to mention the Fellowship of Medicine, which has been organizing postgraduate courses in London for a quarter of a century. This body has acquired a great deal of experience in dealing with the needs of doctors from all over the world. Among those who have conducted teaching under its auspices are several not without renown in the profession. It has always been able to give a great amount of information and advice on matters concerning postgraduate study in London to those who wished to know, and seemed superior to the British Postgraduate Medical School in this respect. Is all this fund of experience and knowledge to be ignored by the new federation? Let us hope that pride and jealousy will not prevent co-operation between the new and the old, for the benefit of the profession.

Finally, let us pray that the atmosphere of graduate teaching will not become too rarefied under the new order. Teaching of the specialties by the specialists for the specialists is all very well in its way, but what the country needs is better family doctors. The emphasis must be put in the right place.—I am, etc.,

Worthing.

TREVOR H. HOWELL.

Rapid Replenishment of the Circulation

SIR.—Anaesthetists, surgeons, and nursing staff have every reason to regard with misgivings the hospital's "no-man's-land"; that metaphorical entanglement with its icy blasts in winter, its lifts that are not always in working order, and, above all, its echoing void of almost everything that the patient—

SIR.—I would like to offer, for the consideration of my colleagues, two propositions: (1) There is no need for any interference by any person or body between doctor and patient. (2) If we refuse to enter into any form of contract except with the patient then a health service for all, paid by insurance

sometimes a patient hovering between life and death—may suddenly require. I refer to that variable space (variable with the intelligence exercised by those responsible for hospital construction) between the operating table and the patient's bed.

A woman of 50 had undergone the formidable operation of combined total cystectomy and total hysterectomy, for a growth of the urinary bladder invading the uterus. She left the operating theatre in good condition; nevertheless I had taken the precaution of placing a sternal marrow trocar and cannula in position in order that plasma might be administered by this route as soon as she had returned to the ward. In this particular case every convenient vein had been utilized for oft-repeated blood transfusions, rendered necessary because of haematuria. Suddenly, in the "no-man's-land" to which I have referred, she collapsed. Respirations had ceased except for an intermittent gasp, and the pulse at the wrist was imperceptible. Hastily summoned from the theatre and fearing that the suddenness of the untoward symptoms bespoke of cardiac arrest, I was contemplating pricking the ventricle when the anaesthetist, who had been summoned from the anaesthetic room, pronounced that he could detect a flicker in the carotid pulse. A courier dispatched to the ward for the plasma had not returned. A courier dispatched to the theatre for saline solution and apparatus was no doubt collecting the units. By a stroke of good fortune the highly efficient theatre sister (who was not on duty) appeared, and was able to produce from a stock-cupboard a bottle of saline and, thirty seconds later, a 20-ml. Record syringe and an enamel bowl. Using the syringe, I injected the saline solution into the bone marrow, and in under a minute my house-surgeon was alternating with me in the procedure with a second syringe he had fetched. In this manner we injected 1½ pints (700 ml.) in under three minutes with remarkable benefit, that happily proved to be the turning point in her recovery.

In surgical, and no doubt in gynaecological and obstetrical practice as well, there are crises where to be of value a pint or more of fluid must be put into the circulation in a matter of minutes. On such occasions, in my submission, injection of the fluid by means of a Record syringe or syringes into the bone marrow is a method that has yet to be bettered. By means of a sternal-puncture trocar and cannula the bone marrow can be entered with a swiftness and certainty that bedwarfs—nay, bepygmies—cannulization of a radicle of the venous system. I make this statement after a very full experience culled from years of special interest in the subject, and after watching assistants trained in many surgical centres of the Empire and the U.S.A. attempting to enter a vein of a collapsed patient.

To disarm those who may suggest that I have omitted the corpora cavernosa as a ready receptor, I would say that, for reasons that are fairly obvious, considerably more than 50% of those who need ultra-urgent fluid replacement are women, and that advocates of this route are agreed that it should not be used for electrolytic solutions. There is no contraindication to injecting isotonic solution into the bone marrow.—I am, etc.,

London, W 1

HAMILTON BAILEY.

"Congenital Malaria"

SIR,—Dr. I. G. Cameron (April 6, p. 544) questions the findings of Eckstein and Nixon¹ on the grounds that positive films were only obtained three weeks after birth. He does not note that, in these infants, the spleens were already two or three fingerbreadths below the costal margin.

During three years' work in Turkey, much of which was devoted to malaria surveys, I was able to satisfy myself that in infants a splenic enlargement of two or three fingerbreadths (due solely to malaria) indicated an infection of at least two months' duration.

Regarding Dr. Cameron's suggestion that the occurrence of true congenital malaria can only be finally confirmed by demonstrating the parasite immediately after birth, van Nitsen² records six children either born dead, or dying soon after birth, whose spleens contained malarial schizonts. In addition, Jones and Brown³ and Tanner and Hewlett⁴ recorded undoubted cases of congenital transmission in infants born in London.—I am, etc.,

British Postgraduate Medical School,
London, W.12.

R. F. JARRETT.

SIR,—I noted with great interest the "masterly touch" with which "Student No. 2" (April 13, p. 586) advanced his arguments on the problem of "congenital malaria" as presented by Profs. A. Eckstein and W. C. W. Nixon (March 23, p. 432). I do agree whole-heartedly with the plea put forward by him for a scientific investigation of the subject. The prospects of using the cephalin flocculation test as an aid in such an investigation do not seem to me to be very bright. In studying with Prof. E. W. Dennis the mechanism of the cephalin test (unpublished work), we found that this test is positive on cord blood obtained from 20 hospital cases, where the pregnancy, to the best of our knowledge, had been normal. The results were as follows:

Distribution of Cephalin Flocculation Reactions in 20 Specimens of Cord Blood from Normal Pregnancies

0	+	++	+++	++++
—	2	4	14	—

Why is it positive then? At what age does it become negative? Such questions can be answered only in the course of future research. The examination of blood films as a routine on newborn infants and their respective mothers does not seem to solve the problem, for a negative smear does not exclude the possibility of malarial infection. In the last laboratory meeting of the Royal Society of Tropical Medicine held in Liverpool on March 21 I had demonstrated an intradermal test in malaria (I.D.) prepared from chicken erythrocytes infected with *Plasmodium gallinaceum*. A control antigen was also prepared from normal chicken erythrocytes. Both antigens were tried on malarial as well as normal individuals. This antigen seems to possess a high degree of specificity. The mechanism of the test seems to be akin to that of the tuberculin test (O.T.) in tuberculosis. Detailed results will appear in the coming number of the *Journal of Tropical Medicine and Hygiene*.

This test, I believe, could be used to great advantage in indicating whether the tissues of the newborn are sensitized to this malarial antigen through a previous infection *in utero*. At the same time it could be used on pregnant women to distinguish malarial from non-malarial mothers, and on school-children as an index of malaria endemicity of the region to be selected for this investigation.—I am, etc.,

London, W.6.

J. G. MAKARI.

SIR,—I would be the last to assert that anything is "impossible," but I would like to say that I am in entire agreement with Dr. A. B. Raper and "Student No. 2" (April 13, p. 586). In malaria the incubation period, from the moment of the infected "bite" to the first appearance of symptoms, virtually connotes the multiplication of successive generations of parasites until they are sufficiently numerous to evoke a noticeable reaction in the tissues of the patient. May I suggest that in an infant a few days old this period is reached relatively early, depending largely upon the body weight as compared with that of an adult. I am afraid I should require much more convincing evidence than that produced by Profs. A. Eckstein and W. C. W. Nixon before I could be persuaded to believe in the antenatal transmission of malaria to an unborn child.—I am, etc.,

Brookwood, Surrey.

H. M. STANLEY TURNER.

Resistant Anaemia

SIR,—With reference to the article on resistant anaemia by Drs. A. H. Douthwaite and R. L. Waterfield (April 6, p. 519) I would like to make the following points.

In the first place, I am somewhat perplexed by the use of the word "resistant" as a classification of the anaemias. Does it mean resistant to diagnosis or resistant to wrong therapy? I personally feel that the term "resistant anaemia" (or more accurately "resistant cell anaemia") should be confined to those anaemias in which a proportion of the cells are unnaturally resistant to hypotonic salines, such as Mediterranean anaemia, sickle-cell anaemia, Cooley's anaemia, etc.—in fact, those anaemias which show exactly the opposite characteristics to acholuric jaundice when treated with varying dilutions of saline.

¹ Eckstein, A., and Nixon, W. C. W., *British Medical Journal*, 1946, 1, 432.

² Van Nitsen, *Ann. Soc. Belg. Mtd. trop.*, 1932, 12, 249.

³ Jones, J. L., and Brown, H. C., *Lancet*, 1924, 1, 1053.

⁴ Tanner, N. C., and Hewlett, P. F. L., *ibid.*, 1935, 2, 369.

In the second place I do not agree that chronic ulceration of the legs or the history of such ulcerations in association with anaemia is always due to acholuric jaundice. I have seen at least one example in a case of refractory normoblastic anaemia.

In the third place I am not convinced that a high colour index is a characteristic feature of the blood picture in acholuric jaundice. Whilst it certainly does occur, my impression is that it is usually about or below unity (*vide* Kracke).

In the fourth place may I protest against the use of initials in place of disease names in published work? Finally, I would like to point out that the differentiation of these two widely different diseases would solve itself if pernicious anaemia was never diagnosed without a confirmatory marrow smear in the stage of relapse when the two diseases could not possibly be confused—I am etc.

Hednesford Staffs

A G RICKARDS
Squad Ldr

Diphtheria Immunization

SIR—May I clear up a misunderstanding. My letter (March 23, p. 445) was certainly never intended to suggest the conclusion drawn from it by Dr Grant—namely, that "full prophylaxis resulting in a Schick negative condition guarantees an immeasurably higher degree of immunity than can be claimed for the same inoculations without a posterior Schick test". In a long experience of this test, which is a regular feature of the immunization routine in the area where I work, it has been well established that some children under as well as over 5, do not become Schick-negative after a full course—and be it noted both our doses are 0.3 ml. Without a post-Schick test these children, few though they may be, would go undetected, and their parents be misled into a false sense of security. We assume that these Schick-positive children are not immune and we recommend a further inoculation followed by a re-test. The parent almost always acknowledges without demur the logic of this procedure. We use the Schick test as a rough criterion of response, not as an inoculation of antigen, though no doubt the minute amount of toxin introduced does play a part in maintaining immunity—I am etc.

Haywards Heath

H LYNTHURST DUKE

Experiments with Semen

SIR—Mr V B Green Armvater (April 6 p. 546) attributes our inability to confirm his results following the injection of human semen into immature and spayed rodents to the use of semen of low cellular content, stale and decomposed. On the contrary, our semen specimens were obtained less than one hour after assay and immediately placed in a refrigerator. Naturally only samples satisfactory as regards motility and cell content were used. It might be objected that the parenteral method of administration of the semen is not a fair test, and accordingly we recently concluded a new set of experiments using the method of insemination—the results were again negative. It is undoubtedly of great importance biologically and sociologically, that there should be no lingering doubt about the possible function of the semen, and we await with considerable interest the publication of the results of Mr Green Armvater's recent experiments—We are, etc.

Glasgow University

P BACSICEL
A SHARMAN
G M WYBURN

Medical Future of the Colonies

SIR—Surely "European M.O." (April 6 p. 551) misses the point completely. The whole question of the disparity in salaries between African and European medical officers is a fundamental one. On what is this disparity based? Is it qualification? Unlikely, since both European and African doctors entering the service usually possess similar qualifications from a university in the British Isles. Is it ability? Definitely not, because as a rule it is the custom of the Colonial Office to appoint all newly recruited doctors as medical officers in the first instance, irrespective of any special training or qualification they may possess. Is it the necessity for supporting two homes?

This is the explanation usually put forward. According to "European M.O." the difference in salary grades is made to compensate the married European officer who has of necessity, to maintain two homes.

If this were the reason for the disparity in salary, then an unmarried European medical officer would be paid at the same rate as his African colleague, because the question of a second home would not arise in his case. Similarly, an African medical officer married to an Englishwoman and who has set up a home in England would be paid the same salary as a married European colleague. But in neither of these cases is such an adjustment in salary made. Then this question of schooling for the married European medical officers' children. This need not cost anything. For there are not free elementary and secondary schools all over England? He may, of course, elect to send his children to the more fashionable public schools, but (if I may quote "European M.O. here") "that would be from choice, no necessity." On the other hand, "European M.O." is wrong in suggesting that it is unnecessary for the African to send his children to Europe to be educated. There is a serious shortage of both elementary and secondary schools in Nigeria to-day, and university education is non-existent. There is a sort of medical school, but it grants a diploma which is not recognized by the G.M.C. or any other body, except itself.

Here, then, are two doctors both possessing identical qualifications, both more or less of the same ability, and both serving in the Colonial Medical Service—say in Nigeria—one is an Englishman and the other an African. The Englishman's salary starts at £600, and ends at £1200. The African gets £400 to start with and ends up by receiving £720. There can therefore be no other possible explanation for this disparity in salary but that of racial discrimination. It is surprising that Africans enter the service at all in view of these conditions. The reason I believe they do this is that the standard of living in the country is so low that private practice, which is the alternative, is not remunerative. Can anything be done to alter the position? That depends on the persons most concerned—namely, the African members of the Colonial Medical Service. If they are dissatisfied with their position they should do something about it. Call for sympathy from "A Colonial" is well meant but ineffective. "European M.O." is not only unsympathetic, but advances the time-worn and puerile argument of the necessity for running two homes and also by some very curious calculation makes out that there is no inequality between the European maximum salary of £1200 a year and the African's maximum of £720.

Nigeria has a population of about 22 millions, and fewer than 400 doctors. Might one suggest to the Colonial Office that instead of being almost completely dependent on recruitment of medical officers from Great Britain, a better way towards providing an adequate medical service for West Africa would be the immediate establishment of a medical school locally. For I am sure many of these European medical officers would much rather work at home, and be with their families instead of going out to West Africa where (so one is told) "the climate is bad, and the salary no better."

A final word. Is the salary offered the European medical officer as meagre as your correspondent would have us believe? It would be interesting to know how much additional income European medical officers in the Colonial Medical Service earn by carrying on private practice—I am, etc.,

Barns

H OPISHELOLOMI THOMAS

Quinine for Induction of Labour

SIR—May I, as a very junior obstetrician, be permitted to enter into the stormy controversy which has been aroused by Mr F Neon Reynolds's brief but precise statement on present-day orthodox obstetric thought with regard to the use of quinine for the induction of labour at term.

The letter by Dr E K. Mackenzie (March 2, p. 332) on this subject demonstrates a rather appalling lack of effort in the perusal of modern publications, most of which acknowledge the foetal risks associated with the use of quinine, some conceding that there is a 1% foetal mortality rate directly associated with its use. This matter has, of course, been dealt with in previous correspondence by Mr Wilson Clyde (March 16, p. 407). Dr Mackenzie claims that his results are

very significant as against the unsupported statement of Mr. Reynolds. Obviously Mr. Reynolds hardly thought it necessary to produce statistics to support a relatively well-known fact.

However, the tone of Dr. Mackenzie's letter suggests that he is getting at something else other than the dangers of the use of quinine for the medical induction of labour. His references to higher qualifications, maternity hospitals, and aseptic precautions are reactionary, to say the least, and in his most recent letter (April 6, p. 547) Dr. Mackenzie infers that obstetric teaching could be better done by G.P.s rather than by the recognized masters of the art. I feel sure that it would be quite an eye-opener for Dr. Mackenzie if he were to spend a few weeks in a maternity hospital and see for himself a few of the cases of obstetric malpractice which occur at the hands of the G.P. dabbling in obstetrics.

I am not suggesting that all G.P.s are unsuitable for the practice of obstetrics—far from it—but I am suggesting that they should be up to a certain minimum standard before being allowed to practise obstetrics. After all, good midwifery is a very time-consuming practice, and few G.P.s can spare the time required; hence their greatest failing in this field—namely, meddling midwifery. If, as Dr. Mackenzie suggests, we younger men were to be trained "in the hard school of general practice" rather than under the skilled eye of a master obstetrician, many of the mistakes which are all too commonly made would be perpetuated—surely a retrograde step.—I am, etc.,

Nantwich, Cheshire.

J. KENWORTHY OGDEN.

Unusual Reaction to Penicillin

SIR,—A number of different reactions to penicillin have now been described, but I would like to submit the following account of a case I attended recently as being a most unusual reaction to penicillin.

The patient, aged 24, was admitted on March 28 suffering from gonorrhoea. He gave no history of previous reactions to injections, and had not previously had any penicillin. At midday he was given an injection of 20,000 units of calcium penicillin (intragluteally) with no untoward result. At 3 p.m. he was given a further 20,000 units. At 5.30 p.m. he started to complain of dizziness and a feeling as if he were "blown up like a balloon." There was no local reaction at the site of injection. He appeared as if drunk, with staggering, incoordinated gait and slurred irrational speech. His temperature mounted rapidly, and at 5.45 p.m. was 104° F. (40° C.). He was put to bed (with difficulty) and went into a deep comatose sleep from which it was difficult to rouse him. His temperature at 9 p.m. was 99° F. (37.2° C.).

The following morning he felt much better, but still complained of slight dizziness, and in addition had a severe headache and blurring and dimness of vision. Temperature was normal. The following day the symptoms had vanished completely, and a test dose of 10,000 of penicillin was given. No reaction followed this, and three days later a further 10,000 units was given without any trouble. Thus the full course of treatment was completed without

I should be very interested to learn if any other medical officers have noted a penicillin reaction of this nature.—I am, etc.,

B A O R

MARK SWERDLOW,
Capt., R A M C.

Standardized Nomenclature and Formulae

SIR,—When I first began to learn medicine the *British Pharmacopoeia* contained all our drug requirements. Nowadays we seem to depend to an increasing extent on large manufacturing chemical firms, who produce and advertise synthetic drugs of which the public seem to know nearly as much as we do ourselves. (When you get a black man in the heart of Africa coming and asking for "siki-nine-three" it opens your eyes.) No one will dispute the value of these modern discoveries, but what one does deplore is the fact that every firm turns out identical products under different names. This applies notably to the sulphonamides, the barbiturates, the various endocrine products, while we have atebirin, mepacrine, and quinine as another instance.

Personally I find it impossible to keep pace with so many different names for the same thing—different names merely because they are made by different firms. I was discussing this recently with a well-known pharmacist in Nairobi, and we agreed that the time had come to effect some sort of standard nomenclature, which should be international if possible. Apart from the difficulty of remembering all these varieties by the doctor, it is almost impossible for the retail chemist to maintain stocks of, say, a dozen different presentations of the same drug. It would be very helpful to both the doctor and the retail chemist if it were possible to deal with this state of things by standardizing the nomenclature and the formulae.—I am, etc.,

Nanyuki, Kenya.

G. DUNDERDALE.

Physical Therapy in Mental Disorder

SIR,—As a general practitioner who has at times to send patients to psychiatrists, I am distressed at not reading any explanation of the quotation in Dr. C. G. Learoyd's letter (March 30, p. 505). There is no doubt whatever of the fear of E.C.T. entertained by patients returning to hospital a second time. Apart from the humanitarian point of view, it is not a nice thought that the ratepayers' money is financing practices which are matters of terror and dread to their fellow creatures—and it must not be forgotten that these fellow creatures, because of the very nature of their malady, are the only members of the community who are incapable of voicing their wrongs and grievances.—I am, etc.,

Lamberhurst, Kent.

DORRIT WATERFIELD.

Obituary

J. E. S. FRAZER, D.Sc., F.R.C.S.

Prof. J. E. S. Frazer, who died suddenly on April 15 at Cathcart Road, London, S.W., was appointed head of the anatomy department at St. Mary's Hospital Medical School in 1911. He received the title of university professor in 1915 from the University of London, and that of emeritus professor on his retirement owing to ill-health in 1940.

John Ernest Sullivan Frazer was born in London in 1870 and went from Dulwich College to St. Bartholomew's for his medical training. As a student he won distinction in athletic sports. He qualified in 1891 and then spent seven or eight years in London and provincial hospitals. In 1898 he took the F.R.C.S., but his health being impaired by infection from a wound in the post-mortem room he decided to make his career as an anatomist and was appointed demonstrator in that subject at St. George's Hospital. He transferred to King's College in 1905 and to St. Mary's Hospital six years later. As a teacher his value to the department proved inestimable, and during his period of office at St. Mary's he opened and equipped an anatomical museum which was a boon to generations of students. He was Hunterian professor at the Royal College of Surgeons in 1915–16 and examiner in anatomy for the College and for the Universities of Oxford, Cambridge, Durham and London. During the war of 1914–18 he acted as temporary out-patient surgeon at St. Mary's.

Prof. Frazer's most important contribution to the advancement of knowledge was his textbook *The Anatomy of the Human Skeleton*, which was published in 1914 and reached a fourth edition in 1940. His *Manual of Embryology* ran into a second edition. In 1937 he revised and edited Buchanan's *Manual of Anatomy* and (with Dr. R. H. Robbins) Buchanan's *Manual of Practical Anatomy*. All Frazer's writings proclaim him a keen observer accurately recording what he has seen with the certainty of an eyewitness. His researches in embryology are well known and include eleven papers in the *Journal of Anatomy* (1915–35). He held office as secretary of the Section of Anatomy and Physiology at the Annual Meeting of the B.M.A. in Birmingham in 1911, and had been secretary and president of the Anatomical Society of Great Britain and Ireland.

Dr. ERIK D. SODERSTROM, of the Swedish Evangelical Mission, was a well-known and much-loved figure in Ethiopia, and will be missed by all who knew him; more even by Ethiopians than by his many European friends and acquaintances. His work lay chiefly in Wallega Province; and in Lekempt, the capital, he built his hospital and laboured for many years, the Italian occupation and Ethiopian reoccupation interrupting or seven years, during which time he worked in South Africa. Erik Daniel Soderstrom was born at Ringarum, Sweden, in September, 1890, and studied medicine in Edinburgh from 1910 to 1916, when he qualified M.B., Ch.B. From there he proceeded to the Liverpool School of Tropical Medicine and obtained the D.T.M., and then until he sailed for Ethiopia in 1919 he held house appointments in the Midlands. Once in Ethiopia, he, with his wife, settled down in the then little-known town of Addis Ababa for a full two years, until permission could be obtained for work in the interior. This was granted, and they set off for the west, where, in Lekempt, they did medical missionary work in primitive huts for eight years. Ras Tafari, the then Regent and now Emperor Haile Selassie, gave money for a hospital and this was finished in 1931. From then until the Italian invasion the work progressed well, but the actual appearance of the enemy brought this to a standstill, and the missionaries escaped through the Sudan to take up an appointment with the Church of Sweden at Ceza, their mission station in Zululand. Here Dr. Soderstrom laboured for five years. The return to Addis Ababa in 1943, the few months' work with the British Red Cross Medical Unit, and the departure once again to take up hospital work in Lekempt were painful experiences—though it was no easy matter to pick up the threads under such altered conditions. His welcome back was undoubted—he was a father to them all and was loved by all, high and low alike. He died on Nov. 10 of complications following typhus, probably caught through a visit to the prison during an epidemic he was fighting, which carried off hundreds in the neighbourhood.—G. L. L. G.

Medico-Legal

MEDICAL MAN'S SLANDER ACTION £2,000 Damages against Woman

In the King's Bench Division of the High Court of Justice on April 12 Mr. Justice Charles gave judgment for the plaintiff, awarding him £2,000 damages, in an action for slander brought by Dr. Arthur Henry Hennessy, of Sanderstead, Surrey, against Miss Irene Boyanton, of Sanderstead. The plaintiff's case was that the defendant made false statements about him, in which she alleged that he had made love to her and criminally assaulted her in his surgery on Sept. 26, 1944, and that he had thereby been greatly injured in his character and profession.

This High Court action was a sequel to a disciplinary inquiry held by the General Medical Council on May 31 and June 1 and 2, 1945. Dr. Hennessy had been summoned before the Council on the charge that, being a registered medical practitioner, and standing in professional relationship to a lady described as "Miss A.B.," he on Sept. 26, 1944, attempted to commit adultery with her, indecently assaulted her, and assaulted or was party to an assault upon her. The complainant was "Miss A.B." After a hearing *in camera* which lasted altogether more than eleven hours, the decision of the G.M.C. was announced in public by the President, who said that the Council found that the facts alleged against Dr. Hennessy had been proved to their satisfaction, and that in respect of the facts so proved they judged him to have been guilty of infamous conduct in a professional respect and instructed the Registrar to erase his name from the *Medical Register*.

In the High Courts on April 10, 11, and 12 Mr. Holroyd Pearce, K.C., appeared for Dr. Hennessy, and, dealing with the alleged slander, said that the words were uttered by Miss Boyanton to another doctor in Sanderstead and to a garage proprietor. "The tragic part of this case came later. Miss Boyanton set the General Medical Council in motion in 1945. Deliberate perjury before that body resulted in Dr. Hennessy being struck off." During the course of the hearing Mr. Justice Charles repeatedly referred to the defendant's "lies." He ordered the documents to be impounded to consider whether Miss Boyanton should be prosecuted in the criminal court for perjury. With reference to the action of the G.M.C. in striking

Dr. Hennessy off the *Register* his lordship said: "Not having the mass of evidence which was before me, their inquiry resulted, in my firm and clear conviction, in a gross miscarriage of justice." In the course of his judgment he said that the slanders alleged were very wicked lies if they were not true. His lordship accepted Dr. Hennessy's denials and rejected Miss Boyanton's story of a criminal assault. Giving his reasons for disbelieving her allegations he pointed to the fact that throughout the relevant time one of the plaintiff's patients, with her infant daughter, had been in the waiting room adjoining the surgery, had seen Dr. Hennessy and Miss Boyanton come out and had noticed nothing unusual about them. Referring to certain evidence which had been called in support of Dr. Hennessy's case his lordship found it difficult to believe that if the General Medical Council had had that evidence before them they would not have believed it in preference to that of Miss Boyanton, for she patently lied. He must award the plaintiff substantial damages to exhibit to the world at large that he (his lordship) had not believed one single word of the slanders, and he granted an injunction to restrain the defendant from uttering any similar slanders in future. He hoped in conclusion that the G.M.C. would see their way to reinstate Dr. Hennessy on the *Medical Register*, and he undertook at counsel's request to communicate with the Council.

Universities and Colleges

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A quarterly meeting of the Council was held on April 11, with Sir Alfred Webb-Johnson, President, in the chair.

The Walker Prize of £100 was awarded to Prof. E. C. Dodds, F.R.S., for his work on the synthesis of stilboestrol and dienoestrol, which has proved most valuable in the treatment of prostatic cancer. The John Hunter Medal and Triennial Prize of £50 was awarded to Dr. Joan M. Ross for her outstanding work in pathological anatomy, particularly in regard to the collection of pathological specimens illustrating injuries and diseases occasioned by the war. The Begley Prize for 1946 was awarded to Otto Fleischner of the University of Vienna.

Mr. W. Rowley Bristow was elected Robert Jones Lecturer for 1946.

Dr. G. M. Ververs, superintendent of the Zoological Society, and Mr. A. J. Darden Smith, surgeon to Mount Vernon Hospital, being members of the College of 20 years' standing, were elected to the Fellowship.

Surg. Capt. Lambert Rogers was re-elected a Member of the Court of Examiners.

It was decided to hold special courses in anatomy, applied physiology, and pathology for the Primary Fellowship Examination, September to October, 1946.

The following was set as the subject for Jacksonian Prize Essays for the year 1947: "The Surgery of the Lower Oesophagus and Cardiac End of the Stomach." The following was set as the subject for the Cartwright Prize Essays for the five years ending 1950: "The Healing of Injuries and Post-operative Lesions of the Jaws." Copies of the regulations governing the award of both these prizes may be obtained from the secretary of the College.

Diplomas of Membership were granted to J. Cox, J. R. Hawkins, and Margaret H. Pond.

Mr. Charles Leopold Mayer, of New York, who on previous occasions has given considerable sums for medical research, has awarded a prize of £1,000 to Mr. Terence Millin, F.R.C.S., of All Saints Hospital, London, in recognition of his contributions to the advancement of surgical treatment of the enlargement of the prostate. The prize was presented to Mr. Millin at a meeting of the Council of the Royal College of Surgeons on April 11.

The following lectures will be delivered at the College (Lincoln's Inn Fields, W.C.) at 5 p.m. on each day:

Erasmus Wilson Demonstrations: April 29 and May 1, Mr. L. W. Proger, Some Original Pathological Specimens from the Hunterian Collection; May 2, Mr. T. M. Tyrrell, Inflammation and Repair in the Tissues of the Eye.

Hunterian Lectures: May 9, Prof. D. H. MacLeod, Endometriosis—A Surgical Problem; May 16, Prof. B. W. Rycroft, War Wounds of the Eye and their Treatment; May 23, Prof. J. Chamley, Conservative Treatment of Fractures of the Femoral Shaft; May 30, Prof. C. G. Rob, Diagnosis of Abdominal Trauma in Warfare.

Medical Notes in Parliament

Health Bill Second Reading

The Second Reading of the National Health Service Bill will be taken in the House of Commons on April 30, May 1, and part of May 2.

HOSPITALS AND THE HEALTH SERVICE DEBATE IN HOUSE OF LORDS

In the House of Lords on April 16 Lord MORAN drew attention to the Government White Paper on a National Health Service and moved that the House, while regretting any measures which might impair the efficiency of the general practitioners' service, welcomed proposals for the better co-ordination of the hospital services of the country. He explained that he spoke personally and not for his colleagues. He said three questions had to be answered. Was a drastic re-organization of the hospital system of the country necessary? Surveys made for the Ministry of Health during the war showed that one-third of the 93,000 beds in the 1,059 voluntary hospitals in England and Wales were in voluntary hospitals which had fewer than 100 beds each. Generally these hospitals were much too small. In too many of them major surgery was performed by men without surgical training, and the duties of physicians were usurped by those who had not the training of a physician. In municipal hospitals a more disturbing situation was found. Of 152,000 beds in these hospitals in England and Wales 78,000 were general beds, of which 29,000 were in public assistance institutions, which provided little but food and shelter.

Generally speaking, voluntary hospitals in the future would have greater difficulty in balancing their budgets, and could not begin to meet the capital expenditure required after six years in which nothing had been spent in building or equipment, or was required by the effects of bombing. The hospitals would have to call on the Government for a considerable sum of money. Such public expenditure probably meant some measure of public control. Who was to exercise that control? Every discussion among consultants and specialists who worked in these hospitals had been dominated by the fear that the hospitals would come under the control of local authorities. Because the White Paper appeared to lift that menace from the profession many consultants and specialists were reconciled to the passing of the voluntary system. Doctors dreaded being put under local authorities because the doctor had so little to say and because of the greater delays in getting anything done. Even in the R.A.M.C. during the war, under an able Director-General, the rigidity of a great service interfered with research. During a big outbreak of diphtheria at Alexandria guinea-pigs were necessary to trace the carriers, but had to be obtained as "Red Cross Comforts." It was true that doctors were working happily under the Middlesex and Surrey County Councils, but the present view was such that no statesman would dream of putting doctors and hospitals under local authorities. If hospitals were not to be controlled by these, they must be controlled by the Minister.

THE QUESTION OF OWNERSHIP

So far there was agreement between the great majority of consultants and specialists. But there was great difference of opinion in the profession on whether this control should imply the transfer of the ownership of hospitals. One view among his colleagues was that the Minister should give a block grant to a region. That block grant could be used so that any local hospital which remained backward could be made to come into line. Other sections of the profession held that if such sanctions were applied to a powerful local authority, there would in the end be a local authority majority on the Regional Board—the thing which the profession wished to avoid.

Supposing the change of ownership took place, there would be gained financial peace and the co-ordination of hospitals; and freedom from the menace that the hospitals would be put under the local authorities. The Minister of Health had refused to blunt the edge of medicine as the teaching hospitals were left alone, a thing which the profession asked in vain from Mr. Willink. On the other hand, the profession lost the voluntary system; but since almost every addition to knowledge had come from teaching hospitals and those were left intact the essence of the voluntary system was preserved. Men had chosen to work within these hospitals because they found their intellectual freedom. He himself, as Dean of a Medical School, had seen how the interest of inspectors from the University of London and the University Grants Committee seemed to disappear at the door of the pathological institute

because the personality of Sir Almroth Wright had alienated the official world. If he had been in a service he would have had a thin time. Yet it was from that laboratory that penicillin came. The man of initiative should be given his head, however angular it might be. The voluntary hospital had a personality which stirred up around it a spirit of service. Was it necessary that that should be lost? Sir William Goodenough and the Secretaries of the King's Fund had proposed that within the fabric of the White Paper all voluntary hospitals should have larger autonomy and some control over their finances. He believed Mr. Bevan would go carefully into these suggestions, while not forgetting that the more the local management committee gained in power the less would be the influence of the university.

COMPOSITION OF REGIONAL BOARDS

Acceptance of the principles set out in the White Paper was always qualified by the proviso that "the composition of the regional boards is satisfactory." These regions would be able to say whether a hospital should expand and would be able to take away departments. To the professional world such powers were a matter of life and death, and doctors had repeatedly asked the Minister to reveal the composition of the regional board. Up to date he had refused that information. He (Lord Moran) now asked for it, but said he did not share the suspicion that Mr. Bevan was going to let the local authorities in by the back door and give them control of these regional boards. He believed that Mr. Bevan had learned from the experience of the Nuffield Provincial Hospital Trust, who found that the only way to make such boards work was to handpick the men. He did not think that anyone had been happy on the proposals concerning the endowments of hospitals, but he did not agree that the use of £32,000,000 sterling, not for one hospital but for more than one, merited the word confiscation. It was not reasonable that if the Minister took the liabilities of these hospitals and made himself responsible for their maintenance he should be deprived of their assets.

THE G.P.'S INCENTIVE

It was difficult to say what the general practitioner thought of the proposals in the White Paper, but there was a fairly general disquiet among practitioners for only one reason, and that was the dread that these proposals might lead to a whole-time service. General practitioners were critical of health centres and of the abolition of the sale of practices, because they regarded such things as a first step towards a whole-time service. He himself, after 25 years as Dean of a Medical School, was unable to say what effect a whole-time service would have on the practice of medicine. It was clear that such a service—without an adequate incentive—would be a bad service. It was not only the financial incentive that mattered. It was the conditions under which men worked and whether the work was stimulating. The life of a general practitioner in recent years had lost something of its colour. He had seen the treatment of serious disease pass out of his hands. Presently, there was almost certain to be a sharp division between consultants and general practitioners on the ground that if a man practised a specialty he should be trained for it. That division would take the milder degree of specialization out of the general practitioner's hands and deprive his life of interest. If his life were made duller, this would have an effect on the men who entered the profession. At present, the doctor lived for his work. Would the conditions in the White Paper attract in the future the kind of man who in the past had won the regard of the public? These questions would determine whether Parliament was working wisely for the betterment of the profession and for the good of the country. He himself had no answer to them.

Lord INMAN said he had been engaged in hospital work for 25 years at a London hospital. A number of Poor Law infirmaries had been upgraded, and there were cases where they were acknowledged to be among the best hospitals in the country. In the past, through over-lapping and rivalry, there had been cases where some hospitals had long waiting lists while close-by were hundreds of vacant beds. Changes of a radical character must be made and these changes were introduced in the new measure. He believed its purpose was a nation-wide service which would bring within the reach of everybody the best medical advice and treatment. Because that was the broad conception he would give the measure his support, while reserving the right to comment on some of the proposals. He hoped that in the transfer of institutions to regional boards care would be taken to preserve the enthusiasm and the readiness to serve which the local institution attracted to itself. He saw no reason why voluntary support should not continue, and, in fact, the measure made provision for its continuance in unpaid membership of governing bodies, regional boards, and management committees.

THE MEDICAL SUPERINTENDENT

Lord DONOUGHMORE pointed out that in the voluntary system a board elected by supporters of the hospital worked in harmony with the medical committee, meeting at the hospital, but in the municipal system the governing body was a committee of the council meeting at the county hall. The latter worked through the medical officer of health and through a medical superintendent. He did not believe such a superintendent was a wise substitute for a medical committee representing all the medical departments. He was a little frightened at an advertisement in which the Ministry of Health invited applications for posts as 'Nursing Officers'. These individuals were to inspect nursing and staff establishments in general, and especially at hospitals and other places for the training of nurses. He asked whether they were to work under the regional bodies or whether they were to be representatives of the Ministry of Health working independently of the regional bodies. He further asked whether the regional authorities were going to be interfered with from headquarters. If that was to be the case, the scheme would fail. He wanted to know in what spirit this new system was going to be worked.

Lord GEDDES was certain that on the composition of the regional hospital boards the well being of the general hospital service would turn. Given proper boards and adequate finance, the co-ordination would be obtained which would bring hospital services up to a proper standard. He thought that the polyclinics, which the White Paper called health centres, would not make for confidence between patient and doctor. A secretarial service would be provided at each centre, and medical records would be kept by the servants of local authorities, men and women would be unwilling to attend because records of their maladies would pass through the hands of some not very responsible girl or man clerk. Was it not possible instead of health centres to provide diagnostic centres where experts would do x-ray work, laboratory investigations, etc., for general practitioners? It was possible to improve Mr. Bevan's proposals, which in many parts contained an extraordinary number of good points though some would not make for the relations which should exist between patient and doctor.

Lord PIERCY said the general practitioner would rather be able to use aids to diagnosis under his own control at a health centre than go to a diagnostic centre such as was suggested by Lord Geddes. Under the new conditions the life of the ordinary doctor would be more interesting and stimulating than it commonly was now.

Lord LUKE said much had been heard about the taking over from the hospitals of endowments valued at £32,000,000, but not so much about the buildings, equipment, and land which were also being taken. The total value of what was being taken over from the voluntary hospitals was more in the region of £250,000,000 than £32,000,000. The voluntary hospitals had to exist for another two years as they were, because the legislation would not come into effect until 1948. He hoped that this would be made plain to donors of voluntary gifts.

VIEWS OF THE ROYAL COLLEGES

Lord HORDER thought that the motion of Lord Moran was premature. He was glad that Lord Moran made it clear that he was speaking for himself. In the previous week the Royal College of Surgeons and the Royal College of Obstetricians dissociated themselves definitely from approval of the transfer of ownership of the voluntary hospitals. Yesterday this matter came under discussion in the College of Physicians, but Lord Moran, in his speech to the House, had made no reference to the opinions of this College, over which he presided. Against this negative view of the Royal Colleges, King Edward's Hospital Fund had asserted that the success of the Bill would largely depend on spreading local interest over all the units composing the new service. It said that amendments were essential to provide for a measure of independence for the hospital management committees. The British Hospitals Association stated in the previous week that the provisions of the Bill relating to hospitals were not in the best interest of the patient and the community.

Lord WALERAN asked whether the Ministry of Health would expect the Voluntary Ambulance Service to serve the hospitals under the terms of the White Paper or would expect the St. John Ambulance Brigade to maintain its ambulances from voluntary contributions.

GOVERNMENT REPLY

Replying to the debate Lord LISTOWEL said the proper occasion for the Government to submit the case for a comprehensive health service was during the Second Reading of the National Health Service Bill in the House of Commons, and subsequently in the House of Lords. It would be an advantage to

the Lords to discuss this subject again later in the session. He expressed his regret that Lord Dawson of Penn and Lord Moyihan had not been spared to offer their advice at this turning point in British medicine. The regional hospital boards were to administer all the hospitals with the exception of teaching hospitals, and it would be a mistake for the Government to lay down in advance their exact constitution. Their size and composition must vary according to the needs of the area and to the services they would be expected to provide. The boards would consist of people chosen for their individual suitability as experts and not as delegates or representatives of different interests in the area. The only rigidity in the composition of new boards would be the inclusion on each board of at least two experts on mental health. It was unlikely that on any board so constituted the local authority members or any other distinctive group would obtain a clear majority, he could safely give this assurance to Lord Moran.

The object of the Government's proposals for future administration of the hospitals was the maximum devolution and local independence obtainable within the regional framework. Decentralization was the goal. There would be a wide field of financial autonomy. Management committees would have unfettered financial freedom within the limits of their annual budget, and no Treasury interference. Regional boards would also have moneys available from the Hospitals Endowment Fund, and any gifts from future donors, to spend at their discretion. The day to day running of the hospitals by the management committees would not be hampered in any way by the regional authorities.

It was a complete misunderstanding to suggest that the proposed health service would deprive the medical profession of much independence by turning its members into employees of local authorities. Even in health centres, general practitioners and dentists carrying on their practice in groups from the centres would not be employed by the local health authorities. The proposed Medical Practices Committee would have no powers for directing a general practitioner into a particular practice, but the need for a body to distribute doctors evenly throughout the country was essential to any health service which set out to cover the needs of the whole population, this had been recognized in the White Paper published in 1944 by the Coalition Government. Under no circumstances would the Medical Practices Committee be able to tell an applicant that he must go to a particular area. The committee had power to refuse a doctor admittance as a practitioner to certain parts of the country, but this procedure could not be described as direction. The Medical Practices Committee would perform the functions of an Appointments Board or Employment Agency.

THE SLOGANS AND HEALTH CENTRES

Lord MORAN agreed that if the regional board was trusted and was a really good board the whole scheme would work. If, on the other hand, there was interference it would not work at all. He said he was an unrepentant advocate of health centres. The reason why the motion had been brought forward was that meetings all over the country were having put before them not the considered views of people who had followed the subject on negotiating committees, but in many cases just slogans, and great harm was being done. It was imperative that somebody should try to rescue this question from slogans. Lord Horder had mentioned the Royal College of Physicians. Consequently, Lord Moran read the motion passed by that College, which was:

"That the College approves the central direction and co-ordination of the general policy of hospitals provided the composition of Regional Boards is satisfactory."

That was an innocuous motion. He thought it would be perfectly frank to say to the House, however, that there was a great difference of opinion on this subject, and he thought he made it clear that he was speaking as an individual.

The motion was, by leave, withdrawn.

Voluntary Hospitals' Income

On April 8 Mr. BURNS asked what percentage of the expenditure of voluntary hospitals was provided from private sources or from public funds. Mr. KEY answered that the latest published figures available for England and Wales showed that in 1941, 36% of the hospitals' income was derived from voluntary sources, of which more than half came from income on investments and legacies; 24% was derived from public funds, and the remaining 40% from payments by patients, including payments through contributory schemes.

Compulsory Pasteurization of Milk

On April 10 Lord ROTHSCHILD called the attention of the Government to the urgent need for compulsory pasteurization of milk in as many parts of the United Kingdom as was prac-

ticable, and moved for papers. He said that if the annual number of deaths through drinking raw milk contaminated with bovine tuberculosis were put at 1,600, the number of casualties would be between 7,000 and 8,000. These casualties, which required months of hospital treatment, were a source of misery and anxiety to their families and grave expense to the State.

One objection raised to pasteurization was that it took "the life out of milk." Minor changes were brought about in the composition of the milk, but investigations in animals showed conclusively that such changes had no appreciable effect on its nutritive value. According to the National Institute for Research in Dairying the difference in composition between raw and heat-treated milk had been found to be less than that between samples of raw milk from different herds. The opponents of pasteurization also said that it destroyed the need for the T.T. and attested-herd schemes, but these schemes were directed towards improving the health of our cattle as well as towards producing germ-free milk. The heat treatment of milk was directed primarily towards improving the health of the population and reducing the unnecessary deaths each year. To the objections that heat treatment would put small producer-retailers out of business and reduce the nation's milk supply, he replied that the compulsory institution of heat treatment in towns with a population of more than 20,000 would have no effect on small producer-retailers; and far from reducing the nation's milk supply, might well cause an increase.

Earl De La WARR said it was better to produce clean milk than to kill the germs in dirty milk. But there was no doubt that the majority of medical and scientific opinion was in favour of pasteurization, at any rate of our large urban supplies of milk that had to be bulked. The Government and the Milk Marketing Board should, therefore, start with compulsory pasteurization in areas of 20,000 population or over, and then steadily extend it elsewhere to those producers and distributors who were not prepared or able to offer to the public milk of a designated standard. A reasonable period should be allowed for reaching that standard, but there should be a definite time limit. They should have to reach accredited standard in two years, something considerably above that in five years, and full T.T. and attested herd standard in 10 years. They should also make sure that the designated milk was kept separate from the rest. In the meantime we should intensify the campaign for cleaning up herds and rearing a good supply of healthy stock. Viscount BLEDISLOE emphasized the necessity for improving animal health; pasteurization was not an alternative to animal health but was complementary to it.

Lord AMMON, replying for the Government, said that their plans for better quality milk had been set out in a White Paper issued in 1943, which was strengthened by a Defence Regulation requiring a supply of clean milk in certain areas. There were 621 "rationalized" milk areas in England and Wales, and schemes to make the White Paper proposals effective, which the Government invited from dairymen, had so far been received from one-third. Shortage of plant had been a difficulty, but that was being gradually overcome and small quantities of plant were being imported. It was regrettable that more schemes had not been submitted, but a more active policy would be pursued when opportunity, labour, and plant made that possible. To encourage the heat treatment of the maximum quantity of milk the Minister of Food had, since April 1, 1944, paid 1d. a gallon to milk distributors on all milk subject to that treatment. That was to be increased to 1½d. a gallon from April 1, 1946.

Of the total annual liquid milk consumption of 1,075,000,000 gallons approximately 725,000,000 gallons were heat treated. Of the remaining 350,000,000 gallons not heat treated about 190,000,000 gallons were sold by producer-retailers, and of that about 18,000,000 gallons were from T.T. herds. An efficient system of heat treatment destroyed the germs in milk, and the Health Departments were satisfied that the food value of the milk was not thereby prejudiced. Experiments had proved that the heat treatment caused changes in milk, but they had no significant effect on its value as a food.

The motion was, by leave, withdrawn.

Health Service Bill

Replying on April 11 to Mr. Churchill Mr. HERBERT MORRISON said the Government had decided to meet the request that the second reading of the National Health Service Bill should be postponed till after Easter but felt it could only do so if the Committee and remaining stages of the Bill were not thereby prejudiced. The Government intended to complete the remaining stages in the House of Commons by the end of July. It was now understood that this would not be prejudiced by delaying the second reading.

Mr. Churchill thanked Mr. Morrison for the announcement. He said that in the Bill there were great differences of opinion,

but there was also a much larger common ground of agreement on measures which were contemplated, and even advanced a considerable distance, during the life of the Coalition Government. He trusted that this business would not suffer by the postponement till after Easter.

Mr. Morrison said he recognized that there had been material changes in policy under the present Government and that it was fair that there should be discussion.

Commander GURNEY BRAITHWAITE asked whether it was intended to take the Committee stage of the Bill on the floor of the House in view of the many representations from Members on the subject. Mr. Morrison said that was a point which was usually dealt with when the House reached the second reading of a Bill.

Medical News

A general meeting of the Medical Society for the Study of Venereal Diseases will be held at 11, Chandos Street, W., to-day (Saturday, April 27), at 2.30 p.m., when a joint paper on "Neurosyphilis" will be read by Dr. W. D. Nicol and Dr. M. Whelen.

A general meeting of the Paddington Medical Society will be held at St. Mary's Hospital, Paddington, W., on Tuesday, April 30, at 8.45 p.m., when Dr. D. E. Bunbury will speak on "Recent Developments in Psychological Medicine." A discussion will follow.

A meeting of the London Association of the Medical Women's Federation will be held in the Common Room of B.M.A. House on Friday, May 3, at 8.30 p.m., when Dr. V. Mary Crosse will speak on the care of the premature baby. Coffee 8.15 p.m.

The British Homoeopathic Association has arranged a conference on "Homoeopathy and the State Medical Service" to be held at the Bonnington Hotel, Southampton Row, W.C., on Saturday, May 4, at 11 a.m. A special meeting of members of the association will be held at 2.15 p.m.

A meeting of the Medical Society of the L.C.C. Service will be held at the County Hall, Westminster Bridge, S.E., on Wednesday, May 8, at 2.30 p.m., when "The Treatment of Minor Injuries and Infections of the Hand," with special reference to bad results, will be discussed. The discussion will be opened by Mr. R. V. Lewis-Lloyd on "Fractures"; Mr. J. Gabe on "Treatment of Injuries to Tendons; Ganglions, etc."; and Mr. J. C. Gillies, on "Infections of the Hand."

A meeting of the Association of Industrial Medical Officers will be held at Manchester on May 16, 17, and 18. Private business will begin at 5.30 p.m. at the Midland Hotel, and will be followed up by a dinner at the Grand Hotel. The remaining days will be devoted to papers and study of the cotton industry. Early application for accommodation and tickets is desirable. The honorary secretary of the association is Dr. P. Pringle (Standard Telephones and Cables, Ltd., Oakleigh Road, New Southgate, London, N.11).

At a crowded meeting of the Chelsea Clinical Society on April 9 Dr. Charles Hill spoke on the subject of "Medicine and the State." He gave a very clear and forceful exposition of the problems to be decided by the profession in relation to the National Health Service Bill. Lord Horder, Rear-Admiral Sir Cecil Wakeley, and many other distinguished members and guests contributed to the discussion.

A meeting of representatives of the voluntary hospitals of London was held at St. Bartholomew's Hospital on April 15. Sir George Aylwen, chairman of the Voluntary Hospitals Committee for London, took the chair. The following resolution was passed unanimously: "That the voluntary hospitals of London, while welcoming a National Health Service designed to co-ordinate the hospital services of the country, urge the Minister to incorporate such amendments in the Bill as at present drafted as will ensure the retention by the voluntary hospitals of their property and management, their entities and their traditions, since only thus in their view can the best interests of the community be served."

H.E. Dr. Ali Tewfik Shousha Pasha, Under-Secretary to the Egyptian Ministry of Health and a delegate at the recent United Nations Health Conference in Paris, has been visiting this country for 10 days under the auspices of the British Council, to study our health services. His programme included interviews with the Minister of Health, Sir Wilson Jameson, Chief Medical Officer, Dame Katherine Watt, Chief Matron (Nursing), and other officials of the Ministry. He has also visited the London School of Hygiene and Tropical Medicine, Southwark Maternity and Child Welfare Centre, and Papworth Village Settlement for tuberculous patients.

Sir Drummond Shiels, M.B., has been appointed Public Relations Officer to the Post Office. He was Under-Secretary for India, and later Under-Secretary for the Colonies, in the Labour Government of 1929-31.

No. 14

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended April 6.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	96	13	35	3	3	66	6	36	2	1
Deaths										
Diphtheria	463	36	107	46	12	453	22	116	93	14
Deaths	7	—	1	1	—	5	—	—	3	—
Dysentery	294	25	34	—	—	306	33	165	3	—
Deaths										
Encephalitis lethargica	1	—	—	—	—	—	—	—	1	—
Deaths										
Erysipelas	—	—	45	13	4	—	—	48	12	7
Deaths										
Infective enteritis or diarrhoea under 2 years	65	17	10	50	7	76	5	14	17	1
Deaths										
Measles*	2,265	736	814	41	2	22,599	1,658	217	60	37
Deaths	—	—	3	1	—	15	3	—	—	—
Ophthalmia neonatorum	49	6	19	—	1	67	2	10	—	—
Deaths										
Paratyphoid fever	3	—	1(B)	—	—	3	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza, Deaths (from influenza)*	967	61	17	15	2	693	33	4	12	8
Deaths	47	4	2	—	3	19	2	4	1	—
Pneumonia, primary	—	50	314	57	10	—	34	223	29	7
Deaths										
Polio-encephalitis, acute	1	—	—	—	—	—	—	—	—	—
Deaths										
Polio-myelitis, acute	4	—	—	—	1	1	—	—	—	—
Deaths										
Puerperal fever	—	1	6	—	1	—	4	20	—	—
Deaths										
Puerperal pyrexia*	176	11	17	1	2	157	13	13	—	1
Deaths										
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths										
Scarlet fever	1,392	102	193	29	39	1,343	45	187	21	44
Deaths	—	—	—	—	—	1	—	—	—	—
Smallpox	7	—	—	—	—	—	—	2	—	—
Deaths										
Typhoid fever	3	—	2	3	—	5	—	2	7	1
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths										
Whooping-cough*	2,109	160	94	36	13	1,043	42	65	56	15
Deaths	7	3	2	2	—	6	—	1	1	—
Deaths (0-1 year)	431	64	59	38	19	337	30	62	26	19
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	5,225	820	683	237	157	4,522	604	607	218	147
Annual death rate (per 1,000 persons living)			15.0	15.2			13.8	14.1		
Live births	7,975	1,129	990	377	268	6,428	664	891	370	275
Annual rate per 1,000 persons living			19.9	24.2			17.8	23.9		
Stillbirths	266	38	35	—	—	174	10	28	—	—
Rate per 1,000 total births (including stillborn)			34				30			

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales infectious diseases were slightly less prevalent during the week. The largest decreases were acute pneumonia 112, and dysentery 62, while the largest rise was cerebrospinal fever 22.

Scarlet fever notifications showed little change, and the total for the country was 1 less than in the preceding week. The chief local changes in the incidence of diphtheria were a rise in Warwickshire 11, and a fall in Northumberland 10. The largest local variations in the returns for whooping-cough were decreases in London 40, and Leicestershire 36, and an increase in Warwickshire 66.

Measles increased in prevalence in London and adjacent counties, the rises being London 61, Middlesex 54, and Kent 41. Large decreases were recorded in Lancashire 102, and Suffolk 93. The result of these opposing trends was a decline of 14 for the whole country.

Dysentery notifications increased in Surrey from 20 to 67. Other large returns were Lancashire 62, London 28, Middlesex 20, Essex 15, Leicestershire 13, Warwickshire 12, Gloucestershire 10.

In Scotland there were 131 more cases of measles and 22 fewer cases of dysentery. The total of 34 cases of dysentery is the smallest weekly total of recent months, and Glasgow with 14 cases was the only important centre of infection.

In Eire there was an increase in scarlet fever 11, enteritis and diarrhoea 10, and whooping-cough 7. Notifications of diphtheria fell by 5, and the 46 cases recorded involved 28 registration areas.

In Northern Ireland the incidence of scarlet fever rose by 11 cases, while there were 5 fewer cases of diphtheria.

Quarterly Returns for England and Wales

The birth rate during the December quarter of 1945 was 15.3 per 1,000, and was 1.4 below the rate for the fourth quarter of 1944 but 1.2 above the average of the December quarters 1939-43. Infant mortality was 46 per 1,000 live births and was 6 below the average of the 10 preceding fourth quarters. The general death rate was 11.3 per 1,000, being 0.3 below the rate for the fourth quarter of 1944 and 0.7 below the average of 1939-43.

In this quarter 201,760 persons were married, which is 51,880 more than in the December quarter of 1944 and 1,480 more than the average for the fourth quarters for 1939-43.

The provisional rates for 1945 give a birth rate of 16.1 per 1,000. This is 1.4 below the high level of 1944, and 0.1 below the rate for 1943. Infant mortality was 46 per 1,000 live births, and was 1 per 1,000 above the low record of 1944. The general death rate at 11.4 per 1,000 was 0.2 below that of 1944 and was the same as that for 1930, which was the lowest ever recorded. The marriage rate was 18.6 and was 4.3 above that of 1944. The natural increase—excess of births over deaths—was 197,628, the value for 1944 being 252,667 and the average of 1939-43 being 110,538.

Infectious Diseases during the First Quarter

The notifications of infectious diseases in England and Wales for the first quarter are here compared with those of preceding years.

	1940	1941	1942	1943	1944	1945	1946
Scarlet fever	13,399	16,099	14,935	26,759	26,962	19,163	16,952
Whooping-cough	7,441	44,160	18,325	23,005	26,141	19,780	20,053
Diphtheria	9,199	14,533	11,658	10,799	9,004	6,061	6,220
Measles	51,377	204,158	26,538	220,556	20,278	247,438	17,652
Cerebrospinal fever	5,093	4,332	2,412	1,287	978	964	966
Acute pneumonia	23,315	20,190	15,769	18,211	14,977	14,783	16,275
Dysentery	531	1,757	1,674	1,319	2,834	4,631	4,444
Paratyphoid and typhoid	194	235	235	175	111	149	136
Deaths from influenza in the large towns	4,568	2,217	863	1,142	1,131	692	2,156

The increase in diphtheria was expected from the trend of this disease during the latter part of 1945. It appears that its mortality is also rising, for the case fatality in the large towns was 29.5 per 1,000 in the first quarter of 1945, while this year it was 31.4. Cerebrospinal fever has apparently reached a stable endemic level at 2 to 3 times the pre-war figure. Dysentery showed no improvement on the high wartime level. Although the outbreak of influenza was not very large, it was one of the worst in recent years.

Week Ending April 13

The notifications of infectious diseases in England and Wales during the week, included: scarlet fever 1,366, whooping-cough 1,934, diphtheria 463, measles, 2,552, acute pneumonia 871, cerebrospinal fever 78, dysentery 270, paratyphoid fever 4, typhoid 3, smallpox 3 (including 2 imported cases). Deaths from influenza in the large towns numbered 24.

Letters, Notes, and Answers

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ANY QUESTIONS?

Sodium Chloride

Q.—*What injurious effects follow the excessive ingestion of sodium chloride, and in what diseases is it contraindicated?*

A.—If salt is given in excessive amounts by mouth the irritation may lead to severe gastro-enteritis, which may be fatal. The systemic effects of excessive absorption of salt are essentially due to the rise in the salt concentration in the body fluids and the dehydration which results from the body's efforts to correct this. In severe cases there may be restlessness, thirst, frequent micturition, dyspnoea, rapid pulse, fever, and coma.

Excess of salt is contraindicated in all conditions in which there is a tendency to oedema, more particularly in the hydraemic type of nephritis and in cardiac muscle failure. It is wise also to restrict salt in hypertension, arteriosclerosis, and obesity. Salt is usually restricted in Ménière's syndrome, and in the dehydrating diets which have been used in the treatment of rheumatism and tuberculosis.

Pregnancy and Cancer of the Breast

Q.—*A nulliparous woman aged 37 had radical mastectomy for carcinoma of the breast a week ago. I now discover that she is two months pregnant. Should the pregnancy be allowed to continue? Will deep x-ray therapy affect it.*

A.—Since pregnancy and lactation favour a rapid growth of carcinoma of the breast, many believe that pregnancy prejudices the outlook in women who are suffering from, or who have recently been treated for, malignant disease of the breast. There is some difference of opinion as to whether interference with the pregnancy is justifiable in such circumstances, but the writer would advise termination in the case in question. If the pregnancy is allowed to continue x-ray therapy is not contraindicated providing the foetus itself is adequately shielded.

Preventing Orchitis in Mumps

Q.—*I have read that orchitis, the common complication of mumps, may have the effect of producing "... a greatly diminished fertility or even complete sterility." Can any prophylactic measures be taken at the onset of the mumps to prevent orchitis?*

A.—There is no measure which, taken at the onset of mumps, will prevent the occurrence of orchitis. Not infrequently, indeed, orchitis actually precedes the parotid swelling. Even strict enforcement of bed rest during the early stage of the illness does not ensure freedom from this complication. It has been suggested, however, that a hydrocele may form early and that it is the tension of the hydrocele plus the orchitis which encourage atrophy. In certain cases, therefore, tapping of an obvious hydrocele might minimize the risk of subsequent atrophy; such a method of treatment is worth trying in suitable cases. Fortunately, the condition is not always bilateral.

Senile Degeneration

Q.—*What are the early anatomical changes in the brain in senile deterioration, and what are the first clinical signs?*

A.—The first anatomical change to be seen in the brain in early senile degeneration is an increased argentophilia of the tissues generally—i.e., they begin to take up silver stains more

readily. This proceeds to the formation of senile plaques, which are accumulations of residues of faulty metabolism in the intercellular substance in the upper layers of the cortex. At the same time there is a thickening and increased argentophilia of the intracellular neurofibrils, and the accumulation of lipoids in the nerve cells. All these changes may be found in apparently healthy though elderly patients and may be accompanied by no obvious clinical signs.

Clinically, the first symptoms are likely to be an increase in moodiness, slight irritability, and a slight though progressive deterioration of memory and intellectual powers. Originality and freshness of imagination are likely to go first, accompanied by an increasing incapacity to deal with what is novel. Failure of memory is shown first in impairment of recollection of recent events, more remote happenings being better remembered.

Teething Pains

Q.—*Teething in children is often painful. Is there any preparation—e.g., a local anaesthetic ointment—which, when rubbed into the gums, affords relief?*

A.—Some relief can be obtained by the use of menthol. A mixture of 1 gr. (65 mg.) of menthol to the ounce (28 ml.) of liquid paraffin is convenient. The mother moistens her little finger in this and gently rubs it over the affected gums.

Impotence after Head Injury

Q.—*Four years ago a healthy male aged 48 had a fracture of the skull, arm, and leg.. He made a full recovery, but was off work for eighteen months. Until the accident he led a normally active sex life, but now he complains of complete loss of performance, though desire remains normal. There was no local injury to the sex organs. What treatment is advised?*

A.—Impotence is not uncommon after a severe head injury without any local injury to the pelvic nerves or the genitalia. The condition is often associated with symptoms of a psychological nature, which are the direct result of the head injury. The patient usually is anxious, shows mood change in the direction of depression, has a poor memory, and has great difficulty in concentrating. The post-traumatic state is also associated with headaches and disturbances in vasomotor regulation. The patient should be explored upon these lines before a decision upon the cause of impotence can be given.

Calcium Balance in Chorea

Q.—*It has been stated that there is a deficiency of body calcium or a negative calcium balance during chorea. Is this so?*

A.—The idea that calcium deficiency is involved in the genesis of chorea appears to have existed for quite a long time. Mutch (1934) quoted Isambard Owen as reporting in the latter half of the last century that the topographical distribution of chorea seemed to follow that of rickets. Warner (1930) suggested a parallel between rickets in infants and chorea in older children. That, however, did not, in the views of either writer, preclude a "rheumatic infection" as the primary cause. Chorea was accepted "as a special type of rheumatic infection" (Campbell and Warner, 1930). The factual evidence is meagre. Carter-Braine, Spurrell, and Warner (1929) demonstrated increased electrical excitability of the neuromuscular junction in chorea, and Warner (1930) reported low serum and cerebrospinal fluid calcium in a series of cases, the values returning to normal on recovery. On the basis of these observations Mutch (1934) treated a series of 19 cases with calcium aspirin (Coplans) in doses up to 45 gr. (3 g.) daily, so combining calcium with the conventional antipyretic treatment. He claimed rapid recovery, with an average of 17 days' treatment compared with the usual 35 days for mild and 67 days for severe cases. The cause of the "calcium deficiency" according to Warner was still under investigation, but nothing further appears to have been published.

On the other hand, Widenbauer (1935) reported (this appears to have been an incidental finding) that four cases of chorea showed marked improvement shortly after being given a yeast preparation, and suggested a deficiency of B vitamins as concerned in the aetiology. Then in 1941 Schwartzman, Dragutsky, and Rook reported that, in view of the satisfactory results with vitamin B₁₂—pyridoxine—in the treatment of nervous irritability

and Parkinson's disease, they tried it on three hospital cases of chorea. Early subjective improvement and rapid recovery were claimed, the duration of treatment being 18, 13, and 28 days in the three cases.

That is the position at present. Two different deficiencies are suggested. Similar effects, in small numbers of cases are reported following treatment with calcium aspartate and with pyridoxine hydrochloride. Further observations are obviously required. The amount of calcium given—up to 45 gr (3 g) daily—was roughly equivalent to that in half a pint of milk. Milk would, of course, provide pyridoxine also. The correlation of chorea with poverty is accepted and poverty, at least before the war, implied poor diet, low in calcium and other essentials. Children, and especially the poorer children, have been drinking more milk during the war years. It would be interesting to know whether the incidence of chorea has fallen.

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Alopecia Areata affecting Eyelashes

Q.—After measles a girl of 8 had blepharitis and conjunctivitis which cleared up completely. A few months later the eyelashes in the inner halves of the upper eyelids fell out. This happens repeatedly though there is no sign of inflammation of the lids or conjunctiva. Observation shows that the child cannot pull the lashes out and does not finger the eyelids at all. What is the diagnosis?

A.—The condition may represent a rare form of alopecia areata where the eyelashes come into the circle and are thus shed in an irregular manner. If this diagnosis fits the case then the condition will improve spontaneously, although patches of true alopecia may develop on the scalp. From the small amount of information available it is impossible to go further into the question of diagnosis and treatment.

Balanitis

Q.—A patient has persistent balanitis and attacks of herpes on and under the prepuce recurring every three months. The prepuce is long but retracts readily. What is the best line of treatment? Would penicillin locally help? Can there be a vitamin deficiency? Would circumcision be a cure, and can it be carried out under local analgesia?

A.—Balanitis is usually due to infection with *Treponema balanitis*, sometimes fusiform bacilli are present as well. Accumulation of smegma and moisture tend to retard recovery. In the majority of cases ordinary personal hygiene and keeping the affected area dry are all that is necessary. Various remedies may be tried if this fails—for example, soaking in hydrogen peroxide followed by careful drying and then the application of flowers of sulphur or any mild dusting powder. Sulphanilamide powder may be used if there is evidence of bacterial infection, but should on no account be persisted in for more than five to seven days, lest the patient become sensitized. Penicillin cream (500 units per ml) might be even more effective and is safer if available. If all these measures fail, or in any event if a radical cure is desired, circumcision should be carried out, this can be done with a local analgesic.

There is no evidence that balanitis is due to vitamin deficiency. Herpes is caused by a virus infection and is apt to recur.

Right Iliac Fossa Pain in Pregnancy

Q.—A patient aged 28 now four months pregnant, has severe pain in the right iliac fossa. It radiates into her perineum and right leg, and is brought on by any exertion—walking, defaecation, etc. She had a Gilliam suspension and appendectomy after her first pregnancy. The pain was first noticed during labour and after the delivery of her second child, and was worse during her third labour. There are varicose veins in the right leg. Vaginal examination reveals only tenderness in the right iliac fossa. What are the diagnosis and the treatment?

A.—The cause of pain in the right iliac fossa both in and out of pregnancy is often difficult enough to determine clinically

and it is questionable whether a diagnosis by correspondence will be of much value. Dragging on the round ligaments after Gilliam's operation does sometimes cause pain, and although this is likely to be worse during pregnancy it may also be experienced apart from pregnancy. The history is certainly rather suggestive of this diagnosis. Other possibilities which should be kept in mind are post-operative adhesions, a lesion of the right urinary tract, caecal distension associated with colonic spasm, and disease of the pelvic bones and joints, including sacro-iliac strain. Intravenous pyelography and x-ray examination of the bony pelvis might be worth while. It is tempting to inquire whether the pain was present before the operation and whether it constituted the indication for the appendectomy and correction of the retroversion. If the conclusion is that the pain is due to pulling on the round ligament, a corset firmly applied should give some relief during pregnancy, and there is no reason to fear that natural delivery will make matters worse.

Inhalations for Asthma

Q.—Do you consider that the drugs used in inhalers sold for the treatment of attacks of asthma are harmful in any way?

A.—There is nothing inherently undesirable in treating asthma by inhalations. In fact, there is an advantage in taking the attack early, before it becomes resistant to treatment, and in lay hands inhalation is easier than injection. There are, however, at least three precautions to observe. The first is that due care is taken with habit-forming drugs, such as cocaine. It is said that there is no risk of habit formation if a 1% solution of cocaine is used, and this is an excellent astringent. The second precaution is to avoid irritants, such as high concentrations of creosote. All that is needed is ephedrine or adrenaline and an excipient. A good prescription is ephedrine 1% and cocaine 1% in 4% glucose saline. There are on the market blunderbuss preparations containing papaverine, hyoscine, atropine, adrenaline, pituitary extracts, etc.

The third precaution concerns the use of adrenaline. The usual technique of inhalation is to use a hand atomizer and to inhale for three to five minutes. This is all right with strengths of adrenaline not greater than 1 in 1000. Recently, strong solutions of adrenaline have been employed—1 in 100 or even more concentrated—and with these the technique is quite different—only three or four puffs of the vapour should be inhaled. Patients inhaling concentrated solutions of adrenaline must be warned against exceeding this dosage. There is a real risk of adrenaline poisoning leading to anxiety, tremor, tachycardia, rise of blood pressure, and acute oedema of the lungs.

Urgency Procedure for Mental Cases

Q.—In pre-war days the normal method of certification of people of unsound mind was that of two reports from different medical practitioners and an order from a magistrate. In cases of urgency the Urgency Order was used. I am told by the superintendent of the local mental hospital that the Urgency Order should be used as a routine. I have a patient whose case can not be called urgent. She will not go in as a voluntary patient but she is too difficult to remain at home. I filled up the first of two certificates but the second medical practitioner was unable to complete his because at the time of his examination there were not sufficient grounds. Now I am being pressed to have her removed on an Urgency Order. What is the normal method of removal? In this case what would my legal position be if I were to have the patient removed under an Urgency Order when there are no grounds of immediate urgency, if legal action were taken against me?

A.—The law concerning the admission of persons of unsound mind to institutions has not changed and must be adhered to. To use the Urgency Procedure where the patient's condition does not justify it might lay the certifying practitioner (and the superintendent of the mental hospital) open to an action for wrongful certification. The correct procedure is by petition of the nearest relative, supported by a statement of particulars, two medical certificates, and a reception order signed by a judicial authority. A person of unsound mind who is not under proper care and control may be placed under care by a summary reception order made by a justice of the peace and supported by a statement of particulars and one medical certificate. A private patient (it is assumed that the patient in

this case is not rate-aided) not living with relatives or friends may be placed under care by summary reception order made by a judicial authority on the application of the constable, relieving officer, or officer of the parish.

This does not apply to a rate-aided patient. A rate-aided person of unsound mind is placed under care by a summary reception order made by a justice of the peace. This needs a statement of particulars and one medical certificate. The same procedure may be applied to a person of unsound mind, whether rate-aided or not, who is wandering at large, or to a person who is neither rate-aided nor wandering at large but is of unsound mind and either not under proper care and control or cruelly treated or neglected. A relieving officer or constable may place a rate-aided person of unsound mind or one wandering at large in the observation ward of an infirmary; he is there visited by a justice, who may issue an order detaining him there for fourteen days. In all rate-aided cases the application for a summary reception order is made to a justice of the peace by the constable, relieving officer, or overseer of the parish in which the patient is found.

The practitioner is recommended to read the 1890 Act, or the summary of procedure which will be found in the standard textbooks of forensic medicine.

INCOME TAX

Colonial Medical Service

H. W. asks as to the position if he buys a house in this country for the use of his wife and of himself when he is on leave.

* He will become a British resident, and will be liable to British income tax on the income which he remits to or draws in the United Kingdom. The usual personal allowance would be claimable. The position would be the same if the house were the property of the wife.

Loss on Sale of Practice

D. O. C. A. has sold his practice for £1,000 less than he paid for it some years ago. Can he claim an allowance for the loss?

* No. The transfer of a practice is a capital transaction, and any gain or loss arising out of it cannot be taken into account in calculating income.

Assistant: Employment of Wife

J. M. is an assistant in general practice. His house is provided for him by his principal and some consultations will be done there. He asks, Can I claim allowance for my wife (say, £80 a year) for answering the telephone, etc., or expenses of maid for the same purpose?

* J. M. is assessable under Schedule E and any expenses allowable must therefore be incurred "wholly, exclusively, and necessarily in the performance of the duties of the employment." We very much doubt whether he could maintain that proposition on appeal. If he can, then a reasonable amount—having regard to the time required—could be charged as an expense, whether paid to the maid or to the wife.

Resumption of Practice after Service

"Inquisitive" was released from the Army in June, 1945, and resumed his (specialist) practice in July, 1945. On what earnings is taxable (a) for 1945-6 and (b) for 1946-7?

* (a) On the earnings of that year—i.e., his Service pay (on the basis of a proportion of the previous year's pay) and his actual civil earnings to April 5, 1946. (b) On the amount of his professional profits for the year to July, 1946. Depreciation of the car can be claimed (a) on a proportion of £126 at 20% = £25; assuming that civil work started on or about July 5, 1945, the allowance would be 9/12ths of £25—i.e., £19, plus 1/5th—i.e., £23; (b) on £126 - £19 = £107 at 20%, plus 1/5th—i.e., £28.

Employee: Board and Lodging of Family

S. H. is contemplating employment at an institution. What would be the position as regards income tax if his service agreement provided for payment of a salary of £v plus free board and lodging for himself, his wife, and his six children.

* The matter is not free from doubt. In the old leading case on this question the employee was required to reside on the premises in the interests of his employer, whereas in this case it is the interests of the employee which would be served by having the family residing at the institution. The cost of their board and lodging is the primary responsibility of S. H., and if the managing committee bear that cost for him it might be held that it was equivalent for income-tax purposes to a payment made on his account. S. H. is advised to obtain, if possible, the opinion of the local tax office before entering into such an agreement with the institution.

LETTERS, NOTES, ETC.

Vitamin E in Neuromuscular Disorders

Dr. M. D. WRIGHT writes from the Research Laboratories of Vitamins Ltd.: On page 420 of the *Journal* of March 16 a short summary is given of the present general opinion of the action of vitamin E in neuromuscular disorders. One admits that the desire to see clinical improvement may perhaps influence some observers into the belief that it is actually taking place, especially where the observations rest upon no objective means of measurement. The fact remains, however, that experimental animal deficiency of vitamin E gives rise to histological and grossly apparent nervous and muscular degenerations, and there is a recent study bearing on this subject, which would appear to be free from the bias mentioned. It is P. Vogt Muller's study on 90 dogs affected with distemper, and the results are best expressed in his own table (*Tierärztliche Rundschau* 1942, 48, 274).

Group	Treatment	No. of Dogs	No. Dying	No. Dying which showed Nervous Complications	No. with Nervous Complications which Survived	Total with Nervous Complications
I	None (controls)	30	14	10	11	21
II	10 mg. tocopherol	30	16	11	12	23
III	5 ml. wheat-germ oil equivalent in vitamin E content to dose given in Group II	30	12	3	2	5

In this case the treatment differed in its effect on the nervous complications according apparently to the form in which it was administered. The result may have been due to something other than vitamin E in the wheat-germ oil, or to some difference in the vitamin itself. In this connexion Harris *et al.* in 1944 (*J. biol. Chem.* 156 (2), 491), showed that α -tocopherol in its natural form was 50% more active biologically than the synthetic *d-l* molecule. Whatever the underlying reason it would appear that certainly in some central nervous system lesions wheat-germ oil has a useful effect.

Intravenous Protein Hydrolysate

Mr. T. M. J. d'Offay writes from the City General Hospital Leicester: Dr. H. E. Magee in his article on nutrition (March 30, p. 475) implies that there is no protein hydrolysate manufactured in this country that is suitable for intravenous use. That is not the position. My colleagues and I at this hospital have during the last six months given "casydrol" intravenously for many types of cases, and continuously for five or six days in many instances, with most satisfactory results. The incidence of thrombosis is no higher than with saline or blood transfusion.

Xenopus Test for Pregnancy

Dr. HUGH DUNLOP (London, W.) writes:—As a constant reader of your instructive "Any Questions?" I note with particular interest your paragraph on the xenopus test for pregnancy (Feb. 16, p. 262). I wish to draw attention to the eponymic title used therein—viz., that of Hogben. So far as I am aware the use of *Xenopus levis* as a test object for pregnancy was first described by C. W. Bellerby (*Nature*, March 31, 1934). So far as I know, Prof. Hogben has never claimed to have carried out any active work on the xenopus test for pregnancy; his work was rather on the ovulation produced by extracts of the anterior pituitary. In these circumstances I cannot believe that Prof. Hogben would wish his distinguished name to be attached to the test.

Proctalgia

ONE MORE writes: May I add my own contribution to "Another Victim" (March 9, p. 380). I would call it a *proctalgia* as it does not appear connected with either coxycy or prostate. In my own case it is always the same—by night, with a commencing dull ache in the anal canal, growing to a sickening intensity, relieved always by the removal of a hard scybalous stool from the rectum. Straining at stool is difficult owing to the pain and to a temporary non-functioning of the sphincters, and so digital removal is the answer. Past experience has shown that the pain will recur very shortly if a small faecal "nodule" is not hooked down from the recto-sigmoidal junction. I think it is a reflex spasm of the internal sphincter with pressure on small internal piles. If constipation is avoided, no attacks occur. The pain is worse than renal colic.

Diagnosis of Amoebiasis: Correction

Dr. E. M. BUZZARD (Oxford) writes: In my letter (April 13, p. 586) I misquoted the paper of Kelsall and Leishman. It should, of course have read "25% of all local admissions for diarrhoea," not "25% of all admissions."

BRITISH MEDICAL JOURNAL

LONDON SATURDAY MAY 4 1946

CROSS-INFECTION IN CHILDREN'S WARDS

A REPORT PRESENTED TO THE BRITISH PAEDIATRIC ASSOCIATION BY THE FOLLOWING
AD HOC COMMITTEE:

Drs. V. D. ALLISON, R. B. BOURDILLON, W. S. CRAIG, Mr. JAMES CROOKS, Drs. W. CROSBIE,
WILFRID GAISFORD, W. GUNN, R. LIGHTWOOD, Prof. J. C. SPENCE, Prof. C. W. VINING, and
Dr. A. G. WATKINS (Chairman)

The term cross-infection is here used to denote any infection acquired by a patient in the hospital environment. Clinically, it is an infection arising during the course of another illness for which the patient was originally admitted to hospital, and may attack the respiratory tract, gastro-intestinal tract, wound, skin, or mucous membrane, or be manifested as one of the specific fevers.

Cross-infection is a constant anxiety to all concerned with the hospital care of sick children and infants, the latter particularly calling for special protective measures. A great deal has yet to be learned. No explanation, for example, has been given for one of its outstanding features—namely, its fortuitous onset. It is well known that, in spite of overcrowding and poor hygiene, one ward may for long be without manifest cross-infection, whereas another which has every facility and is staffed by well-trained nurses may suddenly be the site of a virulent outbreak. In spite of this it would be folly to ignore the value of adequate preventive measures.

Cross-infection which results in nothing more than a mild catarrhal illness, at times apyrexial, must not be dismissed lightly. There is evidence that this may be but the prelude to outbreaks of increasing severity culminating in a series of fatal illnesses. The virulence of the infection may apparently be increased by passage, and unless prompt measures are taken to control the initial outbreak there may be a calamity. Pemphigus neonatorum furnishes an example of this feature. An outbreak may begin with one infant having a single lesion no more than a few millimetres in diameter. Failure immediately to apply protective measures may be followed by the development of pemphigus in successive patients in whom the illness is progressively more severe, ending in a generalized toxæmia.

Cross-infection by infectious fevers, measles, or chicken-pox, for example, seriously hinders the work of a children's department, for such outbreaks necessitate the closure of a ward or wards for an indefinite period.

Whilst a good deal has been written about cross-infection in children's wards, the frequency, extent, and results of this have never been ascertained. In order to provide this information a special *ad hoc* committee was invited by the British Paediatric Association to present its views on the problem, and the Association has instituted an inquiry to collect evidence on the incidence of cross-infection. The obtaining of this evidence will take time, but the results of the inquiry will be published in due course. The report of the Committee which is here presented is a broad statement of our present knowledge on cross-infection, and, although suggestions are made as to how it may be controlled, opinion is still divided on so many points of detail that the report is more in the nature of

a preliminary discussion intended to bring before the profession generally, and those in charge of children's wards in particular, the many problems that have to be faced in the control of cross-infection. This procedure of issuing a report before the exact nature of the problem has been defined may justly be criticized, but it has been done deliberately in this way, in the belief that such a report may help hospital authorities about to create or to improve their facilities for the care of sick children.

General and Bacteriological Considerations

1. Inhalation: Respiratory Tract Infections

This is the most prevalent type of cross-infection, and accounts for much of the morbidity and many of the deaths in infants' and children's wards. It includes tonsillitis, rhinitis, otitis media, common cold, pneumonia, influenza, and infective hepatitis and the specific fevers—scarlet fever, diphtheria, whooping-cough, measles, chicken-pox, rubella, and mumps.

The haemolytic streptococcus, *Str. pyogenes*, which belongs to Lancefield's Group A, is one of the most frequent causes of inhalation cross-infection. Much of our knowledge gained in recent years on the sources and paths of spread of infection in hospital wards is based on studies of the epidemiology and serological typing of streptococcal infections in scarlet fever and measles wards, in otorhinological wards, and in the general medical and surgical wards in children's hospitals and departments. The protean manifestations of infections with *Str. pyogenes* are too well known to need further comment, except to re-emphasize that one and the same serological type may, by spread, cause scarlet fever in one child, tonsillitis in another, otitis in another, and wound infection in yet another, all in the same ward. The importance of the reservoir of *Str. pyogenes* in the human upper respiratory tract as a cause of cross-infection is in part due to the fact that it may have as its portal of entry not only the respiratory tract but also the skin (wound sepsis, infection of burns, erysipelas, impetigo).

The pneumococcus is a not infrequent cause of cross-infection in the respiratory tract, but it does not play such an important part in the epidemiology of hospital infections in this country as it appears to do in the U.S.A., where ward and family outbreaks of acute lobar pneumonia have been reported.

The diphtheria bacillus has been shown to have the same source and mode of spread as infections of the upper respiratory tract with *Str. pyogenes*. Cross-infection with *C. diphtheriae* has been found to be of common occurrence even in diphtheria wards, and, although then without clinical significance, it prolongs the carrier state, with consequent delay in discharge of patients from hospital.

Outbreaks of whooping-cough (*H. pertussis*) are of less frequent occurrence in hospital wards, but may have serious consequences.

The virus diseases are often causes of outbreaks of infection, and are difficult to control. Children with measles are peculiarly susceptible to cross-infection with *Str. pyogenes*, which is commonly responsible for otitis media.

2. Ingestion: Gastro-intestinal Tract Infections

These include gastro-enteritis of infants, epidemic diarrhoea of the newborn, bacillary dysentery (*B. sonnei*), occasionally typhoid or paratyphoid fever, and, more rarely, food-poisoning with *Salmonella* organisms. Thrush, too, may be considered in this group. Outbreaks of gastro-enteritis among infants in hospital wards are common, and may have a case-fatality rate as high as 70%. Although organisms of the dysentery or *Salmonella* group have been identified as the cause of some outbreaks, in most instances no known pathogen has been found, and the possibility that the infection may be due to a virus cannot be dismissed. In this connexion it should be recalled that diarrhoea and vomiting in infancy are often due to infection outside the alimentary tract—notably the upper respiratory tract, especially the middle ears. Thus a child admitted to a ward with a streptococcal or other pyogenic infection—e.g., tonsillitis or otitis media—may by cross-infection produce an upper respiratory infection in another infant, and so cause a parenteral gastro-enteritis.

Outbreaks of typhoid and paratyphoid fevers occasionally occur, but rarely do they arise from infection in the ward. They are more commonly conveyed to the patient in some food infected by a missed case or a carrier among the food-handling staff. It is the nurse who is most in danger of contracting infection from a patient in a ward with an enteric fever.

3. Implantation: Infection of Wounds, Skin, and Mucous Membrane

In surgical wards, otorhinological wards, and wards in which burns are treated, pathogenic bacteria—in particular the pyogenic cocci *Str. pyogenes* and *Staph. aureus*, but also *B. proteus* or *Ps. pyocyanea*—may readily be introduced, either into clean wounds or burns or to lesions already infected, unless the strictest aseptic dressing technique and other precautions are taken to prevent it. The prophylactic and therapeutic use of sulphonamide drugs or penicillin should not be made the occasion for any relaxation in the preventive measure involved in good nursing and aseptic principles. In addition to cases of burns, children after removal of tonsils and adenoids are highly susceptible to infection with *Str. pyogenes* at the operation site, with otitis media or mastoiditis as a not infrequent sequel.

The commonest infections of the skin which may spread in wards are impetigo, ringworm, scabies, and pediculosis. In recent years there seems to have been an increasing incidence of outbreaks of pemphigus neonatorum due to *Staph. aureus* among newly born infants in maternity units and nursing homes, often accompanied by cases of staphylococcal conjunctivitis ("sticky eye"). There is evidence to show that pemphigus neonatorum and staphylococcal conjunctivitis are caused by *Staph. aureus* from the nose or throat or skin of adults in the infants' environment, and it may be a mother, doctor, or nurse, or even a laundress who, through handling napkins or garments with hands infected from the nose or throat or elsewhere, is the source of infection. Moreover, the attendant or parent may be the victim and so become a further source of infection. In outbreaks in infants' nurseries the same serological type of *Staph. aureus* has been isolated not only from skin lesions but also from infants with conjunctivitis in the affected nursery, from the noses of nursing staff, from the dust and air in the nursery, and from the infants' blankets, clothing, and bath. It might also here be mentioned that disinfectants of the liquor chloroxylenolis group, while highly effective against *Str. pyogenes*, are of very little use against staphylococci, and may give a sense of false security if used as hand antiseptics in infants' wards. Mastitis among mothers in maternity units is being noted with increasing frequency, and has been associated with the same epidemiological and bacteriological findings as in pemphigus neonatorum.

The most important infections of mucous membranes, other than those of the upper respiratory tract, which includes the mouth with thrush infection, are vaginitis and conjunctivitis, now less commonly due to the gonococcus.

4. Sources of Infection

The main sources of cross-infection in hospital wards are: (i) Manifest clinical cases. (ii) The patient who is incubating a disease and may be in a highly infectious state. (iii) The ambulant, missed, or subclinical case, unrecognized because of its mildness. (iv) The carrier, who may be convalescent or "healthy." The latter group, which may include both nurses and doctors, is of great importance, as the potential danger can be discovered only by laboratory investigation.

Infection is spread by the secretions, excretions, and discharges of patients, staff, and visitors, and may have its origin in the respiratory tract and its annexes, the gastro-intestinal and urinary tracts, the skin and mucous membrane, septic wounds, burns, or abscesses.

5. Paths of Spread of Infection

These are by contact with contaminated material, either by direct personal contact or by mediate contact with infected clothes, bedding, ward articles, and food. The vectors of infection may be flies. A very important part is played by air-borne infection with droplets, droplet nuclei, and dust, especially in infections having as portals of entry the upper respiratory tract and skin.

It is important to remember (a) that the skin of the fingers and hands, and the hair, may harbour organisms identical with those present in the nose and throat; (b) that the skin of the fingers and hands is particularly liable to contamination with infected material either directly or by contact with infected fomites and dust from furniture and floor; (c) that the pocket-handkerchief, while still the least inconvenient mask against spread of droplet infection from coughing and sneezing, is a vehicle of infection from the upper respiratory tract to the hands and the air.

Droplets and droplet nuclei charged with bacteria are discharged into the air from the nose and mouth, and either settle on the floor, bedclothes, or ward equipment to dry and become redistributed with the dust, or remain suspended as floating particles to be wafted about the ward and inhaled, thereby transmitting infection over a considerable distance. Organisms such as *Str. pyogenes* may remain viable in dust for as long as six months if unexposed to the bactericidal action of sunlight.

Ward Routine

1. Admission of Patients

Every patient should be examined by an experienced medical officer before being allowed to enter the ward. This officer is a key man in the prevention of infection, and his duty should not be left to any medical officer who happens to be available. A history should be obtained of previous infectious diseases, of recent contact with infection, and of immunization. If there is a risk of the patient's bringing an infection into the ward then the urgency of his admission should be reconsidered and, if possible, admission postponed.

Attention must be paid to the throat, nose, ears, and skin; and swabs of the throat should be taken as a routine and, at the discretion of the admitting officer, also of the bowel, skin, and nose. He should direct the admission of the patient to an isolation-room for at least 48 hours if there is the slightest suspicion of infection, or until such time as the patient is declared free from infection. Special admission-wards tend to form a bottle-neck unless there is an adequate number. It is estimated that for an open ward of 20 cots there should be at least four admission-rooms. If isolation-rooms are available for ward nursing, then the number of admission-rooms needed will be less.

If on admission an infection is found to be present which may pass to others in the ward, then the infected child should be admitted only to a closed cubicle or isolation-room. If only an open ward is available the child should be barrier-nursed and placed in the ward as far away from especially susceptible children as possible—e.g., if he has streptococci in his throat he

should not be put near any infants or any cases of rheumatism or nephritis

Type of Case Admitted to Wards.—There is much to be said on clinical and teaching grounds for a unit of medical and surgical cases. There is however a danger in admitting certain types of surgical cases to an open ward because of the risk of wound contamination and because, in turn, an infected wound may be the source of spread of haemolytic streptococci or other infection throughout a ward. Consideration should therefore be given to segregation of special surgical cases—e.g. burns and ear nose and throat cases—those with otorrhoea are a potent source of ward infection, and should always be isolated.

Infants because of their greater susceptibility to cross infection and the more serious effects cross infection may have in them constitute a special problem. No infant under 1 year old should be exposed to infection. Direct infection from ward dust and droplet infection from other children can be prevented only by nursing infants in cubicles or isolation rooms. Even this does not do away with the risk of infection from nurses or faulty management. It is essential, therefore, to admit babies only into isolation rooms or cubicles and to keep them there throughout their stay in hospital. It is an all too familiar tragedy for a healthy baby admitted to hospital for a surgical operation—e.g. pyloric stenosis or hare lip—to die of a gastro-enteritis contracted from ward infection. If, however, only an open ward is available, the infant should be barrier nursed, and by careful spacing and placing of the cots between non infected older children the risk of cross infection may be reduced.

A further point to consider in ward planning is that in the case of babies the admission of the mother may be desirable, either for breast-feeding or to conduct the nursing. Accommodation for this purpose will be necessary, and will be discussed later.

2 Nursing Staff

Next to careful pre admission examination, the quality of nursing is the most important single factor in controlling cross-infection. However ideal the design of a ward may be, it will not achieve its purpose unless the nursing staff is able to carry out its duties with skill and understanding of the problems involved. The sister in charge of a children's ward should, in our opinion, be "children-trained" and hold the RSCN certificate, with fever training as a very desirable addition. She should not have more than 20 acutely sick children under her care. The more the ward is subdivided the heavier are the nursing duties and a children's ward needs more nurses per patient than most other hospital departments. For a ward of 20 beds there should be at least two trained staff nurses for day duty and two for night duty, and the total number of nurses should approximate one per patient for the 24 hours. The practice of leaving only one or two probationer nurses in charge of a ward at night is a common cause of a breakdown in anti infection measures.

Student nurses should be instructed by a pathologist or senior medical officer in the dangers of cross infection and how to avoid them, and should be given simple practical demonstrations in bacteriology. Only by imparting to them a knowledge of the problems involved can one expect their intelligent co operation.

Health of Nurses.—A sick nurse does not do her work well and is a potential source of infection to her patients. All nurses should be encouraged to "report sick" even for minor complaints for the latter may produce a serious condition if passed on to an infant. Sore throats, the common cold, nasal sinusitis, and skin and dental infections are the main dangers that are too often neglected. Gastro-intestinal upsets should also be reported. If a nurse is found to be harbouring infection likely to be dangerous to her charges she should be removed from duty. A medical officer should be responsible for the general health of the nursing staff, and the nurse should have ready access to him. On entering hospital a nurse should undergo a complete examination before acceptance for training. This should include height and weight measurements, history of past infectious diseases, skiagrams of chest, and Mantoux test, Schick test, and blood counts. Repeat examinations should be made every six months, or at any departure from normality. Student nurses should be actively immunized

against diphtheria and the enteric fevers. Nurses previously immunized should be Schick-tested, and, if negative, given a "boosting dose". If positive, they must be fully immunized. Nurses must be taught to keep themselves healthy, many nurses do not make full use of their off-duty periods to take open-air exercise. Facilities for open air games should be provided. Hospitals should accept greater responsibility for the health of their nurses than they have done in the past.

3 Nursing Technique

This has been largely described in the MRC War Memoranda—No. 6, "The Prevention of Hospital Infection of Wounds," and No. 11, "The Control of Cross-Infection in Hospitals"—and only some of the salient features will be mentioned here.

Washing.—Ideally, every member of the nursing and medical staffs, and all students should wash their hands before and after attending to or examining each patient. In practice this is seldom done, but it should be insisted on for every patient who is known to be harbouring infection, and after possible contamination by secretions, excretions, or discharges of any kind. Nurses should "scrub up" before and after attending to the toilet of the mouth or anus of any child as they would when "doing a dressing". Ample and conveniently situated washing facilities must be provided for this purpose. The wearing of rubber gloves may be helpful in preventing soreness of the nurses' hands from frequent washing.

Masks.—Laboratory tests show that impermeable ("cellophane") masks, or masks made of three or more layers of gauze of not fewer than 44 threads per inch, are fairly efficient for preventing dispersal of organisms until the masks themselves become the emitters of bacteria. They must be worn to cover the nose as well as the mouth. Masks must be worn by all attending infants or any child with a wound, and in the latter case the patient himself should wear a mask during dressings. A liberal supply must be provided, for the masks must be changed frequently. When discarded, they should be put immediately into disinfectant solution and left in until washed. In no circumstances should masks be put into pockets or be left lying about.

Gowns.—These should be worn by nurses handling any suspected or known infectious case. They should cover uniforms completely (including the sleeves). A separate gown should be worn for each patient, and after use it should be placed on a peg or stand with its outside outwards.

Dressings.—The technique of ward dressing is fully described in the MRC Memorandum No. 6, referred to above. Dressings done in an open ward are a source of air- and dust borne infections, so that a separate room provided with efficient ventilation and specially equipped for doing dressings and minor surgical procedures should be an essential part of any ward unit.

Napkins.—Destructible napkins are preferable (cellulose or gamgee tissue types). After a baby has been changed they should be immediately placed in a dressing pail and covered with disinfectant, they should then be transferred to a special ward bin and incinerated. If it is not possible to obtain destructible napkins ordinary ones will have to be used. The same ward procedure must be carried out and the napkins taken to the laundry in the ward bin. Napkins should be boiled and washed in a separate machine in the laundry and afterwards handled only with strict attention to cleanliness.

Linen.—Bed linen should not be sorted in the ward, but be sent direct to the laundry. Linen soiled with excreta should be put in disinfectant before being sent. Ordinary washing of "woolies" in the ward by hand is not a guarantee of sterilization, and the use of a disinfectant may be necessary.

Towels.—Nurses and others drying their hands on a communal towel may convey infection to other users. The use of the roller towel is to be condemned, and tissue towelling which can be burnt is the safest, if not the most comfortable, material to use.

Task Nursing.—Many wards have adopted the method of allocating separate tasks to each nurse. Thus one nurse is responsible for the changing of all babies, another for the feeding, and another for dressings. This procedure has much to commend it.

4. Prevention of Infection via Food

The kitchen should be considered as one of the most important departments of a hospital. Wash basins with elbow taps should be provided so that the staff can wash their hands under running water. Ample storage accommodation must be provided for cooked and uncooked food, adequate refrigeration must be available, and all windows fly-proofed. The fly menace should be attacked vigorously by the use of DDT. The kitchen staff must realize the importance of their work and the dangers inherent in unclean methods of handling food.

So far as is possible only those interested in the preparation of food should be chosen for work in the kitchen, and the remuneration paid them should be commensurate with the responsibilities they carry. Work in the kitchen should be considered as the highest level of domestic work in a hospital.

Milk forms the most important part of the dietary in a children's ward. It also forms a perfect culture medium, and especial care must be taken to ensure cleanliness and protection from contamination. The source of supply should be subject to special scrutiny. Frequent samples should be submitted to bacteriological examination. If a sample of the milk is taken on its arrival at the hospital, especially if it be delivered in a churn, and a further sample of the same milk is taken six hours later, useful comparisons can be made. A further useful test is to rinse out the ward vessels with sterile water and examine the rinsing for *B. coli* and other organisms. This test should be carried out on vessels that have been "cleansed" for the reception of milk, and should be done without previous warning. All milk should, of course, be efficiently pasteurized and stored in refrigerators. The use of dried milks overcomes the problem of unsafe liquid milk. It must be remembered, however, that dried milks may be just as easily infected by faulty technique during their preparation as may liquid milk.

A special room should be set aside for the preparation of infants' feeds. Nurses working in the milk kitchen should be specially trained in the dangers of food contamination. They should prepare all feeds under aseptic conditions so far as is possible. Masks and gown should be worn and any nurse with an infection, especially of the bowel—e.g., even a transient diarrhoea—should be kept off duty.

5. Ward Hygiene

The main methods now available for reducing the infective content of air are as follows:

Methods for Removing or Killing Organisms while Air-borne

(a) *Good Ventilation.*—This is of the first importance in reducing air-borne infection. Fresh air in amount equal to 8 to 10 changes per hour should be introduced, although this demands expenditure on heating in winter and needs careful attention to the avoidance of draughts. It is recommended that expert architectural advice be obtained to ensure that existing or proposed wards have satisfactory ventilation and lighting. The fee involved and the cost of alterations are negligible in comparison with the benefit to patients and staff. In all systems of ventilation it is important to arrange the air-flow so as to carry dust and infective particles away from patients rather than towards them. Mechanical systems of ventilation have not always proved satisfactory, and need careful selection and design for the particular conditions present in each building in which they are used. The provision of large windows admitting plenty of daylight is a valuable aid in killing bacteria on the floor and elsewhere in a ward. The interposition of glass does not prevent this effect, although it reduces it. The action occurs even under winter conditions in this country. In this connexion the importance of balcony space should be stressed not only for its own virtues in nursing sick children but because balcony spacing provides extra light and ventilation to the patients. Children should be nursed in the open air as much as possible and, provided they are warmly clad, feverish patients, especially those with respiratory infections, benefit greatly. Ward temperatures should not be above 60° F. (15.6° C.)—except in nurseries for the newborn. To counter low temperature adequate and suitable clothing should be provided rather than artificial heating. Overheating and poor ventilation promote the spread of respiratory infections.

(b) *Adequate Bed-spacing.*—This ranks second in importance only to good ventilation, and the common 6 ft. (1.8 m.) between cot centres is too small. At least 9 ft. (2.75 m.) is needed—and preferably 12 ft. (3.6 m.) Proper bed-spacing goes a long way to reduce droplet infection from case to case. A problem naturally arises here in the question of "extra beds." So far as is possible, the putting up of extra beds should be resisted, but if the emergency does arise then the medical officer in charge must review his bed-positioning and place his extra bed where the risk of cross-infection is minimal, taking into account not only the site of the cot but also its position in regard to the other patients in the ward.

(c) *Use of Ultra-violet Rays.*—Low-pressure mercury-vapour lamps may be used for irradiating the upper portions of hospital wards with ultra-violet rays. They have been tried extensively in America and on a small scale in this country. Provided that there are not too many lamps and that they are removed from direct vision, no goggles need be worn, since normal ceiling paints and

plaster reflect very little U.V.R. The effectiveness of this type of irradiation is greatest in air of low humidity and on freshly emitted moist organisms; dust practically nullifies the bactericidal action of U.V.R. This method is most useful in rooms of a ceiling height not less than 12 ft. (3.6 m.). A portable U.V.R. apparatus of suitable design may prove to be a useful adjuvant when isolation-rooms and furniture.

(d) *Use of Chemical Disinfectants.*—It is easy to disinfect air by chemical treatment under laboratory conditions, but to do this as a continuous routine in hospital wards is troublesome and as yet of uncertain value. Chemical disinfection of air should in the present state of our knowledge of this method be reserved for special occasions or special places, or during epidemics of air-borne disease. The chief disinfectants known to be effective against fresh micro-organisms in concentrations that are harmless or nearly harmless to human beings are: (i) hypochlorous acid; (ii) resorcinol; (iii) propylene glycol; (iv) tri-ethylene glycol; (v) lactic acid.

Methods of Preventing the Re-dispersal of Organisms After Emission and Sedimentation

(a) *Removal of Dust.*—Wards should be designed to prevent dust accumulation. Walls should be smooth, with rounded corners; there should be no horizontal ledges, even at doors; furniture should be built in, with as few movable pieces as possible. Dry dusting and dry sweeping of floors should be prohibited. The most effective method of keeping down dust from floors is the use of spindle oil on floors of wood or linoleum. For floors of terrazzo, cement or asphalt oiling is unsuitable; but wet sweeping, or sweeping with sawdust moistened with calcium chloride, is helpful. Vacuum sweeping is better than dry dusting, although large numbers of organisms pass through the walls of the dust-bag of the ordinary portable domestic sweeper; hence vacuum-sweeping into a centralized piping system is preferable. The time-honoured custom of floor washing with water from a bucket is most unsatisfactory. Special machines which provide a continuous supply of clean water are available, and should be used.

(b) *Oiling of Bedclothes.*—It is now fully proved that ordinary blankets, sheets, pillow-cases, and pyjamas or nightgowns form immense reservoirs of bacteria which are freely scattered in the air when patients move or when beds are made. This emission can be avoided to a large extent by applying a small percentage of a suitable oil—e.g., triton oil—to these articles in the final stages of laundering. Laundries will need expert advice in this matter when this process is first introduced. Dermatitis from the oiling of garments and blankets is not a risk if it is done properly, and this measure alone will greatly reduce the number of bacteria present in a ward.

6. Prevention of Cross-infection by Subdivision of Ward

It follows from the foregoing discussion on air-borne infection that isolation of children in separate rooms must decrease cross-infection. It is on this basis that the subdivision of wards by various types of "cubicles" has been devised. The open ward, however, has certain merits. Children are able to talk and play together, supervision is very much easier, and teaching of students is pleasanter and more practical. In planning a children's ward the aim should be to produce a unit which is designed to reduce cross-infection to a minimum, and which at the same time is practicable to work and will preserve for the child and nursing staff something of the homely, happy atmosphere of the open ward without its attendant dangers.

Individual Isolation Measures

(a) *Isolation Unit.*—The policy of converting wards into isolation units—e.g., by dividing a standard 20-bedded ward into two rows of glass rooms (technically called "cells") with a central service corridor, is not entirely satisfactory. However conscientiously the nursing rules are followed, cross-infection, especially with virus diseases, may occur. The reason for failure is the difficulty in preventing the corridor atmosphere from being a vehicle of infection. Air currents may be reduced, if not completely controlled, by the partial air-conditioning system, or an ultra-violet lamp over each unit door may be used to form a protective screen. Units should be made of glass walls, though the lower 2 ft. (60 cm.) may be of steel or wood. In building, care must be taken to avoid horizontal ledges where dust may settle in the junction between the steel and the glass. Glass allows children to see their neighbours and thus reduces their sense of loneliness and, of course, allows easier nursing supervision. Each unit must have good daylight, ventilation, and heating. Its size must be such that a bed or cot can be moved in and out easily and that there is plenty of room for all nursing attention and for minor operative procedures—e.g., lumbar puncture. Doors should be capable of being opened by elbow or foot, not by hand. Every unit should, ideally, be provided with its own wash-basin, but in the interests of economy these may have to be situated

in the corridor, and one basin may have to serve for more than one infant. When each can be fitted with its own wash basin, the latter should be of such a design that it may be used for bathing a baby as well as for nurses' hand washing. Infants should not be bathed in a communal bath, which may convey infection.

(b) *Cubicles*—By these are meant ward divisions by partitions not reaching to the ceiling and varying from 7 to 9 ft (2.1 to 2.75 m) in height. For small babies this method may be satisfactory, but with older children, who may stand on their cots, even 9 ft is barely high enough. Cubicles have the great advantage of being cheaper to build than separate rooms, and their open tops allow of easier ventilation. Opinion is divided on their value as compared with separate rooms or cells, and, although they may give a sense of false security, they at least indicate to the nurse and doctor the need of care.

(c) *Complete isolation room*—Children, even babies, dislike being by themselves. The size and equipment of such rooms should be as described for isolation units. Ideally, the front should face south or south west, and be provided with a verandah or balcony, with french windows opening upon them, so that cots can be wheeled out. Outside partitions, which are theoretically necessary, are unsightly, and may be entirely, or in part, dispensed with provided patients occupying the verandah at the same time are carefully selected and spaced. If several floors are used, lifts must be provided and adequate measures taken to ensure that children cannot climb out of windows or over balcony walls or railings. If conversion of an existing ward to include cubicles or rooms for isolation be contemplated certain considerations are necessary before deciding on the required number. The patient most in danger from cross infection is the infant, and as he is less likely to resist the company of other children he should be specially considered. All babies under 1 year old should be nursed in isolation. So far as accommodation permits, the age limit for isolation should be raised to 2 years, but for older children it should be reserved for pre-maternal observation on admission, children with suspected or proved infection, and the very ill child to whom a cross infection might be fatal. In subdividing an open ward some space will be lost and the number of beds reduced. This loss of beds must be set against the lessened risk of infection, with a shorter hospital stay, so that the annual admission rate will not be reduced. The actual number of isolation cells needed per ward will vary with the type and age of case admitted, but at least 25% of the beds should be isolated.

7. Other Desiderata in a Ward Unit

In planning a ward unit other facilities not hitherto stressed must be provided, all of which have a direct or indirect bearing on the question of cross infection. These are:

(a) *Separate Room for carrying out Special Procedures*—Dressings and minor procedures of a septic character should never be carried out in an open ward where wound contamination is likely. A special efficiently ventilated room should be set aside for this purpose, to which the children can be taken. The room should be considered as an operating theatre, with all its associated aseptic techniques practised.

(b) *Accommodation for Mothers*—In the case of mothers feeding their babies at the breast, provision must be made for them to live in the hospital so that breast feeding can be maintained—in itself a most valuable measure against cross infection. The practice of admitting mothers to live with and conduct the nursing of their babies, whether breast- or bottle fed, has much to commend it. Accommodation should therefore be provided for this purpose. It is desirable to have available specially designed flats or houses where mothers can live with their babies.

(c) *Accommodation for Parents*—Parents are naturally anxious to be at hand if their children are seriously ill, and accommodation for them should be available.

(d) *Provision for Examination of Out patients*—From time to time children are brought to the ward unit for examination but not necessarily for admission. This is not a good policy, but if it must be done there should be a separate waiting room and examination-room which will prevent the introduction of infection from outside.

NUTRITION IN VIENNA IN NOVEMBER, 1945

BY

MAGNUS PYKE, Ph.D., F.R.I.C.

A report has already been made on nutrition in Vienna in early September, 1945 (Pyke, 1945). At that time, although the Allied Council had been established, adequate food rations were not being distributed in the city. On Sept. 23, however, it was decided that rations providing at least the minimum nourishment needed for subsistence should be distributed throughout Vienna. At first, although similar rations were issued in different parts of the city, each national element comprising the Allied Council brought in supplies for the feeding only of that population living in the sector of Vienna administered by itself. At the beginning of October, however, it was agreed to pool all food, so that the Austrian authorities could distribute as nearly as possible the same ration throughout Vienna.

Although the Allied Council ration scales represented a substantial improvement on those previously obtainable in the city, they were only sufficient to provide a bare nutritional minimum. Furthermore, the provision of vitamin C and vitamin A was entirely dependent on potatoes and vegetables, supplies of which were uncertain, and in addition, so far as children and pregnant women were concerned, the adequacy of the diet was contingent on at least a minimum amount of milk being available. A further overall weakness of all the ration scales was a shortage of calcium.

As was inevitable in the light of the uncertain and divided administration of Vienna, in the event, exact standardization of the ration was not found to be completely possible. The fact that supplies during the two weeks covered by the survey were greater or less in one zone than in another is probably not significant. The difficulties of food distribution made it impossible for issues to be equal at all times. For example, during the first week there was a double issue of fat in the Russian sector. This was made to compensate for a failure to distribute fat during the previous week.

Individual Food Consumption

In Vienna a number of factors are likely to affect the composition of the diet eaten by an individual. Although the nature of the food is broadly contingent upon the composition of the ration there are, besides the general fact that rations are taken into a household and not usually eaten by an individual, the influence of communal meals on the diet and the availability of unrationed foods from gardens or from the black market. A further possibility is that rationed foods may be exchanged for clothes or other goods. In order to assess the composition of the diet actually being eaten by different sections of the Viennese population in November, 1945, a number of groups of individuals were interrogated about the food they had eaten during the previous 24 hours. The assessment of the nutritional value of the diet was made in the same manner as that described in the previous report, written in September.

Normal Consumers

Two groups of normal consumers were investigated. These were taken at random from queues in public offices in the XIth and XIIIth districts. The composition of the diets eaten, as derived from calculations made on the data collected, is shown in Table I.

TABLE I—Composition of the Average Daily Diet Eaten by Normal Consumers in Vienna Nov. 7-16, 1945

	Cal	Prot (g)	Fat (g)	Ca (mg)	Fe (mg)	Vit A (i.u.)	Vit B (mg)	Rib. Acid (mg)	Vit. C (mg)
Bz. XII (15 people 7 men, 8 women)	1,630	59	18	190	17	220	1.70	0.75	11
Bz. XIII (20 people 9 men, 11 women)	1,750	60	16	240	17	130	1.70	0.70	10

NOTE.—A deduction has been made to allow for the loss of vitamin C in cooking.

After 30 years' service in providing the more severely wounded ex-Service men with the means of living a useful life in the community, the Princess Louise Scottish Hospital for Maimed and Limbless Sailors and Soldiers has decided to build a modern hospital on the site of its present establishment at Erskine, on Clydeside. In the years 1939-45 approximately 3,000 men from Scottish regiments, the Royal Artillery, Royal Engineers, Royal Marines, Royal Navy, and Merchant Navy were admitted to the hospital. There are now 148 patients, some of them armen, including 63 surgical, 42 medical, 38 paraplegic, and there are also 64 pensioners. The hospital appeals to the people of Scotland to help to replace the present buildings erected shortly after 1916.

It is interesting to compare the figures shown in Table I with those obtained in September from two similar groups of individuals. In September the calorific value of the diet was about 1,000 and the food eaten provided less than 50 g. of protein. Moreover, in the earlier survey, whereas one of the groups of individuals studied was obtaining about 50 mg. of vitamin C per day, the other received only 7 mg. The present more equal vitamin C intake is due to the improved distribution of potatoes. The lack of calcium and riboflavin still apparent is due to the overall shortage of dairy produce and to delay by the Austrian authorities in carrying out a Kommendatura agreement that flour might be fortified with chalk. The shortage of vitamin A is largely due to the lack of green vegetables.

Factory Workers

Groups of industrial workers from two different Bezirke were surveyed. The first factory visited was a light engineering works in the XIIth district employing a large number of men. The second was a smaller establishment in the XIVth district manufacturing heating appliances. At both factories a canteen meal was provided at midday. In order to obtain this meal work-people must give up a certain number of ration coupons. The amount of food they receive in return, however, is almost always considerably larger than that represented by the coupons. The advantage for the canteen meals is partly obtained by the official issue of a *per capita* supplement. Of far greater importance, however, is the fact that almost all factories use part of their output and, even more significant, part of their transport to obtain by one means or another potatoes, horse meat, or some other additional supply of food frequently from sources outside Vienna. In the case of the two factories where studies were carried out, the midday meals provided approximately 910 and 870 calories respectively. The nutritional value of the full day's diet eaten by the workmen at the two factories is shown in Table II.

TABLE II.—Composition of the Average Daily Diet Eaten by Factory Workers in Vienna, Nov. 7-14, 1945

	Cal.	Prot. (g.)	Fat (g.)	Ca (mg.)	Fe (mg.)	Vit. A (i.u.)	Vit. B ₁ (mg.)	Rib. (mg.)	Nic. Acid (mg.)	Vit. C (mg.)
Light engineers, Bz. XII (group of 20 men)	2,300	90	32	390	23	810	2.50	1.22	16	46
Heating-appliance manufacture, Bz. XIV (20 men)	2,040	84	16	300	26	120	2.25	1.01	12	19

NOTE.—A deduction has been made to allow for the loss of vitamin C in cooking.

The figures in Table I suggest that normal consumers, whose ration provides about 1,550 calories, were eating somewhat more than the food to which they were strictly entitled. In the case of factory workers, however, most of whom possessed workers' rations supplying 2,250 calories, there is some evidence to suggest that part of their food entitlement went to their families. The figures in Table II show that the food eaten by the two groups of men studied was not enough for them to be able to do physical work efficiently, even though an improvement was apparent over the far more inadequate food intake of about 1,500 calories found during the course of the survey made in early September. In addition to the overall shortage of food shown by the lack of calories, the diet of these factory workers was deficient in calcium and vitamin A and to some extent also in riboflavin. An outstanding feature of the Viennese factory workers is the substantial contribution made by the factory meal. Since a large proportion of this meal is derived from foods which are obtained in a somewhat unofficial manner, the nutritional safety of this class of the community may be even less secure than would appear to be the case.

Children

The diets of the groups of boys and girls about 12 years old were investigated in two separate schools. At the time this investigation was made, although the official ration provided for the issue of half a litre of milk to children between the ages of 6 and 12, in fact no milk at all was available for this age group. Since the September survey was carried out, how-

ever, the municipal authorities have been able to provide day meals for almost all the children attending school in Vienna. These meals are in most cases cooked centrally and issued to the schools in insulated containers. The food provided tributes about 380 calories a day during six days of the week. At the schools where this investigation was carried out rotation of meals was customarily made up by bean soup, soup, flour soup, barley soup, and potato soup, together with a roll. A small amount of dried milk in certain of the meals provided a limited contribution of animal protein. During investigation it appeared that the children usually ate the food provided at school and then were given another when they returned home.

TABLE III.—Composition of the Average Daily Diet Eaten by School Children in Vienna, Nov. 9-14, 1945

	Cal.	Prot. (g.)	Fat (g.)	Ca (mg.)	Fe (mg.)	Vit. A (i.u.)	Vit. B ₁ (mg.)	Rib. (mg.)	Nic. Acid (mg.)
A group of 15 girls aged 12-13, Bz. XII	1,810	76	19	320	21	660	1.88	0.85	10
A group of 15 boys aged 10-12, Bz. XII	1,820	76	29	360	19	750	1.89	1.10	10
A group of 20 girls aged 12, Bz. XII	2,240	89	28	560	21	2,240	2.0	1.09	11
A group of 20 boys aged 12, Bz. XII	1,880	80	18	380	20	2,390	1.74	0.94	11

NOTE.—A deduction has been made to allow for the loss of vitamin C in cooking.

The figures given in Table III show that although the value of food available to children has been substantially increased from about 1,300 calories available early in September, it still falls short of the approximate requirement of 2,500 needed for proper development. Furthermore, it is substantially deficient in calcium. There is also a deficiency of vitamin A, together with a shortage of vitamin B₁ and riboflavin. The marked fluctuation in the vitamin A in the different groups of children is due to the uneven availability of green vegetables. In the case of the last group of 20 out of the 20 had eaten substantial amounts of green vegetables during the period of survey and others had only eaten vegetables shortly before. At the first school, however, the children had had only small amounts of cabbage and many of the others were unable to recall when green vegetables had last been available to them.

Family Food Consumption

In order to obtain a picture of the availability of food in the different sectors of Vienna a survey of family food consumption was undertaken. During each of five consecutive weeks approximately ten families in the four residential sectors and in the international sector of Vienna were daily by welfare workers specially detailed for the investigation by the Jugendamt. At the first visit an inventory was taken of the food in the larder which would be used in the course of the week. Each item was weighed and a record made. The following seven consecutive days, a visit was made to each household, and all foods purchased or otherwise obtained entered on a record sheet. In order to check the accuracy of the information provided by the housewives, daily menus were recorded on at least two days of the survey. The collected menus served a twofold purpose—first, it gave information to how rationed items were being used, and, secondly, it was to bring to light foods which by oversight or otherwise had not been recorded. On the seventh day a final inventory was taken of food remaining in the house.

As has been previously mentioned, a number of meals were eaten outside the house in Vienna. In order that the *per capita* consumption of food could be calculated from the total amount of foods coming into each household, it was assumed that each individual could be represented by 21 meals per week. Should three individuals record that 7 meals per week were obtained from a factory kitchen, a deduction of one meal was made in assessing the *per capita* family food intake. Dinners, however, were assessed as only half a meal, since

have said, it was customary for children to eat another meal when they reached home. Besides making an allowance for meals taken out of the house, an opposite allowance was made when guests were recorded as having taken meals with the family.

It had been planned that families should be chosen for the survey entirely at random, and addresses were so selected from the house lists used by the Food Office for the issue of ration cards. When the survey was begun, however, some difficulty was encountered in obtaining co-operation from all households, many of the Vienna population have suffered annoyance and hardship from a series of visits from billeting officers, requisitioning officers, and the troops of several nationalities. Details of the population sample finally included in the survey are given in Table IV. It can be seen from this table that the sample is considerably overweighted with women. The proportion of men to women in the whole of Vienna at the time the investigation was 40 to 60.

TABLE IV.—Composition of the Population included in the Survey of Family Food Consumption

Number of Households			
British sector	..	20	
American sector	..	19	
French sector	..	20	
Russian sector	..	18	
International sector	..	20	
Total	..	97	

Number of Individuals			
Ration Category	Men	Women	Total
General consumers	26	103	134
Employees	18	43	66
Workers	19	11	30
Day workers	2	4	6
Children:			
2-5 years	—	—	13
5-6	—	—	17
6-12	—	—	32
Total			295

A most interesting feature is the list of vegetables obtainable in the separate zones of Vienna. Officially, only potatoes had been issued during the period of the survey, with the exception of a small amount of green vegetables in the Russian zone during the first week. The data collected, however, showed that a useful supply of green vegetables was being obtained as gifts or by individual purchases in all sections of the town. It seemed clear that, although many families could obtain vegetables, a substantial number of others were without them for prolonged periods.

The average nutritional value of the foods obtained by Vienna households in different parts of the city between Nov. 7 and Nov. 23, 1945, is given in Table V. In comparing the results shown in this table with those in Tables I-III it must be borne in mind that the latter gave an estimate of the amounts of food which people had actually eaten, whereas Table V shows the average amounts of food obtained per head in each household. It is often considered that under normal circumstances a loss mounting to up to 10% of the nutritional value occurs during the process of preparation and cooking. It might therefore be argued that the results of the household survey ought not to be compared directly with those of the individual survey. On the other hand, the overall scarcity of food in Vienna might be expected to cause a reduction in the margin between the results obtained by the two methods.

The results set out in Table V based on family food consumption are, in fact, in substantial agreement with the studies of the individual groups composing the family summarized in Tables I-III. The average figures shown in Table V indicate, as did the previous figures, that, although the total amount of food available to people in Vienna, measured by its calorific value, is not sufficient to provide a diet fully adequate nutritionally, it nevertheless reaches the *per capita* value of 3,000 calories, which might reasonably be expected to be sufficient for subsistence. The two consistent deficiencies in the diet are a deficiency of calcium and a deficiency of vitamin A. In addition to these shortages there is some

deficiency in riboflavin. A fourth weakness in the diet is a tendency to a deficiency in vitamin C. It must be remembered that whereas a deduction to allow for the loss of vitamin C in cooking has been made in Tables I-III, no such allowance has been made in Table V. Since the loss of vitamin C in cooking amounts to about 60% for green vegetables and 50% for potatoes, it is highly probable that not enough is available for

TABLE V.—Average Nutritional Value of Food obtained per Head per Day by Vienna Households (November, 1945)

	Cal	Prot (g)	Fat (g)	Ca (mg)	Fe (mg)	Vit. A (i.u.)	Vit. B ₁ (mg)	Rib. (mg)	Nuc. Acid (mg)	Vit. C (mg)
British sector										
Nov. 7-14	1,760	57	30	330	16	2,310	1.58	0.65	8	70
Nov. 16-23	2,220	79	25	300	22	1,570	2.11	1.01	10	55
U.S. sector										
Nov. 5-12	1,990	69	41	400	11	600	1.67	0.94	9	39
Nov. 15-22	1,790	63	20	260	20	660	1.69	0.82	9	42
French sector										
Nov. 6-13	2,160	79	41	570	21	3,240	2.21	1.21	10	85
Nov. 16-23	2,180	66	19	310	19	2,360	1.94	0.93	11	91
Russian sector										
Nov. 6-13	2,390	86	52	480	23	1,900	2.09	1.32	11	50
Nov. 16-23	1,920	64	17	230	18	960	1.84	0.80	10	55
International sector										
Nov. 5-12	2,360	79	38	370	21	780	1.95	1.01	11	40
Nov. 16-23	1,610	53	21	240	14	530	1.44	0.71	8	36
Average	2,040	70	30	340	18	1,480	1.84	0.97	10	57

full nutrition. Furthermore, it has already been pointed out that the distribution of green vegetables is unequal between different families in different parts of Vienna.

Loss of Weight among the Population of Vienna

During the past three months the heights and weights of several groups of the population in Vienna have been collected. Figures for children and for male factory-workers are set out graphically in Fig. 1 and Fig. 2 respectively. The children's weights were collected by the Vienna school medical service; the weights of factory-workers were specially obtained as part of this investigation.

Children

In Fig. 1 the heights and weights of 6,858 Viennese children have been plotted. The standard curves shown are those of Piquet (1913). From this graph it can be seen that in October

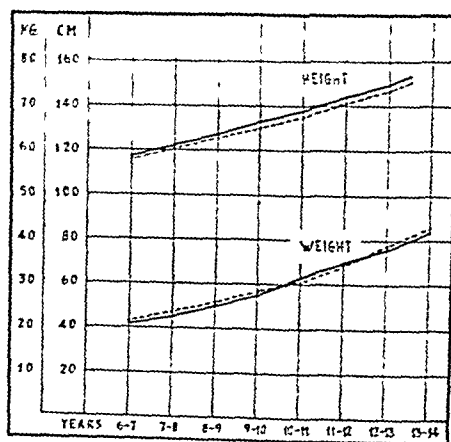


FIG. 1.—Heights and weights of Vienna school-children, Sept.-Oct., 1945. — = Average recorded height/weight of 6,858 children. . . . = Piquet's standard.

the children of Vienna showed no loss of weight compared with the standard. There was, however, some increase in height without a corresponding increase in weight. In general, however, the results appeared to be reassuring. It is interesting to record that a similar set of weighings carried out in Graz, in Styria, gave results almost identical with those obtained from the Vienna school-children.

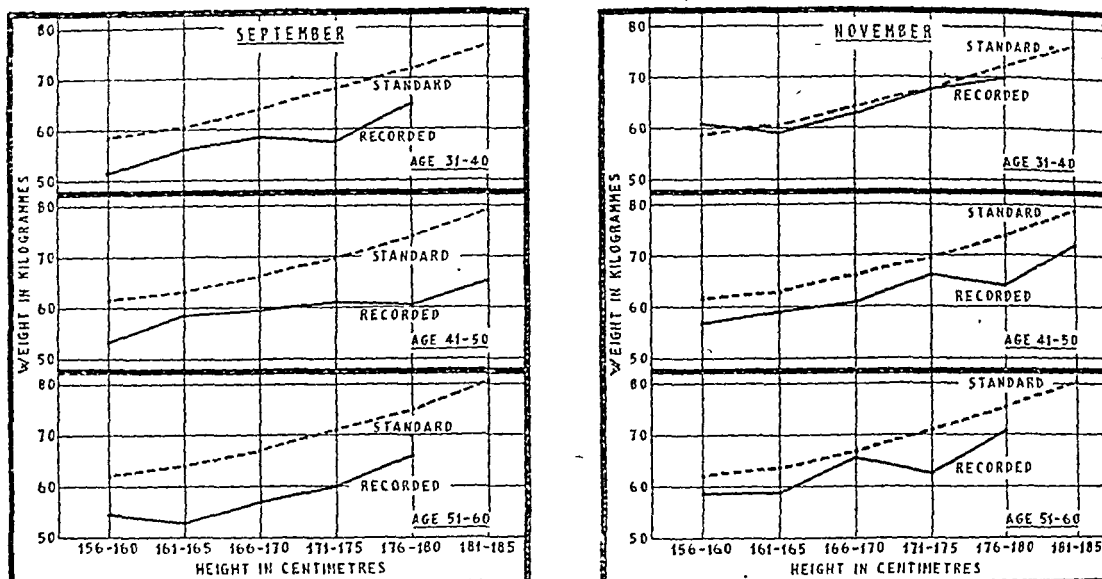


FIG. 2.—Heights and weights of male factory workers in Vienna, 1945. (The standard for body weight is that of Davidson and Anderson.)

Industrial Workers

In Fig. 2 the body weights of workers in a large factory in the XIth district of Vienna have been plotted against heights. The total of approximately 600 workers were split into the three age groups shown. The figures used as standard for body weight are those of Davidson and Anderson (1940). The first part of Fig. 2 suggests that in September a loss of weight between 8 and 10 kg. had occurred, with the greater loss having been suffered by the older men. The second part of the figure indicates that by November the youngest group of men had attained a weight equal to the standard, while in all cases an increase had occurred. Although weighings were carried out with the work-people in shirt and trousers and without shoes, we cannot completely exclude the possibility of an increase in weight due to heavier underclothes worn in the colder weather.

Conclusions

Although there was a substantial improvement in the food supplies of Vienna between September and November, 1945, the full nutritional requirements have not yet been provided. So far as protein is concerned the total amount available appears to be adequate except for the lowest ration category of "normal consumer," although it is possible that the proportion of animal protein may be insufficient. The shortage of fat in the diet, although perhaps of little physiological significance, is a measure at least of unpalatability.

A comparison of the intake of vitamins A and C in September and November is of interest. In the earlier month the official ration supplied no vitamin A or vitamin C at all, but, since people could procure at least a small amount of vegetables for themselves, their diet was partially protected. In November, however, the official ration was designed to supply adequate quantities, but as potatoes were scarce and vegetables almost unobtainable, the actual diet available was worse than before. In order, at least in part, to make good this deficiency the British authorities are proposing to issue vitamin tablets throughout their sector. These tablets will also supply a supplement of riboflavin. To meet the calcium deficiency it is proposed, as was mentioned earlier, to add chalk to the bread.

Summary

A dietary survey carried out in Vienna in November, 1945, showed that the food eaten by normal consumers provided about 1,700 calories daily; factory workers obtained approximately 2,200 calories, and children 10 years old about 2,000 calories. All the diets were deficient in calcium, vitamin A, and riboflavin, and there was a shortage of vitamin C for the children. A survey of the weekly food consumption of 97 Vienna families broadly confirmed these results and suggested that the average *per capita* diet supplied about 2,000 calories daily.

The weights of Vienna school-children showed no drop below the standard for age, while a slight excess in height appeared to exist. A group of factory workers seemed to have increased in weight since September.

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THE "IONIZATION" OF PENICILLIN

BY

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The practice of using solutions of penicillin for the treatment of infected wounds by ionization seems to be on the increase and some authors—notably von Sallmann (1943), Struble and Bellows (1944), and Dunnington and von Sallmann (1944) using this method for eye infections have claimed satisfactory results. Before these results can be accepted it must be shown that penicillin in solution behaves as an electrolyte. A series of experiments was therefore designed to test this hypothesis and the results, which are reported in this paper, suggest that it is untenable. No attempt was made to determine the specific conductivity of penicillin in solution, but it seems amply clear that, even if the molecule does move, the rate will be so slow that a therapeutic concentration in the tissues will not be obtained, and there is a strong possibility that the penicillin will be destroyed by the products of electrolysis of other electrolytes present.

Methods

In all experiments the apparatus shown in Fig. 1 was used. The strength of the penicillin solutions was between 25 and 50 units per ml.—a convenient concentration for estimation by the cup method employed; where a penicillin-agar base was used, slices were cut off and dropped on to seeded plates and the penicillin content estimated from the diameter of the zone of inhibition, as in the cup method.

Where an indicator was required B.D.H. 4110 was used, as this dye has no inhibitory effect on penicillin. All the water employed in the experiments was redistilled from alkaline KMnO_4 in an all-glass apparatus.

Experiment 1.—The glass tube was filled with the redistilled water. The maximum current was passed for two hours. During this time the current increased from 0.05 to 0.15 milliampere. The test was

repeated with a solution of sodium penicillin in redistilled water (25 units per ml.). The milliammeter readings increased from 0.10 to 0.15 in two hours.

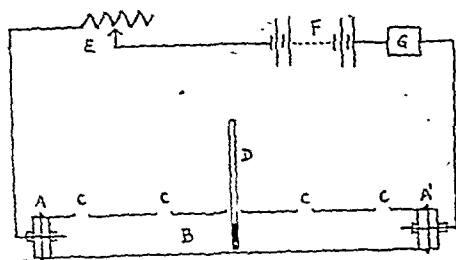


Fig. 1.—Apparatus used for all experiments.—A, A', Non-polarizable platinum electrodes, 14 cm. apart. B, Glass tube, 1 cm. bore. C, Holes in tube for sampling. D, Thermometer. E, Variable resistance for controlling current. F, High-tension battery, 240 volts. G, Milliammeter.

The addition of penicillin to the water leads to only a slight initial increase in the amount of current passing through it. Penicillin is therefore either a very poor conductor or a non-conductor; in the latter case the slight increase in current might well be due to impurities in the drug.

Experiment 2.—The glass tube was filled with sodium penicillin solution (25 units per ml.) and the maximum current passed for two hours. Samples of the solution from the region of the anode and

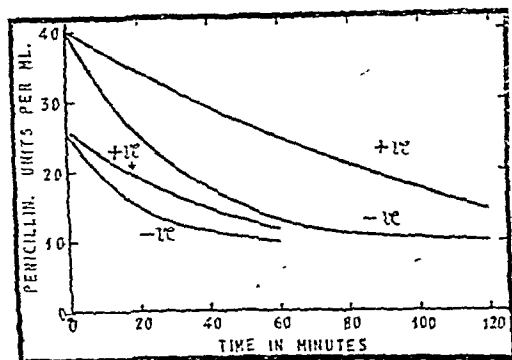


Fig. 2.—Experiment 2: showing rate of loss of penicillin at the anode (+) and cathode (-). Aqueous solution; two tests.

of the cathode were tested for penicillin activity at intervals. The results of two tests are shown in Fig. 2, where it can be seen that the penicillin is destroyed at both electrodes, although more rapidly at the cathode.

Experiment 3.—Experiment 2 was repeated with addition of the indicator, B.D.H. 4110, to the solution. The colour changes showed that the solution at the anode rapidly became acid (pH 4) and at the cathode became alkaline (pH 10). At the end of 15 minutes these changes were complete in the respective halves of the tube. Test sampling from each end of the tube for penicillin activity was carried out, and the results obtained were identical with those of Experiment 2.

The indicator therefore has no effect on the penicillin. The destruction of the penicillin is probably due to the gross pH changes in the solution, which themselves may be due to the electrolysis of impurities in the penicillin.

Experiment 4.—In order to slow down the rapid ionic movement demonstrated by the pH changes in Experiment 3, the tube was filled with 3% agar in redistilled water containing B.D.H. 4110 and 50 units of sodium penicillin per ml. The current was maintained at 10 mA for 23 minutes. The agar column was 120 mm. long, and at the end of the experiment the colour change at the anode indicating pH 4 was 35 mm. long and at the cathode (pH 10) 20 mm. long. Plating of disks of the agar at the end of the experiment showed that at the anode, where the pH was reduced to 4, only 3 units penicillin per ml. remained, and at the cathode only traces of penicillin were detected. In the central part of the column, where the reaction remained neutral, 50 units per ml. were recoverable from all parts, no shifting

towards either electrode being demonstrated. This experiment again suggests that the penicillin destruction, when it occurs, is due to gross pH changes.

In none of the foregoing experiments do the conditions of test resemble those which would be encountered in *in vivo* methods. As practically all body fluids contain sodium chloride and most tissues other chlorides, the experiments were repeated in the presence of the former salt, and, as will be shown, this leads to even more rapid destruction of the penicillin.

Experiment 5.—The tube was filled with 0.9% NaCl in redistilled water containing various concentrations of sodium penicillin. These were subjected to various strengths of current, and the penicillin content was determined at intervals by the cup method, as in the previous experiments. The results are shown in Fig. 3. It will be

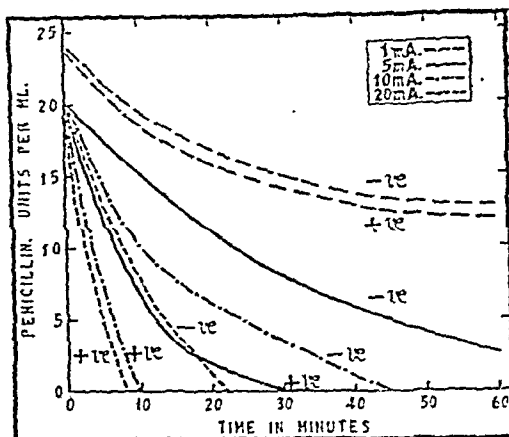


Fig. 3.—Experiment 5: solutions of penicillin in saline. Showing rate of loss of penicillin at anode (+) and cathode (-) at different current strengths.

seen that the penicillin is destroyed more rapidly at the anode (in watery solutions the reverse is true), and this is probably due to the presence of chlorine. Also the greater the current the greater the rate of destruction of penicillin. For instance, at 20 mA 20 units per ml. are destroyed within 10 minutes (anode), while at 5 mA 20 units per ml. are destroyed in 30 minutes (anode). The tests also show that the rate of destruction of penicillin in a solution of NaCl is more rapid than when no NaCl is present. The temperature of the solution being ionized rose in all these tests but never exceeded 21° C.

Experiment 6.—The tube was filled with a column of agar containing 0.9% NaCl, 50 units per ml. of sodium penicillin, and indicator B.D.H. 4110. The current was passed at 10 mA for 20 minutes, and at the end of this time the agar was sliced and plated. The penicillin had been completely destroyed where colour changes had occurred in the agar, but in the central part of the column, where the pH was about 7, there had been no detectable loss or movement of penicillin.

Compared with Experiment 4 these results show that ionization in agar containing penicillin and NaCl leads to more rapid destruction of the penicillin in the region of the electrodes. Again there is no evidence that penicillin behaves as an electrolyte.

Discussion

No claim is made that these experiments are exhaustive, but the results seem to justify an assumption that any attempts to ionize penicillin into the body are doomed to failure. Penicillin appears to be either a very poor conductor or a non-conductor—an observation confirmed by the failure to demonstrate any movement of penicillin during the passage of an electric current through a solution of its sodium salt. If penicillin is a conductor, albeit a very poor one, it should be possible to demonstrate ionic movement by suitable *in vitro* experiments; even if this can be done the movement will be relatively slow, and it is doubtful whether a therapeutic concentration could ever be obtained in the tissues. Again, all tissue fluids contain sodium chloride, and, as has been shown *in vitro*, the products of electrolysis of this salt are highly lethal to penicillin; naturally free chlorine and sodium hydroxide are not formed in the tissues during electrolysis, and at the moment one cannot

say whether the experimental results *in vitro*, in this respect, are applicable to *in vivo* methods.

High concentrations of penicillin were not used in the experiments because they would have had to be grossly diluted in order to estimate the amounts present. This dilution would have introduced unnecessary errors into the estimations.

Summary

Penicillin is either a non-conductor or a very poor conductor (Experiment 1).

It has been impossible, in the conditions described, to demonstrate any movement of penicillin under the influence of an electric current (Experiments 2 and 6).

The presence of the products of electrolysis of sodium chloride in the *in vitro* experiments led to the rapid destruction of penicillin. It is not known how far this observation can be applied to *in vivo* methods.

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DIFFERENCE IN THE EFFECT OF SCOPOLAMINE ON PERORAL AND SUBCUTANEOUS ADMINISTRATION

BY

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Particular circumstances brought it about that in my department (dermatology) we had occasion to carry out a series of systematic studies on the effect of scopolamine given by mouth in doses of 3-4 mg.—i.e., 6 to 8 times the Danish maximal dose (0.5 mg.)—and to compare it with the effect of 0.5 mg. given subcutaneously.

Effect of 3-4 mg. Given by Mouth

One of my patients, a nurse admitted for a severe x-ray burn had some time before been sentenced to prison for an attempt to poison her mother, being accused of having poured some scopolamine in her coffee. The sentence aroused an enormous sensation in Denmark, and many persons offered voluntarily to act as experimental subjects in order to try out the effect of scopolamine given in moderately increased doses by mouth (3-4 mg.). This was the amount of scopolamine with which the attempt at poisoning was claimed to have been made. An experiment with the peroral administration of 10-15 mg. to the sentenced woman had given merely moderate, not serious, symptoms of the well-known type, and hence further experiments were to be looked upon as safe. In the literature no instance of death from ingestion of scopolamine has been reported—not even with doses as high as 500 mg. and 300 mg.

The 30 persons employed for these experiments were chiefly nurses, aged from 30 to 60. In the majority of the subjects the only noticeable symptom was a moderate dryness of the mucous membranes accompanied by some drowsiness. The development and intensity of the symptoms may be recorded summarily as follows. In no instance was a stronger effect observed.

1. *Heart Action*.—After 15 to 30 minutes a moderate fall in the pulse rate appeared, often accompanied by a minor rise in the rate of respiration.

2. *Mucous Membranes*.—After 30 to 40 minutes a distinct dryness of the mucous membranes of the mouth and throat was noticed.

3. *Muscles*.—After a moderate laxity of the muscles was observed. Convulsions or rigidity were not seen in any instance. A couple of subjects stated, however, that they had some slight jerky contractions in the legs.

4. *Pupils*.—Dilatation of the pupils is said to be the most characteristic symptom of scopolamine action, and hence the subjects were examined very closely for the appearance of this symptom at intervals of 15 minutes. In 10 cases no distinct dilatation could be demonstrated; in 3 cases only, this phenomenon reached a consider-

able size (7.5 mm.)—after about two hours—and was accompanied by lowered reaction to light. The dilatation of the pupils was but slowly.

5. *Sensorium*.—The action on the sensorium was limited to a slight drowsiness in some subjects. The two oldest, aged 69 and 65, sent a slight degree of excitation, with loquacity and actions resembling that seen in moderate alcoholic intoxication.

6. *After-effects*.—Most of the subjects noticed no after-effects at all and slept well during the following night. A few felt a little tired next day, and two noticed a slight dryness of the throat. On the following day a moderate dilatation of the pupils could still be demonstrated in a few of the subjects examined.

After this experiment 4 additional persons were given 4 mg. of scopolamine by mouth. The symptoms were not particularly more pronounced than in the preceding group.

Peroral and Subcutaneous Methods Compared

It was most interesting to compare the features of intoxication here observed when the same subjects were given a subcutaneous injection of 0.5 mg. of scopolamine. In this way it became practicable to settle the question about the proportional effect of scopolamine given perorally and subcutaneously. These experiments were carried out on 14 persons. Only two of them showed an effect of scopolamine identical with that observed after ingestion of 3 mg., perhaps even a little weaker. In the remaining 10 subjects the effect was distinctly stronger after injection of the remedy, in most of the cases even considerably stronger, and it appeared more rapidly too, showing the following picture:

1. The pulse rate and the frequency of respiration were not influenced much more strongly here, but the effect appeared sooner.

2. The dryness of the mucous membranes was noticeably more pronounced, in several cases even much more pronounced—so that, for instance, the subject could not swallow a biscuit without making of water.

3. Also the effect on the musculature was greater here, and in several subjects it was so marked that it was difficult for them to keep on their feet.

4. Dilatation of the pupil was quite distinct in 8 of the 10 subjects, and impairment of the reactivity of the pupil was demonstrable in 7 cases, considerable in 2.

5. Drowsiness and sleepiness appeared in nearly all the subjects, often accompanied by an inconveniencing dizziness. Symptoms of excitation and confusion were observed in 4 subjects. As mentioned already, the character of this symptom was that of a "drunk." A couple of subjects had slight hallucinations. The symptoms of excitation always made their appearance rather late—at the earliest after two hours.

6. Also the after-effects were decidedly stronger after subcutaneous injection than after ingestion.

Later two of the nurses who had been given 4 mg. of scopolamine by mouth were submitted to an additional test for the effect of 0.5 mg. of the remedy injected subcutaneously. The effect here was about the same as that observed in the 12 subjects first examined.

If we wish to give a numerical expression for the decrease in the effect when scopolamine is given per os instead of subcutaneously, it is obvious that on an average the effect then is at least 6 times weaker, or rather, perhaps, 8 times weaker.

Conclusion and Summary

The effect of 3 or 4 mg. of scopolamine given by mouth to healthy adult subjects was generally rather weak—much weaker than would be expected *a priori* according to the doses officially established as maximal for peroral administration. In a majority of the subjects the effect has to be characterized as insignificant, as chiefly it was limited to a slight dryness of the mucous membranes of the mouth and throat.

A comparative study was made of the variation in the effect of scopolamine when given subcutaneously and per os to 14 of the same persons. The doses here employed were 0.5 mg. given subcutaneously and 3 mg. (in two cases 4 mg.) given by mouth. In 12 cases the effect of 0.5 mg. injected subcutaneously was stronger than in several cases decidedly stronger—than that of 3 or 4 mg. given by mouth. In only two cases was the effect of 3 mg. per os equal to or perhaps a little stronger than that of 0.5 mg. given subcutaneously.

Judging from these results the efficacy of the drug given by mouth may be reckoned on an average to be about one-eighth of its effect when injected subcutaneously.

* For further details see *Nordiskt Med.*, 1944, 20, 793.

Its low toxicity when given per os calls for a revision of the maximum dose of scopolamine—and probably of some other alkaloids too—as fixed by the official pharmacopoeias.

In forensic medicine the consequence will be that no injury can be foreseen from a dose of 3 to 4 mg. of scopolamine given by mouth. (It was only after 8 years that the nurse was taken before a higher court and, on the basis of this investigation, rehabilitated.)

In all the experimental subjects here employed the symptoms characteristic of scopolamine effects were observed to make their appearance in the same chronological sequence: (1) After 15 to 30 minutes, reduction in the rates of the pulse and respiration. (2) After 30 to 45 minutes, dryness of the mucous membranes of the mouth, nose, and throat; a little later, moderate muscular atony and moderate drowsiness. (3) Pronounced dilatation of the pupils was seen only in a minority of the cases—generally beginning after 60 minutes and reaching its maximum after 120 minutes. (4) Symptoms of excitation were seen in a few cases, especially elderly persons, but not until 120 minutes after ingestion of the drug.

After subcutaneous injections of 0.5 mg. the sequence of the symptoms was the same as after peroral administration, but their development was somewhat more rapid and their intensity more pronounced.

CARCINOMA OF THE RECTUM IN SISTERS

BY

R. E. REWELL, M.D., M.R.C.P.

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Multiple polyposis of the colon in siblings was first described by Cripps (1882), and Doering (1907) first noted the frequency of malignant change in the condition. The condition is rare, since, although Stewart (quoted by Sawyer, 1940) found polypi in 4% of children, very few of these were multiple. Statements as to the frequency of malignant change vary. In Doering's original series there were 21 carcinomas in 40 cases of polyposis, Sawyer (1940) found malignant change in 40% of cases in a review of several series, while Friedell and Wakefield (1943) found only two carcinomas out of 19 cases. Many of the last series, however, were in children, and would not have been diagnosed without a special search. Genetically determined polyposis may not arise until middle life (Lockhart-Mummery, 1925), and seems to appear earlier in successive generations of the same family (Friedell and Wakefield, 1943). The earlier literature is reviewed by Dukes (1930).

Recently I have observed the following two cases of carcinoma of the rectum in young sisters. One had multiple polyposis of the colon and the other multiple telangiectases. Carcinoma of the rectum in siblings of this age is so rare that one must conclude that there is some connexion between the three conditions. The father of the sisters was killed in 1917, and they were his only children. Their mother is alive, and has three children by a second husband. The eldest of these is 25; all are well, and none have ever had any bowel troubles.

Case Histories

Case 1.—Edith was mentally defective, though she earned her living as a domestic servant. From the age of 4 she was cared for by nuns, who noticed nothing wrong with her bowels. Before this she is said to have had "tuberculous bowels," but her mother can give no grounds for this statement. At the age of 29 she was admitted to hospital with a very vague history of diarrhoea and passage of blood per rectum, was in *extremis*, and died a few days later. At necropsy the body was that of a poorly developed young woman, with foul teeth and many sebaceous cysts of the scalp. There was extensive bronchopneumonia, and a malignant ulcer at the pelvi-rectal junction with metastases in the para-aortic lymph nodes and in the liver. There were many polyps throughout the colon. The intervening mucosa appeared quite normal.

Case 2.—Maud, aged 32, was the sister of Edith. She presented herself at an antenatal clinic, pregnant for the first time, and gave no history of any upset of the bowels. However, a carcinoma of the rectum was discovered, and hysterectomy and colostomy were performed. She died seven months later. At necropsy a mass of growth filled the pelvis, and there were metastases in all the abdominal lymph nodes, the liver, and the peritoneum. Below the hepatic flexure the colon showed numerous minute bright-red telangiectases, each about 2 mm.

across, and separated from the next one by 2 cm. of normal mucosa. The rectum was buried completely in the mass of growth, and the exact origin of the tumour could not be determined.

Comment

From the last Census it appears that there were 3,353,100 women alive at that time between the ages of 25 and 35. In the same year 23 women in the same age group died of carcinoma of the rectum (Registrar-General's Annual Report, 1931). On any system of probability it is extremely unlikely that sisters will die of the same condition which has a death rate of only 2.3 out of a population of some 335,000. There would appear, therefore, to be statistical support for the contention that the conditions found in these women's colons were in some way connected and were also responsible for the development of their carcinomas.

I have to thank Mr. G. F. Stebbing and the Chief Medical Officer of the London County Council for permission to publish the second case, and for the kind invitation to perform the necropsy in Lambeth Hospital, where that patient died.

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Medical Memoranda

Jejunal Diverticulosis Complicated by Haemorrhage

The following case may be considered unusual enough to merit publication.

CASE HISTORY

A man aged 73 was admitted to hospital on May 26, 1945, with a history of severe rectal haemorrhage for 24 hours. The onset was sudden and painless, the blood being dark at first but bright in colour later. He had had no previous attacks and had been in perfect health until three months previously, when he had developed pain in the upper abdomen two to three hours after meals, anorexia, flatulence, and slight loss of weight.

On admission he showed all the signs and symptoms associated with severe haemorrhage; the blood pressure was 80/50 and the haemoglobin 52%. A transfusion of 3 pints (1.7 l.) of blood was given. After passing several melana stools his condition settled down. The following investigations were carried out: (1) A test meal showed complete achlorhydria. (2) A barium meal revealed a hypotonic but otherwise normal stomach; the diverticula were not visible, but there was slight delay and partial obstruction in the upper jejunal coils. (3) A barium enema showed diverticulosis of the descending and the pelvic colon.

A laparotomy was performed on June 26. Eight diverticula were found in a segment of 14 in. (35.5 cm.) of the proximal jejunum, the first one being situated 4 in. (10 cm.) from the duodeno-jejunal flexure. The largest of these was 1½ in. (3.8 cm.) in diameter and contained a stony-hard and sharp concretion; the diverticulum stood out from the others and was discoloured, while the surrounding mesentery was congested. The rest of the intestinal tract was carefully examined and no further abnormality was found other than diverticulosis of the colon, seen in the skiagram. Resection of the affected loop with an end-to-end anastomosis was performed. A post-operative glucose-saline drip was set up and continuous gastric suction maintained for five days. The patient was discharged from the hospital on Aug. 8, and has been perfectly well since.

DISCUSSION

Diverticulosis of the jejunum is a relatively rare condition, though it is possible that many cases are overlooked, as they are often symptomless and may be difficult to demonstrate at necropsy. By insufflating the intestine *in situ* Rosedale and Lawrence (1936) found 4 cases in 300 consecutive necropsies. The diverticula are of the mucous-membrane-hernia type, similar to those found in the duodenum and colon. They may be single or multiple, as many as 400 having been present in a single case. The upper coils of the jejunum are affected most commonly, but the diverticula may extend on to the ileum. They occur along the mesenteric border where the main arteries pierce the muscular coats, and they push their way between the layers of the mesentery.

The first description appears to have been made in 1807 by Sir Astley Cooper, who found numerous pouches of the jejunum at a post-mortem examination on a man of 65. The aetiology

and incidence have been discussed in recent years by Butler (1933), Fraser (1933), Rosedale and Lawrence (1936), and Edwards (1939). Gerster (1938) reviewed the literature and found 187 published cases. Of these the majority were discovered accidentally at necropsy, during operations for other conditions, or during radiological examinations. Since then several more cases have been described by Edwards (1939) and Milnes Walker (1945). Flatulent dyspepsia and vague upper abdominal pain are among the symptoms present.

The complications of jejunal diverticula are as follows. (1) Acute diverticulitis, with or without perforation, abscess formation, or intestinal obstruction. This is the commonest complication, and 23 cases have been reported. (2) Acute intestinal obstruction due to concretion formation or volvulus (9 reported cases). (3) Traumatic rupture (1 reported case—Butler, 1937). (4) Haemorrhage: Guthrie and Hughes (1937), Tengwall (1931), and Braithwaite (1923) described cases in which haemorrhage was the leading symptom. In each instance the diagnosis was made at operation and recovery followed resection of the affected portion.

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Small-bowel Obstruction due to Dried Fruit

In view of the cases of obstruction by dried fruit reported in the *Journal* last year, it was felt that a further case might be of interest. As in the case reported by Dorling (*B.M.J.*, 1945, 2, 426), the obstructing cause was a dried peach.

CASE RECORD

The patient, a woman aged 71, was admitted on April 22, 1945, complaining of abdominal pain and vomiting. Her history showed that she had been constipated for the 60 hours before admission. Her bowels had previously been regular. The vomiting had started 60 hours before admission, and had occurred six or seven times on the first day. The vomit was green in colour. In the 24 hours preceding admission she had vomited twice. The vomit was now brown. For 17 hours before admission attacks of abdominal pain occurred every five to ten minutes, and these were relieved by vomiting. The pain was localized to the umbilicus. Twenty years ago she had been advised to have a cholecystectomy, but had not undergone the operation. She had never been jaundiced, and had never had a similar attack before.

On admission her temperature was 98.4° F. (36.9° C.), pulse 100, respiration rate 20, and blood pressure 160/90. The tongue was dry and furred. Examination of the abdomen revealed no undue distension, visible peristalsis, or sign of a hernia. On palpation there was slight tenderness in the left iliac fossa, otherwise nothing abnormal was found. Intestinal sounds were not increased. Plain skiagrams in the supine position demonstrated gaseous distension of three loops of bowel in the left iliac region. In view of her poor general condition operation was deferred; an intravenous drip of glucose-saline was started, and gastric suction carried out through Ryle's tube. The pain had not recurred after she came into hospital. Twenty-four hours later she again complained of abdominal pain and her abdomen was more distended. Her general condition had, however, improved. Increased intestinal sounds were now associated with the colic, and were heard best in the left iliac region. In view of her past history, gall-stone obstruction was diagnosed.

At operation the abdomen was opened through a right paramedian incision, under a spinal analgesic—2 ml. of heavy percaïne. A small quantity of free fluid was present in the peritoneum, and a soft mass palpated in the left iliac fossa was found to be in the ileum, 2 ft. (30 cm.) from the ileo-caecal valve. The bowel above this mass, which was about 3 in. (7.6 cm.) by 1½ in. (3.2 cm.) in dimensions, was dilated, and, below, was collapsed. The mass was easily pushed up into the proximal dilated bowel and was removed through a longitudinal incision through the bowel wall. The bowel was closed in two layers transversely. The patient made a good recovery and was discharged on May 22, 1945.

On questioning her during convalescence she admitted that she had been preparing dried fruit five days before her admission and had nibbled at a dried peach. She was not very definite whether or not she had swallowed this, but the supposition was that, as she had only one tooth in her head, an upper incisor, this was indeed the case, since the mass itself, when opened out, very closely resembled the half of a peach.

My thanks are due to Mr. T. Meyrick Thomas, under whose care the patient was, for permission to publish this case.

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Reviews

ORTHOPAEDIC TREATMENT OF INFANTILE PARALYSIS

Traitement Orthopédique de la Paralyse Infantile. By M. Boppe. (Pp. 222; 118 figures. 170 francs.) Paris: Masson et Cie.

This work is said to be based upon the experience of ten years in observing, treating, and following up a large number of cases of infantile paralysis. As such it might be expected to be narrow in outlook—actually it does reflect admirably the views and methods of the great French school of orthopaedics. It is a pity that the literature of our two countries is not more readily available. Orthopaedics in general owes much to the great French pioneers, from Delpeche, André, Malgaigne, and Bonne down to the present day. It seems that in Britain we still have something to learn from our neighbours, but this book also suggests that our friends should be more familiar with our literature. The treatment of infantile paralysis should be based upon accurate recording of muscle loss. Anglo-American methods of recording muscular activity are apparently not used in France. A vast section of the field of orthopaedics is covered with characteristic French thoroughness. It illustrates one more that mastery of the orthopaedic problems of infantile paralysis provides a fundamental training for the would-be orthopaedist, including as it does questions of diagnosis; careful clinical examination of the locomotor system; the prevention of deformities, and the limitation of disability; the use of orthopaedic apparatus; operative surgery; rehabilitation in all phases, and resettlement of the disabled.

FOOD AND NUTRITION

Science and Nutrition. By A. L. Bacharach, M.A., F.R.I.C. Preface by Sir J. C. Drummond, F.R.S. (Pp. 142. 5s.) London: C. A. Watts and Co., Ltd.

The first edition of Mr. Bacharach's book was referred to at length in a leading article published in the *Journal* of Oct. 29, 1938, under the heading of "Food and Nutrition." We said then that it provided a refresher course in "classical nutritional science." In his second edition the author has done more than "repeat the mixture as before," because the book has been thoroughly revised and in parts rewritten. It is written in good strong English, and in these days, when problems of nutrition weigh so heavily upon us all, we can think of no surer guide to the practising doctor who wants to know the why and wherefore of diet constituents. Mr. Bacharach has the gift of thinking clearly and expressing his thoughts clearly. He takes the reader firmly along the path of exact knowledge, and gives him a real insight into the way the nutritional scientist tackles the matter of food and feeding. His sectional headings describe the scope of the book: "The Experimental Basis"; "Classical Nutritional Science"; "Minerals"; "Vitamins"; "Diet and Human Health." He has certainly succeeded in carrying out his object of steering "a very careful course between scientific inexactness on the one side and excessive detail on the other."

There are but a few points of criticism to make. His observation that "faeces are not really excreta at all—since they represent food that has not been digested at all or those parts of the food that have not" might be challenged. For example, faeces continue to be formed during starvation, and also form in a segment of bowel isolated from the rest of the intestinal tract. Although we may believe that partial deficiencies may be responsible for much "general ill-defined bad health," the evidence is not secure enough to justify the dogmatism implied in Mr. Bacharach's remarks.

In his last chapter, "The Necessity for the Optimal," he admits that he lays himself open to the charge of dogmatism. Few people would disagree with him that the optimum, and not the minimum, diet is the one to aim at for all, or that "a far greater improvement would result from securing that all who serve the community by working are so remunerated as to make adequate expenditure on food possible for all." But surely it is inaccurate to state that an optimum diet "is immeasurably beyond the reach of the average, or even the best paid, urban industrial worker..." (our italics). An

analysis of what the worker spends on food, tobacco, alcohol, and the cinema would give a measurement of the value the worker places on these items in the domestic budget.

Taken all in all Mr. Bacharach's book is astonishingly good value for the modest sum of five shillings, at which the publishers have priced it. We can think of no better handbook for that overworked man the general practitioner of medicine.

UROLOGY

The 1945 Year Book of Urology. By Oswald S. Lowrey, M.D., F.A.C.S. (Pp. 415; illustrated. \$3.00 or 18s.) Chicago: The Year Book Publishers; London: H. K. Lewis and Co.

The series of yearbooks emanating from Chicago is by now so well known that no general description of the latest one is necessary. That volume which deals with urology will be particularly useful to those who, because of war service, have been out of touch with their specialty and are anxious to discover what advances have been made in it during their absence. But the method of classification adopted by the editor does not make this as easy as it might have been. If any criticism is to be made of an otherwise excellent work it is that greater prominence should have been given to the more important advances in diagnosis and treatment. This would have allowed the reader to discover at a glance what was of vital importance to him and what was merely of interest. For example, instead of being dispersed throughout the text, unusual cases and rare complications could have been brought together in a separate chapter. It would also have been valuable if the chief lines along which urology had advanced could have been indicated in a preface. In spite of the war progress has been made, for example, in the treatment of carcinoma of the prostate and in the use of penicillin in combating certain urinary infections. Apart from the criticism made about the method of presenting the material, the 1945 volume of the *Year Book of Urology* is as valuable and as well produced as its predecessors.

ANIMAL PHYSIOLOGY

Physiology of Farm Animals. By F. H. A. Marshall, Sc.D., LL.D., F.R.S., and E. T. Hahn, M.A. Third edition. (Pp. 339; 119 illustrations. 18s.) Cambridge: University Press, 1945.

Part of this book reflects Dr. Marshall's eminence in the study of reproduction (67 pages) and Mr. Hahn's accomplishments in nutrition and growth (53 pages). But the 205 pages of systematic physiology do not fulfil the expectations of those who read in the preface that "the book is specially intended for students of agriculture who wish to obtain some knowledge of the processes of physiology as they occur in the domestic animals." Processes as they occur in *man* are too frequently described—an unnecessary lapse for anyone who is conversant with the literature of veterinary physiology of the past 85 years. The text reflects an unawareness of what animals do and how they do it; we listed 32 factual errors. For instance, the tuberculin test is incorrectly described (p. 144). The grazing horse does not "bite off the grass with its incisor teeth" (p. 48); with its incisor teeth the horse grips the grass and then by a jerk of its head it tears off the grass. The temperature of the normal fowl in Great Britain is not 101-6° F. (p. 142); it is 104.5° F. We are not aware that "horses whose legs become swollen or oedematous through much standing may often be cured by moderate exercise" (p. 104); can the swelling be due to the authors' belief that "the cartilage [articular] is covered by the 'synovial membrane' (p. 173)? The statement that "salts taken in excess of the physiological optimum are . . . rapidly excreted" (p. 305) is at variance with current notions of toxicology—e.g., NaCl poisoning. The text is sprinkled with nebulous negatives—e.g., "the pig is not purely herbivorous" (p. 58); "sugar is rarely or never present in horse's urine" (p. 134); "crude fibre is but poorly digested by the bird" (p. 80).

Students desiring reliable information on the physiology of the domestic animals should read the late Sir Frederick Smith's *Manual of Veterinary Physiology*, first edition 1892, fifth edition 1920. Smith blended an extensive experience of animals and their behaviour with systematic physiology; also he acknowledged the work of his eminent predecessors as far back as Prof. Colin of Paris, "the father of veterinary physiology," and those distinguished pioneers in animal nutrition, Sir John Lawes and Sir Joseph Gilbert of the Rothamsted Experimental Station.

RACIAL DIFFERENCES

Man's Most Dangerous Myth: The Fallacy of Race. By M. F. Ashley Montagu. With foreword by Aldous Huxley. Second edition, revised and enlarged. (Pp. 304; \$3.25 or 22s.) New York: Columbia University Press; London: Oxford University Press, 1945.

The speculations, the beliefs, and the practical deductions of race theorists have, to put it mildly, suffered something of a set-back in recent years. We have, moreover, been fortunate in this country, as compared with most, in that problems of racial differences have troubled us relatively little. This book, a second amplified edition, comes from the United States, where the colour issue bulks large in practical politics, and Semitism or anti-Semitism are far from unimportant even though seldom emerging into public discussion. It seems to have been written at white-heat and the effect is curiously exhausting; there is too much banging at open doors, too much tilting at windmills, too much struggling up icy slopes with banners bearing a strange device.

The general theses of the book are in the main sound enough, or at the least much sounder than the race-theories Dr. Ashley Montagu sets out to attack. A more temperate refutation of unsound opinions, the avoidance of confusing repetition, and a clear exposition of present-day scientific findings and views might have produced a good book. Those who are already converted, and who hold strong emotional views on the subject, will be delighted with Dr. Montagu's polemical presentation. Others of similar type of mind may become converted. Those of more judicial temperament will wonder whether one flat assertion is more convincing than another—whether, for example, the bald statement "The mule combines most of the good qualities of its parental stocks" is more convincing at sight than would be its converse. They will wonder whether some of the scientific men the author castigates can really have been such fools and whether their opinions can have been quoted quite fairly. Dr. Ashley Montagu had a good case but has unfortunately gone a long way towards spoiling it.

Notes on Books

In *Penicillin: A Dramatic Story*, Dr. Boris Sokoloff is, needless to say, writing for the general public. His style may be deduced from the title: in general his account is correct, though marred by some inaccuracies, such as the completely imaginary definition of the unit of penicillin on p. 26. American sources have provided most of his information, and part of the story of early developments in the U.S.A. may be new even to informed English readers. The book is published at 7s. 6d. by George Allen and Unwin.

The most recently issued Bulletin (No. 5, 1945) of the Department of Labour and National Service of Australia is entitled *Amenities in War-time Factories*. It gives brief information about the arrangements that have been found to be the most satisfactory in leading Australian factories, both large and small. It discusses lockers and change rooms, washing facilities for hands and feet, and the provision of showers for workers employed in arduous and dirty work. The equipment of first-aid rooms is given in some detail, as is that of mess rooms. Ventilation and lighting are briefly discussed, and the whole of the Bulletin is very well illustrated. In the words of the introduction to the pamphlet, "All this represents a considerable forward step from the days of dark and dingy factories when employees had no rights and no amenities."

The Official Medical Register for 1946 has been published on behalf of the General Medical Council by Constable and Co. (Orange Street, W.C.2) at 21s., post free 22s. The table printed in the introductory section shows that 2,666 names were added last year. New registrations numbered 1,268 in England, 581 in Scotland, 428 in Ireland, 124 on the Colonial Register, and 265 on the Foreign Register. The total number of names on the Register at the end of last year was 75,133, being 1,457 more than on Dec. 31, 1944. The total number at the end of 1935 was 58,361, and at the end of 1925 it was 51,738.

The National Physical Laboratory has published a pamphlet *Tests on Volumetric Glassware*, prepared by its Metrology Division. The regulations governing Class A tests are designed to meet the requirements of apparatus intended to possess the highest accuracy. The Class B regulations are intended to set a standard for vessels of good commercial quality, satisfactory for general use. The pamphlet gives a list of verification fees and other charges, and notes on procedure. Any reader who wishes for a copy can receive one on application to the director, National Physical Laboratory, Teddington, Middlesex.

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PAUSE FOR DEBATE

We go to press this week in the middle of two of the most important discussions since 1911 affecting the future of medicine. Full reports of the Special Representative Meeting and of the Second Reading debate on the National Health Service Bill will appear in next week's *Journal*. The substance of the speech of the Minister of Health, opening the Second Reading of the National Health Service Bill on Tuesday, is reported elsewhere in this issue.

In order to fix discussion on the main issues, the Agenda Committee for the Special Representative Meeting on May 1 started certain resolutions submitted by Divisions. A summary of these will show the general direction of the debate. An amendment by Preston is in favour of the proposed form of local administration for general practitioners and regional administration for hospitals, whereas Liverpool advocates the principle of regional organization for all health services. Another pair of opposite amendments refers to the ownership of hospitals. Oxfordshire adopts the disputed resolution of the Consultant Services Committee in favour of State ownership of hospitals provided that the constitution of the regional boards is acceptable to the profession; Marylebone, however, views with disfavour the proposed transfer of hospitals and "the consequent destruction of local interest in hospital services, and the confiscation of trust funds intended by donors for specific purposes." On the question of buying and selling practices Hastings approves of the proposed abolition of this custom provided adequate compensation is paid in respect of loss of capital values. This is supported by Leeds, in the form of not being opposed to the Government's proposal provided "terms of service and remuneration satisfactory to the profession be first agreed." Bradford, on the other hand, "regards as elementary the right to sell and buy practices as at present." Paddington considers that the measures proposed in the Bill for the distribution of doctors are reasonable, but West Suffolk amends "that there shall be no control over doctors in regard to the choice of area in which they shall practise." Payment by an adequate capitation fee, without a fixed part-salary and without restrictions, is recommended by Newcastle-upon-Tyne and Tyneside; remuneration of general practitioners by basic salary plus capitation fees—both of which must be acceptable to the profession—is advocated by Oxfordshire.

On the general attitude to the Bill and the Act to come, Harrow, Guildford, and Rugby urge that a plebiscite or a referendum to the whole profession should be taken,

either forthwith or later. Guildford and Rugby move that a referendum should be taken immediately, before the passage of the Bill into law. Harrow moves "that before the Council recommends practitioners to accept or to refuse service under the Act, a plebiscite of the whole profession should be taken in a form to be approved at open meetings of the profession." Division of opinion on the Bill as a whole is represented in the motions by City on the one hand, and by Goole and Selby and by Gateshead on the other. City "regards the National Health Service Bill as an important step towards the provision of a comprehensive service available to the whole community, and therefore approves its general framework." The rejection of the proposed enactments of the National Health Service Bill in their entirety is moved by Goole and Selby. Between these two extremes, Gateshead disapproves of the methods proposed in the Health Bill to achieve the agreed ends of improving and co-ordinating the existing medical services. Criticism of the Minister for not entering into a discussion of principles and details with the Negotiating Committee before the Second Reading of the National Health Service Bill is voiced by Kingston-on-Thames. The outcome of the debate on these resolutions will in considerable measure define the attitude of the majority of doctors to the present Bill and will afford a useful pointer to the probable reactions of the medical profession to the Act under which it will be expected to serve.

Criticism of various aspects of the Bill comes from another quarter in the form of comments made by Mr. Frank Byers, M.P., on behalf of the Liberal Parliamentary Party, which welcomes the proposal to set up a health service which will be available to all, irrespective of their means. It is denied, however, that the Bill justifies its claim to establish a comprehensive service. Liberals would have favoured "a true comprehensive charter of health dealing with the three matters concerning health—namely, (a) the prevention of disease, (b) the maintenance of health, and (c) the cure of disease." The present Bill, it is stated, deals only with the third of these. The principal criticism of the Liberals is that far too much is left to regulation, with the result that the Minister can make drastic changes in the service and modify initial arrangements. This deprives Parliament of adequate control over the development of the health service and of adequate supervision of the actual provisions of the Bill. The democratic principle of the Liberal report has been largely abandoned in the Bill, in that the Minister appoints the Committees, which are not to be elected by either professional bodies or the public. The Liberals consider that both voluntary and municipal hospitals should have their basic needs met from State funds, but should be allowed to raise money locally for the provision of special amenities and for research and experiment. "Local enthusiasm should be encouraged to express itself in this way by gift and endowment for special amenities and facilities over and above the general standard." We should take warning from the Liberal view that there is no adequate safeguard in the Bill for the medical profession: "If the major part of their remuneration is to be by salary rather than by capitation fee there is a serious danger of the doctor being

reduced to the rank of a salaried civil servant." The Liberal Party also considers that there is insufficient safeguard for the rights of the public to make complaints concerning hospital treatment; to remedy this it suggests the appointment of special public relations officers to the regional hospital boards and hospital management committees, "not only to publicize the work of the hospitals but to provide a channel through which the boards and committees may be directly approached by members of the public in order to have their grievances ventilated and rectified." The omission of the industrial medical service from the scheme is criticized as "a most retrogressive factor which tends to label the Bill as a purely curative instead of preventive measure." A further criticism is that inadequate attention in the Bill is given to the profession of nursing, midwifery, and domestic service.

In his speech before a crowded House of Commons on Tuesday Mr. Aneurin Bevan showed himself to be insensitive to the many criticisms levelled at the major issues raised by the Bill. He defended the proposed transfer of all hospitals to State ownership as the only method of securing a co-ordinated and planned hospital service. He left unchanged the powers of direction of the Medical Practices Committee, and the proposal to pay general practitioners part by salary and part by capitation fee. He resisted the suggestion that has come from many quarters that the administration of all treatment services should be at the regional level. His observations on these and other features of the Bill will be found at page 690. The debate continues.

THE HERITAGE OF DISABLEMENT

The League of Nations is being wound up, but one part at least of the Treaty of Versailles continues to operate vigorously. This is the part under which the International Labour Office was created in 1919, and although the headquarters of that body now look out upon the St. Lawrence instead of upon Lake Geneva it is promoting international collaboration in the field of industry as effectively as a disjointed world will allow. If what it puts out is often incomplete and late in arrival, that is due to the tardiness of national Governments and their employers' and employees' organizations. One of its latest pieces of work, assembled in six months—which is quick time for any international document—is a preliminary report of 300 pages on the training and employment of disabled persons.¹ The survey was planned on comprehensive lines: to assess the extent of this problem in different countries, the administrative organization so far as any has been set up, the procedures for medical and vocational rehabilitation and the co-ordination of the two, and for training, retraining, and sheltered employment. It is disappointing that so few countries are making a contribution. Almost all the information comes from Great Britain and the Dominions, Soviet Russia, and Scandinavia, one or two small countries in Western Europe, and the United States and a few South American republics; yet in some of the countries not

recorded there must be an enormous mass of war disablement not only unprovided for but even unassessed. It is true that there is an appendix giving an account of the highly efficient scheme for the rehabilitation of disabled soldiers in Nazi Germany. It was set up in 1940, and in 1944 it was reported that only 15% of all war-disabled men had to be trained for an occupation different from their former one; more than 60% were able to return to their old places, and 15% were trainable for higher posts. All that, however, is of historical interest only, and what the conditions are now in the ex-enemy and liberated countries of Europe this survey does not tell us.

Even from the countries which do furnish reports on the subject no very clear picture emerges. No country seems to have more than fragmentary statistics, though enough has been collected to show that the problem is formidable. A legislative committee in the United States has found that the physically impaired "constitute an enormous segment of our population." Everything depends, of course, on where the line is drawn. As yet there is no clear identification of the disabled. If the term is used in its widest sense it may be held to cover a very large proportion of all citizens. Sweden, with a population of some seven millions, lists no fewer than 480,000 disabled persons, and these include "punished" persons, meaning those who have served a prison sentence, also the alcoholic, the so-called over-age, the nervous, and the hard of hearing. On the other hand, Australia limits its classification to those who have been injured either in the Forces or in other services of the Commonwealth. Some countries object to the term "disabled" altogether because it implies a separate classification which it is alike impossible and undesirable to delineate in practice.

What, after all, is a disability? It does not necessarily imply vocational handicap, and vocational handicap may be brought about by a disability which cannot be defined or measured. Some disabilities may prevent employment in certain occupations, but may even be an advantage in others. A report by the U.S. Civil Service Commission states that workers with limited or no hearing are preferred by many employers for noisy jobs, such as those of boilermaker, riveter, and welder. Persons of tiny stature have been found extremely useful in aircraft plants, to do the final riveting in the tight corners of wings and fuselages. We have heard of a luxury hotel which bars pageboys who wear glasses, but welcomes, if not insists upon, spectacled receptionists. A minor disability in some circumstances may mean a far greater handicap to employment than a severe one. The same type of disability may mean a serious handicap for one person but not for another, owing to differences in personal qualities, skills, or interests; and it needs the wisdom of Solomon and the patience of Job to decide how much inefficiency in a given case is due to a physical disability and how much to lack of character or "guts." The worst kind of case is found in the man who, to quote an American employment commissioner, "has had time to kid himself that he is unemployable."

In this country the history of rehabilitation, apart from some isolated, though excellent, efforts, may be said to go back for no more than five years. It began in the Services—in the R.A.F. even before the Battle of Britain—and it

¹ International Labour Office. *Studies and Reports: Series E (The Disabled)*, No. 7. Montreal, 1945. (\$1.50. or 6s.)

has been slow to come into civil life. But ideas on the subject are clarifying, and we now conceive rehabilitation as beginning immediately after the accident or whatever caused the disability and continuing until the man is again on the pay-roll. It includes good surgery, convalescent care, remedial and other exercises, bringing in all that is meant by positive health, and going on to resettlement, with vocational guidance, job analysis, training or retraining, placement, and social medicine. Under the Disabled Persons (Employment) Act, 1944, routine employment for the disabled becomes a matter of right instead of charity. In this country we have—what they lack in many countries—the administrative responsibilities entrusted to one Government Department, the Ministry of Labour, instead of being spread over a number of agencies. The whole subject has been closely studied by a special committee of the British Medical Association, whose findings will be published in the near future.

A difficulty in several countries, brought out in the survey by the International Labour Office, is the unwillingness to make medical reports a matter of routine for persons applying for help in obtaining suitable employment. Many disabled persons feel, naturally enough, that medical reports will emphasize what they cannot do rather than what they can do, and so they may be stigmatized and placed in a permanent category of unfitness. In Great Britain the confidential medical report provides the basis of the rehabilitation officer's action; but it is not compulsory, and it is open to the man to ask instead for an independent medical examination. In the United States, though medical reports are not compulsory by law, they are so in fact, because they are an essential preliminary condition of eligibility for rehabilitation. Medical follow-up work is carried out in Great Britain, where it is the responsibility of the medical authorities, but it is the exception rather than the rule elsewhere. Hospital or convalescent-centre interviewing seems to be winning general favour, and is said to be extended widely in the Soviet Union, where also special conditioning centres are part of the organization for the disabled, as they are in British countries and in the United States. The most cheerful part of this preliminary survey is a chapter which brings together a very large number of instances of work actually undertaken by the disabled. There seems to be no type of deformity or mutilation which, after careful treatment and adjustment, cannot be matched with some type of job—clerical, mechanical, skilled-trade, technical, scientific, or professional. The United States Civil Service Commission, already quoted, states that workers with deformities of the spine are being successfully employed in a wide variety of work in which no heavy lifting is required, that persons with arrested tuberculosis are working well in any number of positions calling for light, moderate, and semi-arduous duties, provided the environment is favourable (for example, free from fumes and dust), and that organic heart cases suitably compensated often excel in positions involving desk or bench duty and in machine-shop and drafting work. As experience is gained and as more countries are able to follow a constructive rehabilitation programme the I.L.O. hopes to report adequately. At present few countries can make any claim even to com-

pleteness in outline, let alone detail. The organization of sheltered employments is still in the early stage of development, though the significant thing is the general acceptance of the need for such provision. The same is true of placement arrangements: a few years ago such things were unknown, but now a number of countries are establishing placement machinery designed to work in a manner both scientific and humane. In Great Britain the employment exchange network has been reinforced by the setting up of a national advisory council and local committees which include representatives of employers and workers as well as others with experience of placement work. Finally it is well to be reminded that even the most complete and satisfactory plans for rehabilitation wait upon the maintenance of a high and stable level of employment.

EXAMINATION OF THE TONGUE

The tongue ranks with the pulse and the temperature as one of the primary objects of attention in the examination of patients, but according to Frantzell and co-workers¹ no systematic study of the gross aspect of the tongue appears to have been made with the aid of a detailed photographic analysis. They base their own report on the clinical and photographic examination of some 1,500 tongues.

The most important variations from the normal are the dry, the coated, and the smooth tongue. Loss of body fluids produces a dry tongue, and perhaps the greatest value of routine inspection of the tongue is the evidence it may present of dehydration. The coated tongue is chiefly due to overgrowth of the filiform papillae, which are normally worn short by mastication. Enlargement of the fungiform papillae gives rise to the strawberry tongue which is characteristic of scarlet fever; the cause of the enlargement is not known, but it may be oedema of the lingual papillae. A smooth tongue is due to atrophy of the papillae; it was the commonest abnormality in Frantzell's group of cases. It is found characteristically in idiopathic hypochromic anaemia and pernicious anaemia, but it is also common in thyrotoxicosis, cardiac decompensation, and after pneumonia. There seems to be no causal connexion between a smooth tongue and the wearing of false teeth, though naturally the two conditions are often found together. The smooth tongue of hypochromic anaemia regenerates rapidly on treatment with iron, so rapidly in fact that it is probable that we are not dealing with an improvement caused by increased haemoglobin values. It is easier to assume a peripheral action of the iron on the tissues. The same is true of the response to liver therapy in pernicious anaemia. The common factor in these various causes of smooth tongue is probably a disturbance in the oxidative processes of the cells of the papillae. Iron enters into the composition of a number of the respiratory ferments, and the same is true of riboflavin and nicotinic acid. The cells therefore atrophy when they are starved of iron or these two vitamins. Heart failure produces anoxaemia; acute infection depresses the serum iron, and hyperthyroidism increases the metabolic demands of the cells. Thus the tongue may be regarded as an indicator of both the hydration and the oxygenation of the tissues. The precise mode of action of the anti-pernicious anaemia factor can as yet hardly be guessed, though it is suggested that it may stimulate the proliferation of the epithelial cells, as it does those of the bone-marrow.

¹ Frantzell, A., Tornquist, R., and Waldenström, J., *Acta med. scand.*, 1945, Fasc. III, 122, 207.

The scrotal tongue does not appear to have much significance. Frantzell believes this condition can be subdivided into two groups—the deeply furrowed tongue or *lingua plicata*, and the mamillated tongue. *Lingua plicata* is found in normal individuals. A mamillated or hummocky appearance of the tongue is often seen after regeneration of an atrophic mucosa. A smooth tongue often goes with an atrophic gastric mucosa, and it is possible that a mamillated tongue may accompany the *état mamelonné* which gastroscopists have described in the stomach.

CONSTRICTIVE PERICARDITIS

The cardinal clinical features of constrictive pericarditis—certain of which were described in England by Richard Lower¹ in 1669, more than two centuries before the work of Pick,² whose name is so often applied to it—are well established—dilated pulsating veins, oedema, ascites, liver enlargement, immobility of the heart, and dyspnoea. But the morbid physiology of the circulation which produces these has only lately been clarified by Blalock and Burwell,³ Heuer and Stewart,⁴ and Hitzig.⁵ The most important effect of the constriction of the heart by its cuirasse of thickened and sometimes calcified pericardium is a limitation of diastole; the capacity of the pump is reduced, and its delivery is consequently restricted. The cardiac output per beat and per minute is lessened, the circulation rate slows, the systolic and pulse pressures fall, and the heart can respond to exercise only by acceleration. These alterations in the arterial circulation induce a progressive "inflow stasis" on the venous side; the veins dilate and may pulsate, and the venous pressure rises. The main brunt of the venous stasis falls upon the liver, perhaps because basal cardiac adhesions hold wide open the orifices of the valveless hepatic veins.

The radiographic signs of constrictive pericarditis may be misleading unless films are supplemented by screening (Sellors⁶) and by tomography (Meier⁷). In general the heart shadow is small with broadening in its upper part from distension of the superior vena cava and innominate veins; pulsation is diminished, and there is a reduced excursion of the aortic arch, ascension of the heart with deglutition, and, sometimes, calcification in sheets, plaques, or bands. Calcification may, however, mimic or be mimicked by calcification in a myocardial infarct, in an aneurysm, in a mural thrombus, in a coronary artery, or in annular fibrosis round the mitral orifice (Hohenner⁸); it should be remembered that constriction may occur without calcification, and calcification without constriction (Sellors). Even the reduction of the size of the heart, once regarded as a cardinal sign, is not invariably obvious, for it may be obscured by the shadow of a greatly thickened pericardium (Sellors). The only certain radiological feature is a diminished excursion of pulsation which may be quite localized, and must be sought by screening all available aspects of the heart outline.

The surgical treatment of constrictive pericarditis has become progressively safer since Heuer and Stewart⁴ in 1939 reported an immediate operative fatality rate of 33%, and a later fatality rate of 10% in 143 collected cases. T. Holmes Sellors⁶ has now reported 5 cases with 1 post-operative death. Against this mortality it may be argued that without operation the disease may be compatible with long and active survival—Nils Finsen⁹ suffered

from it for 21 years and won a Nobel prize. Yet in general it produces a crippling disablement if untreated. Sellors employs a transpleural approach through the fourth left interspace. He removes both parietal and visceral pleura, starting his dissection over the right ventricle, but proceeding quickly to free the left ventricle also, to avoid sudden engorgement of the lungs. Cardiac arrest (preceded usually by warning extrasystoles) and haemorrhage (from opening of the heart cavity) are the main immediate dangers, and there is some risk of cardiac dilatation and ventricular fibrillation later.

After operation, though the pulse pressure rises to normal almost at once, the venous circulation responds more slowly, but amelioration of symptoms is usually greatly out of proportion to the improvement in signs. Irregularities of rhythm present before operation usually persist after it, but irregularities which arise during operation are generally transitory. In all four of Sellors's successful cases the patient recovered full capacity for exercise, though one developed a cold abscess in the thigh 3½ years after pericardiectomy. The possibility of operative intervention reawakening a latent tuberculous process cannot be entirely disregarded, for there is reason to believe that constrictive pericarditis is of tuberculous origin more often than was formerly supposed (White,¹⁰ and Blalock and Burwell³). Sellors indeed regards tuberculosis as the most important cause of constrictive pericarditis.

MEDICAL ABSTRACTING SERVICE

At its meeting on April 3, 1946, the Council of the B.M.A. accepted the recommendation of the Journal Committee that a medical abstracting service should be set up in the Editorial Department of the *British Medical Journal* under the general direction of the Editor.

The staff for this service has yet to be appointed, and the conditions of appointment are described in the advertisement columns of this week's *Journal*. The service will be the direct responsibility of a medical Editor of Abstracts and a medical Assistant Editor. The appointments will be on a whole-time basis, and we would draw the attention of medical men interested in this kind of work to the terms of the advertisement. It is hoped that work on the project will begin in July of this year, so as to make it possible to publish the first two issues of the proposed new abstracting journals in January, 1947. The aim is to provide a comprehensive abstracting service of the world's medical literature in the form of one monthly journal devoted to medicine, and a second to surgery, gynaecology, and obstetrics. These two monthly journals will be much on the same lines as the *Bulletin of War Medicine*, which ceases publication in August of this year. In addition, it is proposed to supply special abstracting sections to the Editors of the quarterly journals published by the Association, and a general section weekly to the *British Medical Journal*—a continuation in a modified form of the Key to Current Medical Literature which had to be discontinued when war broke out in September, 1939. We take this opportunity of drawing attention also to another advertisement, for a medical subeditor for the *Journal*.

On April 25 Dr. T. F. Fox, Editor of the *Lancet*, was elected a Fellow of the Royal College of Physicians of London under the by-law relating to persons not Members of the College who have distinguished themselves in any branch of the science or practice of medicine and who have been nominated by the Council as specially eligible.

¹ *Trans. Phil. Soc. Lond.*, 1669.

² *Brit. J. Surg.*, 1926, 3, 433.

³ *Ann. Surg.*, 1935, 60, 212.

⁴ *J. Mt. Sinai Hosp.*, N.Y., 1942, 8, 625.

⁵ *Brit. J. Surg.*, 1946, 33, 215.

⁶ *Schweiz. med. Wschr.*, 1945, 75, 479.

⁷ *Fachr. Röntg.-Strahl.*, 1940, 61, 16.

⁸ *Ugeskr. Læg.*, 1904, 11, 145.

¹⁰ *Lancet*, 1935, 2, 539, 597.

THE MINISTER'S SPEECH

HEALTH SERVICE BILL

Mr. ANEURIN BEVAN moved the Second Reading of the National Health Service Bill in the House of Commons on April 30. The Minister said that in the last two years there had been such a clamour from sectional interests in the field of national health that they were in danger of forgetting why the proposal of a National Health Service was brought forward at all. The scheme which anyone must draw up dealing with National Health must necessarily be conditioned and limited by the evils it was intended to remedy. The first reason why a health scheme was necessary at all was because it had been the firm conclusion of all parties that money ought not to be permitted to stand in the way of obtaining an efficient health service. Although it was true that the National Health Insurance system provided a general practitioner service and drugs for something like twenty-one millions of people, the rest of the population had to pay whenever they desired the services of a doctor.

The Minister continued: "It is cardinal to a proper health organization that a person ought not to be financially deterred from seeking medical assistance at the earliest possible stage. It is one of the evils of having to buy medical advice that in addition to the natural anxiety that arises because people dislike hearing unpleasant things about themselves—and tend to postpone consultation as long as possible—there is the anxiety of having to pay doctors' bills. Therefore, the first evil we must deal with is that the whole thing is the wrong way round."

The National Health Insurance scheme did not provide for the self-employed and for family dependants. It depended on insurance qualifications, and, no matter how ill you were, if you ceased to be insured you ceased to have free doctors. It gave no backing to the doctor in the form of specialist services. The doctor had to provide himself, out of his own discretion and personal connexions, hospitals and specialists for his patients. In the overwhelming number of cases the services of specialists were not available to poor people.

Scope and Availability.—"Our hospital organization has grown up with no plan and no system. It is unevenly distributed over the country. It is, indeed, one of the tragedies of the situation that very often the best hospital facilities are available where they are least needed. In the older industrial districts hospital facilities are inadequate. Many hospitals are too small. There are about 70% with fewer than 100 beds and over 30% with fewer than 30 beds.

"No one can possibly pretend that such small hospitals can provide general hospital facilities. There is a tendency in some quarters to defend the very small hospital on the grounds of its 'localism,' and its intimacy, and other rather imponderable reasons of that sort. But everybody knows that if a hospital is to be efficient it must provide for a number of specialized services. Although I am not a devotee of bigness for the sake of bigness, I would rather be kept alive in the efficient, cold altruism of a large hospital than expire in a gush of warm sympathy in a small one."

Mr. Bevan went on to say that the condition of the teeth of the people of Great Britain was a national reproach. As a consequence of dental treatment having to be bought it had not been demanded on a sufficient scale to stimulate the creation of sufficient dentists, and there was a woeful shortage of dentists at the present time. About 25% of the people could obtain their spectacles and have their eyes tested by means of the assistance given by approved societies, but the general mass of the population had no such facilities.

"One of the evils from which this country suffers is that sufficient attention has not been given to deafness and that hardly any attention has been given so far to the provision of cheap hearing aids and their proper maintenance. I hope to be able to make very shortly a welcome announcement on this question."

Another disability from which our health system suffered, in the Minister's view, was the isolation of mental health from the rest of the health services. The present Bill did not alter the Lunacy Acts, but they would have to come to that later on. The present Bill did for the first time bring mental health

into the general health scheme. It should be one of the objects of any civilized health service to enable any person who felt mental distress to go to a general hospital for advice so that the condition might not develop into a more serious stage.

"This Bill provides a universal health service without any insurance qualification of any sort whatsoever, available to the whole population freely. It will universalize the best of advice and treatment." There would be some limitations for a while because they were short of many things. They were short of dentists, nurses, and of hospital accommodation. It would be some time before the Bill could "fructify fully in effective universal service."

Specialists would be available not only at institutions but for domiciliary visits when needed. The practical difficulties of carrying out these services were very great, but "when I approached this problem I made up my mind that I was not going to permit any sectional or vested interests to stand in the way of providing this very valuable service for the British people."

Voluntary Hospitals.—The voluntary hospitals had done invaluable work. When hospitals could not be provided by any other means they came along and they had a long history of devotion and self-sacrifice behind them. But they had been established often by the caprice of private charity. They bore no relation to each other. Two hospitals close together often tried to provide the same specialist services unnecessarily, while other areas had not that kind of service at all. They were badly distributed. To leave the voluntary hospitals as independent units was impracticable. "Furthermore I believe it is repugnant to the interests of the community that hospitals should have to rely on private charity. I have always felt a shudder of repulsion when I have seen nurses and sisters—who ought to have been at their work—going about the streets collecting money. We must leave that system behind entirely. The implications of doing this were very considerable," said the Minister. "I have been forming some estimates of what might happen to voluntary hospitals and finance when the all-in Insurance Act is passed. The estimates show that between 80% and 90% of the revenue of the voluntary hospitals will be provided by public money. In many parts of the country it is a travesty of the facts to call them voluntary hospitals. In the mining and textile areas the industrial population pay a weekly contribution for the maintenance of their voluntary hospitals."

"When I was a miner I used to attend meetings at which votes of thanks were passed to the managing director of the colliery for his generosity to the hospitals. But when I looked at the balance sheets I found that 97½% of the money was provided by the miners." It was a misuse of the term "voluntary" to call the voluntary hospitals "voluntary." For these and other reasons he had decided that the voluntary hospitals must be taken over. He knew the decision would cause a considerable amount of resentment. "I am not concerned with the voluntary hospitals," he added, "I am concerned with the people they serve."

The appropriate hospital unit was one of about 1,000 beds—not in the same building. Specialist services could only be provided with a grouping of that size, and this could not be brought about if the hospitals remained separate autonomous bodies. The main hospitals must have feeders. Cottage hospitals had striven to give services which they were not equipped to give. They strove to reach a status they never could reach and the welfare of the patients was sacrificed to the ambitions of the institution. Voluntary hospitals, to be grouped properly, must submit themselves to proper organization, and that was impracticable so long as they remained under separate management.

On the other hand, many local authorities had never exercised their hospital powers. Some were too poor. Some were too small. They had inherited their hospital system from the Poor Law. Though some of the local authorities' hospitals were among the best in the country others were a cross between a workhouse and a barracks. As a gathering ground for patients the local authorities were no more effective than the voluntary hospitals.

It was quite impossible to hand over the voluntary hospitals to local authorities. It would mean that once more they would be faced with all kinds of anomalies. Local authorities were too small and without the financial capacity to be effective

hospital units Tuberculosis sanatoria, isolation hospitals, infirmaries of all kinds, and hospitals of every kind were all necessary in a general hospital service "I decided that the only thing to do was to create an entirely new hospital service to take over voluntary hospitals and local government hospitals and organize them as a single hospital service throughout the country. If we are to carry out our plans and provide all the people of Great Britain with the same service, then the nation will have to carry the expense and not put it upon the shoulders of any authority."

A number of investigations had been made from time to time into the subject, and the conclusion always reached was that an effective hospital unit should be associated with a medical school. By grouping hospitals around medical schools it would be possible to provide what was very badly wanted—the means by which general practitioners could be kept in more intimate association with new medical thought.

One of the shortcomings of the existing service was the isolation of the general practitioner, "who practised in loneliness and had no access to new medical knowledge." By associating the general practitioner with the medical schools through a regional hospital organization it would be possible to refresh and replenish his knowledge. The regional hospital organization was the authority with which specialist services were to be associated.

"It is not intended," he said, "that the Regional Board should be a conference of persons representing different interests and organizations. It is intended that they should be drawn from persons of the profession, from the major public health authorities in the areas, from medical schools and from those with long experience in voluntary hospital administration. By leaving ourselves open to take the best sort of individuals on these hospital boards, we hope before long to build up a high tradition of hospital administration on these boards themselves."

Any system which made the boards conferences, any proposals which made the representatives delegates would at once throw the hospital administration into chaos. Although he was prepared to discuss the constitution of the boards, he hoped he would not be pressed to make them "merely representatives of different interests."

General Practitioner Service.—"The proposal which I have made," he continued, "is that general practitioners shall not be in direct contract with the Ministry of Health but in contract with new bodies." Mr Bevan emphasized that his proposals did not put the doctor under the local authority, they merely engaged him on contract with an entirely new body the local Medical Executive, on which dentists, doctors, and chemists would have "half representation." The whole scheme would provide a greater degree of medical representation than ever before. It would, moreover, strengthen democracy by giving doctors full participation in the administration of their own profession.

Doctors, however, would not become civil servants. The scheme did not create one additional civil servant. Indeed, by taking the hospitals away from the local authorities very many people would be "enfranchised." There would not be any "huge bureaucracy," and the doctors would not be the "slaves of the Minister of Health."

Referring to the uneven distribution of doctors, he said that in South Shields before the war there were 4,100 persons to one doctor. In Bath there were 1,590. Dartford had 3,000, compared with Bromley's 1,620. Swindon had 3,100, but Hastings had 1,200. "That distribution is most hurtful to the health of our people. It is entirely unfair, and, therefore, if the health services are to be carried out there must be brought about a redistribution of general practitioners throughout the country."

If the country was going to get the doctors where they were most needed it could not possibly allow a new doctor to go to any particular area, merely because he had bought the practice. Proper distribution of doctors would automatically kill the sale and purchase of practices. "I have always regarded the sale and purchase of medical practices as an evil in itself. It is tantamount to the sale and purchase of patients."

Every time certain doctors argued for a high compensation for the loss of the value of practices it was an argument

against the "free choice" they claimed in the matter. Mr Bevan admitted that there would be very great hardship if doctors received no compensation for the purchase of those practices whose value might be affected. That course would be most unjust, but when the Government proposed to grant £66,000,000 for compensation the doctors were being treated very generously. He added that the profession would be advised about the equitable distribution of these funds among the claimants.

Some Kind of Hedonism.—He did not consider that the Bill's proposals would amount to the "direction" of doctors. All that would happen would be that when the Bill became law all the doctors in a particular area would be able to enter the public service in that area. An application by a new doctor wanting to enter a particular area would be referred to the Medical Practices Committee, a mainly professional body, which would have before it the question of whether there were sufficient medical practitioners in the area. If there were enough they would refuse the appointment. No one could argue that that amounted to direction. It would not affect the existing situation because doctors would be able to practise in the area to which they belonged, while a new doctor would have to find his practice in a place which was inadequately served.

With regard to remuneration, Mr Bevan said he was not in favour of a fully salaried service. He did not believe the medical profession was ripe for it. He believed that some kind of hedonism should prevail. There must be some degree of reward for zeal and some degree of punishment for lack of it.

It was therefore proposed that "capitation" should remain the main source from which the doctor would obtain his remuneration, but it was proposed that there should be a basic salary. One of the reasons for that was that a young doctor entering practice for the first time needed to be kept alive while building up his lists. The present system by which a young man got a load of debt around his neck in order to obtain a practice was an altogether evil one. The basic salary would take the place of that. The basic salary, however, must not be too large, otherwise it merely became "a disguised form of capitation."

He had made a further concession, continued Mr Bevan, and that was that the general practitioner—and the specialist—would still be able to obtain fees, although not from anyone on his own lists or panel or on the lists of those with whom he was working in "co-practice." He thought it would be impracticable to prevent a doctor from having any private patients at all because all they would succeed in doing would be to create a black market.

There ought to be no bar on anyone having advice from a doctor other than his own. Mr Bevan thought, however, that the amount of fee-paying on the part of the general population would be quite small. If the amount of fee-paying was great the system would have broken down. The whole purpose of the scheme was to provide free treatment. It was hoped that everybody would be on some doctor's panel when the scheme got working properly. "This is a field, however, in which idiosyncrasy is prevalent, and if a person wishes to consult another doctor there is no reason why he should be stopped. But the fact that a person can transfer from one doctor's list to another ought to keep fee-paying within reasonable proportions."

Specialists in hospitals would be allowed to have fee-paying patients. Unless some fee-paying patients were permitted there would be "a rash of nursing homes" all over the country. He believed that nursing homes ought to be discouraged. They could not provide the facilities of a general hospital. Specialists should be kept attached to the hospitals and not sent into nursing homes. Great importance was attached to the health service, which had been described in some places as an experimental idea. He wanted it to be more than an experimental idea.

Health Centres.—It was proposed to leave some personal services with the local authority and some with the health centre. Health centres would vary in size. There would be the larger ones with dental clinics, maternity and welfare services, and general practitioner consultative facilities, and the smaller ones where the practitioner could see his patients. Health centres were very valuable and would be encouraged.

in every way. Doctors would be encouraged to carry out their practice there. It would be some time before health centres could be established everywhere because of the absence of facilities.

Some thought the preventive services should be under the same authority. But a regional board of the sort needed would require the Albert Hall to meet in. There had to be a frontier at which the local authority joined the public health authority. There was no contradiction because some services were left to the local authority.

Consultations and Conferences.—There was an amendment on the Order Paper suggesting he had not sufficiently consulted the medical profession. He had met the medical and dental professions, pharmacists, nurses, midwives, local authorities, eye services, medical aid societies, and herbalists. He had had twenty conferences in all. Consultations had been very wide. His officials had had thirteen conferences in addition.

These consultations had produced a considerable amount of agreement. Opposition to the Bill was not as strong as it was thought it would be. On the contrary, there was considerable support for these measures among doctors themselves. As the proposals became known and the medical profession fully appreciated them nothing should please the doctor more than to realize that in future neither he nor his patient would have any financial anxiety arising out of illness.

There was an Opposition amendment about what was termed "interfering with charitable foundations." They were in fact not diverting endowments from hospital purposes. Teaching hospitals were going to be left with all their liquid endowments. Academic medical education would be far more free in the future than in the past. Furthermore, the £32,000,000 belonging to the hospitals would be used as a shock absorber between the Treasury, the central Government, and the hospital administration. It would be money which the hospitals could spend over and above funds provided by the State.

He was prepared when the Bill came to be examined in detail to consider whether any other relations were possible, but he thought that a Regional Board with an annual budget, with freedom to move inside that budget in disbursing that money to local management committees, would make hospitals responsive to local influence as well as to central direction.

The Minister concluded by saying: "I should have thought that all parties would be proud that Great Britain is about to embark upon an ambitious scheme of this kind. When it is carried out it will place this country in the forefront of all countries in the world in medical services. I myself take a very great pride and pleasure in being able to introduce this comprehensive and valuable measure. It will lift the shadow from millions of homes. It will keep many people alive who would otherwise have died. It will relieve suffering. It will produce a higher standard for the medical profession, and it will be a great contribution to the well-being of the common people of Great Britain."

The fifth annual report of the Birmingham Accident Hospital and Rehabilitation Centre shows a great increase in the number of admissions and attendances. The new patients numbered last year 24,686, almost double the figure for the first year of the hospital's existence, and the annual attendances in the rehabilitation department have multiplied four times in the same period. Nevertheless, the report complains that lack of medical staff has hindered progress. The hospital had no pre-war quota of medical man-power to determine its wartime strength, and the Central Medical War Committee allocated two surgeons, one assistant surgeon, one senior anaesthetist, and five junior medical officers to the hospital. "While this may have been considered reasonable in relation to the bed complement (210)," the report continues, "the fact remains that some 90% of the work of an accident hospital is out-patient work among ambulatory patients, whereas in some general hospitals the converse may well be the case." Moreover, an accident hospital must provide an active 24-hour-day 7-day-week service for the immediate treatment of new patients suffering from injuries. The junior medical officers had been recruited to the Forces, and at the time the report for 1945 was being compiled four of the senior members of the staff were to be called up. "So the closely integrated team, vitally necessary to deal with large numbers of patients, is to be broken up." Last year the Bernhard Baron Charities Fund presented £5,000 to the hospital for the development and maintenance of a burns unit.

SCOTTISH HOSPITALS AND POST-WAR DEVELOPMENT

SURVEYS OF THE FIVE SCOTTISH REGIONS

At the same time as the hospital surveys of England and Wales were proceeding, a survey of Scottish hospitals¹ was being undertaken on the initiative of the Department of Health. Scotland was divided for this purpose into five regions, based on Glasgow, Edinburgh, Dundee, Aberdeen, and Inverness, and the surveyors were appointed as follows: *Western*—Prof. J. M. Mackintosh, Prof. C. F. W. Illingworth, and Dr. R. J. Peters. *South-Eastern*—Mr. J. W. Struthers, F.R.C.S., and Dr. H. E. Seller. *Eastern, North-Eastern, and Northern*—Prof. R. S. Aitken and Dr. H. Hyslop Thomson.

Introduction

In a general introduction, subscribed to by all the surveyors, it is stated to be generally accepted that the organization of a progressive and co-ordinated hospital service for Scotland should be on a regional basis. The main voluntary and municipal general hospitals would form the keystone of the structure and be known as central hospitals; district general hospitals, mostly provincial voluntary hospitals of 100 to 200 beds, would act as hospitals of first reception for their own districts and undertake such medical and surgical work as did not require central facilities; country general hospitals, including E.M.S. hutted hospitals, would be available for the less urgent cases; and cottage hospitals would provide for cases falling within the competence of the general practitioner. "The most formidable problem of a hospital service is to provide accommodation for the chronic sick." The social urgency of these chronic cases cannot be ignored, and that is one reason for assessing general hospital requirements on a generous scale.

Grave shortage of general hospital beds is disclosed. The surveyors consider that in a closely knit industrial area the general hospital beds should number at least 8 per 1,000 of population; in the rural areas probably 4 to 5 beds would suffice. These figures do not include beds for the aged and infirm. Institutional provision should also be made for 75% of all confinements. The suggested hospital requirements, therefore, are:

General hospital beds 4-8 per 1,000 population.
Maternity hospital beds 4-5 per 100 births per annum.
Infectious diseases hospital beds 1.5 per 1,000 population.
Pulmonary tuberculosis hospital beds 2 per death per annum.

In general hospital wards the surveyors recommend wall-space of 8 ft. (2.4 m.) between patients. In maternity hospital nurseries 35 sq. ft. (3.2 sq. m.) per child is considered a reasonable standard.

Glasgow and the Western Region

The Glasgow Region has a total population of nearly 3,000,000. Eight sub-regions are suggested, the largest of which is centred on the city. One important step to be taken in the near future is considered to be the reinforcement of the staffs of the district hospitals outside Glasgow by part- or whole-time salaried appointments to be held by men of teaching hospital rank seconded from a Glasgow hospital.

"The extent to which such a service as this should be developed will depend to a large extent upon the character of the hospital service after the war, and we assume that the changes will be effected gradually as experience dictates. It appears to us that in the first place attention should be directed mainly to the appointment of general physicians and surgeons; but in the districts distant from Glasgow certain specialist appointments may also be needed."

Of Glasgow Royal Infirmary the surveyors say: "We have the feeling that at the time of our visit the staff of the hospital was over-pressed with work. With the evolution of a regional scheme it should be possible to relieve this pressure by having most of the ordinary hospital work of the county of Lanark carried out by the district hospital proposed for that county."

¹Scottish Hospitals Surveys. Edinburgh. H.M. Stationery Office. General Introduction, 6d.; Western Region, 2s.; South-Eastern, 1s. 6d.; Eastern, 1s.; North-Eastern, 1s.; Northern, 6d., in all cases net.

It is suggested that Victoria Infirmary, Glasgow, should be considered as a possible centre for postgraduate teaching, and that this hospital, with the Royal Infirmary, the Western Infirmary, and Stobhill and Southern General Hospitals should be the five central hospitals under the regional scheme. Certain suggestions are made for meeting a deficiency of 2,860 general beds in the Glasgow sub-region, principally by a new hospital of 1,500 beds at Newton Mearns. A high degree of priority should be accorded to the extensive additions required for maternity accommodation.

Proposals for other sub-regions are as follows:

Argyll—At perhaps half a dozen selected places, small combined units should be constructed, comprising a section to deal with general acute and chronic medical and surgical cases, a section for normal maternity cases, and an infectious diseases unit.

Bute—Similar proposals.

Ayrshire—A regional scheme would require for its full development greater use in common of specialist services by the appointment of specialists on a sub-regional basis to reside in the area and serve a group of hospitals.

Dumfries and Galloway—Seriously deficient in hospital accommodation of all types. A new combined district hospital should be built near Dumfries to deal with general cases, also to provide facilities for the treatment of acute diseases of the chest and as a clearing house for surgical tuberculosis and orthopaedic cases generally. As a long term programme the construction of a new maternity hospital near Dumfries is recommended.

Lararkshire—About 2,500 beds are required for general hospital accommodation. An interim plan is proposed which would utilize Motherwell County and Burgh Infectious Diseases Hospitals for general and maternity cases, and Stonehouse, Hairmyres, and Cleland as general hospitals, with Law Junction for infectious diseases only until a new hospital can be built.

Dunbartonshire—A district hospital should be built somewhere near Dunbarton, with a central infectious diseases hospital and a maternity hospital associated with it.

Renfrewshire—It is considered that the time has come when this county should be self sufficient in district services, while continuing to rely upon central Glasgow hospitals for medical treatment of a highly specialized kind. This makes necessary the appointment of a full time key surgical, medical, and specialist staff at the principal hospitals—a staff which should be resident in the areas served.

Stirlingshire and Clackmannan—This sub-region has a sufficiently compact population to warrant the development of a single fully co-ordinated hospital service, requiring the construction of a central hospital.

Edinburgh and the South-Eastern Region

The South-Eastern Region, with a population of just over 1,000,000, includes, in addition to Edinburgh, Dunfermline, and Kirkcaldy, 43 small burghs. Two hospitals, both at Edinburgh—the Royal Infirmary (1,161 beds) and the Western General (300 beds), may be classed as key or central; three others—Dunfermline and West Fife, Kirkcaldy, and Leith—may be included in the category of district hospitals and there are a number of other hospitals, general and special. The total bed accommodation in the South-Eastern Region is 8,671. The standard suggested for general hospital needs is 4 beds per 1,000 in rural districts and 8 in highly industrialized centres, giving an estimated total of 6,614, as compared with the present accommodation of 5,240 general beds. This additional 1,374 beds may seem high, but the surveyors justify it by citing waiting lists and the indications that many patients whose names are not on these lists would, if the accommodation were available, benefit from hospital treatment. It is also calculated that 880 maternity beds will be required to meet the needs of this area, the number of beds at present available, including even those in nursing homes, is only 529. The total accommodation for pulmonary tuberculosis in the region at present is 680 beds, and the estimate on the ratio of 2 beds for every death from this disease would give 912.

It is proposed to divide the area into four sub-regions—namely, the city of Edinburgh, the Border Counties, the County of Fife, and the Lothians. Patients from these four regions must depend on Edinburgh for those highly specialized services which can only effectively be provided in large central hospitals. Sub-region or district hospitals should be affiliated with the key hospitals in Edinburgh and share in the teaching of medical students. A serious effort should also be made to bring the chronic sick into the sphere of general medicine, and it is recommended that accommodation for these should be included in the general hospitals set up in the various

sub-regions. It is estimated that 3,326 general hospital beds will be needed in Edinburgh itself, 540 of them for patients outside the city, involving an addition to present accommodation (which is 3,295) of some 500 beds. Two central or key hospitals are proposed, one of them the Royal Infirmary and the other a new hospital to the south-west of the city.

For the Fife sub-region the long term aim should be to have two hospital centres, one to serve the western part and the other the eastern. The urgency of the need for adding to the hospital accommodation in this county is stressed. In the Lothians sub-region there should be eventually a complete hospital service, with two centres, for the western and eastern parts respectively. In the meantime the huddled annex of Bangour Hospital should be used as a centre to provide 600 beds for general purposes and obstetrics and 170 beds for infectious disease. In the Borders sub-region, on a long term policy, a hospital centre of some 600 beds should be erected; in the meantime the use of the E.M.S. hospital at Peebles would relieve the present shortage.

Dundee and the Eastern Region

In its general pattern the hospital service of this region must be based on the large hospitals in Dundee and a subsidiary centre in Perth, linked with the main centre for certain specialist and consultant services. Dundee Royal Infirmary and the local authority hospital at Maryfield should be replaced by a single new hospital on the outskirts of Dundee. This hospital would serve as the main teaching centre. The early establishment of an orthopaedic department and a department of psychological medicine in Dundee Royal Infirmary is recommended. The combined general hospital should include a children's block sufficiently large to undertake the work done at present at three institutions. A further recommendation is that King's Cross Hospital, Dundee, should become the central infectious diseases hospital for the region, and a new infectious diseases hospital should be built at Perth. For pulmonary tuberculosis a village settlement in association with Norenside Sanatorium is recommended.

This survey is different from most of the others in that it reports that accommodation for chronic sick is sufficient, or almost so, but half of it is in Poor Law institutions and does not approach hospital standards. Suggestions are made for the separation of chronic sick who are mentally normal from those who are mentally impaired. A short-term policy would secure over 800 extra beds for general and special hospital purposes by the inclusion of certain E.M.S. hospitals and annexes. New construction would be required for maternity accommodation at Arbroath, Crieff, Montrose, and Perth, with an adaptation at Maryfield Hospital, Dundee. Perth Royal Infirmary is declared to be a good and well equipped general hospital. Its urgent need is for a new maternity and a new out-patient department. With the strengthening of its specialist staff and an increase in size of the medical school at St Andrews it should be used increasingly as a teaching hospital.

Aberdeen and the North-Eastern Region

Most of the specialist members of the hospital staffs in this region are clinical teachers at the medical school at Aberdeen.

"The [Aberdeen] University is concerned to increase the number of clinical teachers in almost every department. It also wishes to undertake its share of the training of young specialists, for whom an increased provision of positions of the registrar kind is necessary. These developments must clearly be aligned with the development of the hospitals service of specialists, their numbers and their organization must be such as to provide for the adequate care of patients in all hospitals of the region and for the requirements of teaching, making a reasonable allowance of time for investigative work and for study leave. Throughout our recommendations we have borne these considerations in mind."

In pre-war conditions the medical staff at Aberdeen Royal Infirmary and at the Woodend (local authority) hospital was nearly adequate to meet the needs of the region, but the considerations just mentioned call for an increase. It is thought advisable to develop the principle of a joint staff shared between the two hospitals. The medical beds in the district and cottage hospitals will be adequate provided an increasing number of surgical patients is sent to the large hospitals in Aberdeen. The smaller hospitals could be used more than at present for the further treatment of patients who have already been examined and treated in the central hospitals. The surveyors hold that

general practitioners should not in future be encouraged to undertake major surgery. The majority of patients requiring major operations could be brought to the central hospitals in Aberdeen, though the Elgin district, 60 miles away, is judged to be too distant, and a surgical unit should be established in that town.

The extension of the Royal Aberdeen Hospital for Sick Children is regarded as so urgent that the surveyors recommend as part of their short-term policy the construction of a new block for premature babies, further provision for children suffering from infectious conditions, and extra accommodation for nursing staff. For the chronic sick they suggest an early start with new building on two sites in Aberdeen and a new hospital at Elgin.

An appendix to this part of the survey deals with the position in Orkney and Shetland, both of which should be linked up with the North-Eastern Region, though a link with the Northern Region in the case of Orkney would be a desirable alternative. A new cottage hospital at Lerwick, in Shetland, is recommended.

Inverness and the Northern Region

The Northern Region is the only one not based on a university town. It has, however, a long-standing association with Edinburgh, but the most marked local trend is from the Western Isles to the hospitals and specialists of Glasgow.

"The islands have long been served by ships from the Clyde, and their people have close personal and commercial ties with Glasgow. . . their medical practitioners are loud in the insistence that this association should be preserved in the medical service."

One of the principal recommendations of the surveyors is the establishment of a new maternity hospital in Inverness. The provision of maternity beds in the region is seriously short of the standard of 40 to 50 beds per 1,000 births recommended in the Report on Infant Mortality in Scotland, 1943. A maternity unit at Fort William, another to serve the Isle of Skye, and a cottage hospital to replace Belford, which is insufficient for the district and cannot be extended or adapted, is proposed.

With its dispersed population and widely separated centres this region presents a special hospital problem. In other ways, too, it has required special medical provision, as evidenced for the last thirty years in the Highlands and Islands Medical Service. In the view of the surveyors the region should in time look to Inverness as its main surgical centre, but there should be a link with Aberdeen also. To maintain contact with general practitioners it is suggested that specialists should visit the cottage hospitals if suitable accommodation can be provided for out-patient consultative clinics. The survey outlines a comprehensive provision for cases of pulmonary tuberculosis in which three of the existing hospitals would play a major part.

An air ambulance service has operated for some years between the Western Isles and the airport of Glasgow, and another between Stornoway and Inverness has been recently inaugurated. The surveyors urge the development of air ambulance facilities between outlying parts of the Highlands and Inverness as soon as air lines are extended.

IMPERIAL CANCER RESEARCH FUND

The annual general meeting of the governors of the Imperial Cancer Research Fund was held at the Royal College of Surgeons on April 17 under the chairmanship of Prof. H. R. Dean. The forty-third annual report stated that since the end of the war all but one of the scientific staff and all but five of the surviving members of the technical staff had been released from the Services and had returned to the laboratories. The treasurer, Sir Holburt Waring, reported that the total income for the year was close upon £25,000, and the sum received in legacies, amounting to over £57,000, was larger than in any previous year. At the same time a great increase of activity, involving new expenditure, was anticipated, and the council had appointed a committee to consider how the work of the Fund could best be intensified and expanded.

The director, Prof. W. E. Gye, in a statement on the work of the year, said that research had been continued in the same four fields—namely, in carcinogenesis, mammary cancer, hormones, and chemotherapy. One line of inquiry had been on the metabolism of sulphur in relation to the occurrence of cancer. Two general conclusions were to be drawn from the experimental data available. The first was that disturbance of sulphur metabolism impaired carcinogenic activity, the degree of inhibition of these two processes running parallel and the second, that sulphur played no part in the elimination of the carcinogens. Uncertainty as to this fact has hitherto proved a stumbling-block in the interpretation of the first phenomenon. The hypothesis that a primary action of carcinogens was their fixation to sulphydryl-containing constituents of an unknown nature in the cell was in harmony with all the findings so far accumulated.

Mammary Cancer

The experiments on mammary cancer are in their native slow and time-consuming. One piece of work to which Prof. Gye drew attention was directed to the elucidation of the intimate action of formulative stimuli on mouse mammary glands of high- and low-cancer strains. The attempt was being made, by careful experiment and detailed microscopical examination, to determine whether pathological changes in the breast must first occur or whether it was merely necessary for a certain stage of anatomical outgrowth or differentiation of normal cells to be reached before true cancers formed. Progress had been made in this difficult research, but results were not sufficiently complete to give definite answers to questions of vital importance to conceptions of the cancer process.

In the work on hormones one piece of investigation concerned the mechanism by which thiourea prevented the development of mammary cancer. Prof. Gye stated that the effect of the drug appeared to be more specific than that of simple under-feeding. Virgin mice receiving thiourea had long periods of dioestrus, and the mammary gland developed to a much lesser degree than in the control mice. In these ways mice receiving thiourea resembled the animals after ovariectomy. If, as has been suggested, thyroid secretion was necessary for the full activity of the pituitary-ovary hormone system, then the blocking of thyroxine synthesis by thiourea would be equivalent in some respects to functional ovariectomy, and its effect on the development of mammary cancer could be so explained. But there were conflicting phenomena which still needed explanation.

A large number of pure chemical substances have been tested for possible therapeutic effects in cancer, but so far none has been found to possess a special affinity for cancer cells. Partial regression of some human breast cancers after treatment with synthetic oestrogens having been reported, two members of the research staff investigated the action of stilboestrol on nine of the strains of transplantable tumours which had been found sensitive to treatment by colchicine, the alkaloid discovered in the National Cancer Institute of the U.S.A. to be a most potent mitotic poison, arresting cell division at metaphase in all kinds of cells. Pellets of stilboestrol introduced subcutaneously failed to influence the growth of the tumours unless the dosage was sufficient to induce toxic symptoms, including considerable loss of weight. It was therefore concluded that in this investigation stilboestrol had no specific action in inhibiting the mouse tumours employed, and that such inhibition of growth as occurred with relatively high dosages was the result of a non-specific action.

Some reference was made to the work done for the Government in the Fund's laboratories during the war. This included an investigation of the action of war gases on the eye, and especially the treatment of mustard gas burns. British anti-lewisite (BAL) was found to be a powerful antidote to all poisoning by trivalent arsenicals. "BAL produces an intracellular reversal of a pathological process of a new and striking character which has already been found to be applicable to such peacetime problems as the treatment of arsenical dermatitis and other forms of arsenical poisoning." It is hoped that a full publication on the whole subject of chemical injuries of the cornea may now be permitted, the eye presenting so good a field for experiment on the reactions of avascular tissues.

The Fund has now nine members of its scientific staff and three visiting research workers from abroad.

THE RETREAT, YORK, 1796-1946

In 1792 William Tuke, Lindley Murray, and other members of the Society of Friends proposed the establishment of a "retired habitation" near York for treatment of persons afflicted with mental illnesses. It was built through the donations of members of the Society, and was opened on May 11, 1796, when it received the name of "The Retreat." The original structure still remains as the central part of the buildings. The Retreat was the first institution in this country to initiate the humane treatment of the insane, and as a registered hospital for nervous and mental illnesses it continues its pioneer work. When first opened the patients and staff were known as "the family," and although great development and expansion have taken place since then, the family atmosphere has been jealously guarded throughout.

In celebration of the 150th anniversary there will be a gathering at the Retreat on the afternoon of Saturday, May 11; Mr. Arnold S. Rowntree will preside, Dr. Henry Yellowles will give an address entitled "Hitherto and Henceforth," and Mr. Anthony W. Tuke, a direct descendant of the founder, will plant a tree. On May 12 a service will be broadcast from the Friends Meeting House, Clifford Street, York, and on May 21 there will be a public meeting in London at Friends House, Euston Road, at 6.30 p.m., under the chairmanship of Dr. Cuthbert E. Dukes, the speakers being the Bishop of Coventry and Dr. Arthur Pool, medical superintendent of the hospital. The Friends Book Centre is publishing from that address a five-shilling booklet, *Light through the Cloud*, written by Mr. L. A. G. Strong after a visit to the Retreat. His purpose is to emphasize as a layman that methods in research and treatment are incomplete without an enlightened and friendly understanding of the stresses and strains to which human nature is subject.

EGHAM REHABILITATION CENTRE

The first residential industrial rehabilitation centre to be set up by the Ministry of Labour and National Service, at Egham in Surrey, is the subject of an excellently produced and illustrated pamphlet issued by the Ministry. The centre is on a hillside above the Thames, overlooking Windsor Castle and the playing fields of Eton, and consists of a country mansion on a 55-acre estate, with workrooms, class rooms, a medical block, and a gymnasium. Here are accommodated 230 men, either civilians or ex-Service men, between the ages of 16 and 50, for courses of from six to eight weeks. The aim of the centre is to help men who have completed hospital or convalescent treatment but are not yet fit for full-time employment nor even for full-time occupational training. Medical supervision is afforded by a resident doctor, the services of nurses and physiotherapists are available, and after a man has been put right in the physical sense, his preferences and aptitudes are studied with a view to his re-entrance into employment. "When a man leaves Egham, having completed his stay, he has already mapped out his future; he knows, with certainty and confidence, just what he is capable of, and just what he is going to do." It is stated that of 1,000 men who have passed through the centre during nearly two years, 500 have returned to their former jobs or to other suitable occupations, and most of the remainder to a Government or other establishment for further industrial training. Other such centres are contemplated.

Reports of Societies

SURGICAL TREATMENT OF DEAFNESS

At a meeting of the Liverpool Medical Institution on April 11, with the president, Dr. G. F. RAWDON SMITH, in the chair, Mr. A. TUMARKIN read a paper on "Recent Advances in the Surgical Treatment of Deafness."

Mr. Tumarkin dealt in some detail with the modern fenestration operation as perfected by Lempert. Though this operation was successful in a limited proportion of cases, and represented a real advance over all previous techniques, nevertheless, its value had been much overestimated by the popular press. In estimating the proportion of successful cases at about one in four, he made a plea for greater care in the presentation by surgeons of their results.

In the second part of his paper, on the surgery of chronic middle-ear suppuration, Mr. Tumarkin condemned radical mastoidectomy as a major and mutilating operation, which commonly failed to cure the suppuration and more often than not increased deafness. He described the operation of transmeatal atticotomy which he had designed nine years ago. This was an operation of precision performed with minute gouges

through an aural speculum. It utilized the external auditory canal as a natural shaft leading direct to the functioning structures of the middle ear. He claimed that the operation was superior to the radical mastoidectomy in many ways. It was a comparatively minor procedure and could be done in adults under local analgesia. The resulting operation cavity was minute and healed rapidly and permanently. After-care was reduced to a minimum and, above all, hearing was improved in a large proportion of cases. Mr. Tumarkin gave details of a group of 11 atticotomies recently performed on school-children. Otorrhoea had been present for from 2 to 12 years. In 9 cases a dry cavity was obtained in 2 to 6 weeks. In 5 cases the hearing improved. Pointing out that in nearly all cases the ossicular chain was destroyed by prolonged suppuration, he made a plea for early atticotomy as soon as it was clear that conservative measures could not succeed.

In the discussion which followed Mr. H. V. FORSTER said that he had not attempted the fenestration operation for otosclerosis. He had seen some good results follow Mr. Tumarkin's conservative transmeatal operation. Perhaps Mr. Tumarkin's comparison between this procedure and the radical mastoid operation done by the post-aural route had been a little severe. Though operating by the older method of approach behind the auricle, he preferred to be kind to the tympanic contents, especially in children. If necessary, one could work backwards from the attic instead of removing a wide area of the mastoid cortex. The war had revealed a large number of cases of chronic middle-ear suppuration in recruits called up for medical examination, though some of them heard remarkably well in spite of a chronic discharge.

RADIOGRAPHY OF PNEUMONIA

At a meeting of the Fever Hospital Medical Service Group of the Society of Medical Officers of Health on March 29, with the president, Dr. M. MITMAN, in the chair, Dr. THOMAS ANDERSON (Glasgow) illustrated the progress of consolidation in pneumococcus pneumonia by a series of radiographs.

Some of the patients showed a rapid clearing of the process so that a normal radiograph was obtained in two to three weeks. Other examples were shown, however, where even after the lapse of over five weeks marked evidence of consolidation was still present. In some of these the raising of the diaphragm and similar signs pointed to the possibility of collapse, but in the majority no such evidence could be found. The radiographic picture in these cases of delayed resolution was usually that of a feathery opacity with linear and circular markings. As a general rule the periphery cleared most slowly. The earlier figures of incidence which the speaker had recorded were supported by more recent statistics, which showed that the condition might occur in from 35 to 40% of patients over 35 years of age. Two points of importance were that eventually—sometimes after the passage of two to three months—a normal radiograph would be obtained, which suggested that the condition was not fibrotic; during this time many of the patients remained incapacitated. Secondly, patients whose initial consolidations showed the densest opacities in the radiograph took longest to clear.

Dr. Anderson then went on to deal with the radiographic appearances in cases of measles. In some patients the diagnosis of bronchopneumonia was not in doubt. But in a considerable number there were markings, particularly at the right inner base, which were in keeping with a diagnosis of partial collapse. The importance of the recognition of such cases was underlined by a series of radiographs from patients who were admitted with the diagnosis of pneumonia but who were found to have a collapse with bronchiectasis. In each case the starting point in the history was an attack of measles complicated by "pneumonia," after which the patient had had several pneumonic episodes. A plea was made for the more careful follow-up of suspicious cases.

A clinical meeting of the Medical Society of the L.C.C. Service was held at St. James' Hospital, Balham, on April 4, when the staff of the hospital demonstrated cases. There were 100 members present. The clinical demonstrations were followed by a discussion on some of the cases, which included a number in which oesophagectomy had been performed.

Correspondence

The Health Service Bill

SIR,—The initial difficulty most doctors experience in facing up to the National Health Service Bill is that all their training has been to fit them to fight for the lives and interests of others, and not themselves, so that they are rendered peculiarly vulnerable to this unwarranted attack upon their freedom and independence. "Unwarranted," I think, is the right word, because the "private enterprise," so despised of the Socialist doctrinaire, has played such an all-important part in making medicine the highly efficient profession that it is to-day.

If the Bill gave primary importance to the most pressing issue with which we are faced to-day—namely, lack of hospital beds, staff to run them, and better facilities for treatment—then we should feel more inclined to recognize that Mr. Aneurin Bevan knows what he is talking about. But no; this is relegated to comparative obscurity in comparison with the endeavour to make us swell the already indecently overcrowded ranks of the Civil Service. A possible failure in the health services makes the already gloomy list of Government failures in coal and housing pale into insignificance; nor will any promise as to the continuance of "private practice" reassure us, with the recent memory of the broken pledge to the approved societies.

Let us be quite clear: the seven Principles are vital; Mr. Aneurin Bevan refused to negotiate with us, let us refuse to co-operate with him unless he concedes these Principles.—I am etc.,

Crawley Down.

A. ORR-EWING.

SIR,—On the eve of what must surely be the most important Representative Meeting that has ever been held, and coinciding as it does with the second reading of the Health Service Bill in Parliament, may I plead with my fellow delegates, and with all the eloquence in my power, that they will now lift and separate from the main mass of arguable matter contained in the Bill those one or two points—there are no more and there may be fewer—upon which the profession may decide neither to argue nor to compromise, but at need to "stand and fight." It has been a weakness of past Representative Meetings, perhaps unavoidable in the absence of definite Government proposals, that there have been so many aspects of a scheme to revolutionize medical practice under discussion at the same time. In the mass of resolutions, at times overlapping or even conflicting, it has become difficult for the rank and file to see "the wood for the trees."

The confusional possibilities of what one of your correspondents calls a "cloud of words" are as endless as they are dangerous. An instance comes readily to mind. In the B.M.A. circular on the Bill under the heading "Family Practitioner Services," and repeated in the agenda for the Representative Meeting, the direction of doctors, the form of remuneration, and the disposal of practice goodwill are treated as three separate points. Surely on reflection it is apparent that they are corollaries of each other to the extent of being indivisible. The freedom of doctors to settle where they wish, payment by capitation fees, and the disposal by sale of practice goodwill taken together form a logical sequence, and a system that ensures the continued independence of the profession; taken separately they become meaningless symbols, of no practical value. In the same way their antitheses—direction, payment by salary, and abolition of practice sales—do not lead to a salaried service: they mean that it is here with us as an accomplished fact. I submit that here there are not three principles, but one, to be debated as one. Herein too, perhaps, is the outstanding principle of all. Indeed I am tempted to regard it as the only one which has emerged so far which justifies a fight. The B.M.A. is raising a defence fund; what for? Let us hear now, not in vague general principles, but in concrete terms, phrased in plain and simple language, and, if possible, without qualification.—I am, etc.,

Derby.

E. D. BROSTER.

SIR,—As a Socialist of sixty years' standing, a general medical practitioner in every class of practice, a supporter in the main of the present Government, an old friendly acquaintance of the Prime Minister, and a member of the B.M.A. for many decades, I should like to express my enthusiastic agreement with the arguments and with the proposals in Dr. W. M. Frazer's letter (April 20, p. 621).

A quarter of a century ago I wrote a book which was published under the title of *A National Health Policy*. Speaking of the panel system and free choice, I said:

"If a panel doctor feels that his patient needs visiting every day for six months, he is, at any rate, at liberty to do so without adding to the poverty of the home. If he does not rise to the opportunity then it is human nature that wants reforming. No system will tend to help much, least of all would a full-time salaried service, which would inevitably take away from the patient all initiative, control, and choice.

It is true that doctors who temperamentally take little pride in doing good work neglect it just as they used to do, but their neglect is not due to the panel system, and, fortunately, they form a very small minority. Moreover, the panel system has not only no responsibility for the creation of this neglect, but actually provides the only efficient remedies for it.

A remedy is rarely very effective in practice unless its application is in the hands of those who will gain by its success or suffer from that which it is devised to cure. If we had a system of salaried State doctors, it would still be the patient who would mainly suffer from the doctor's neglect, but it would have to be some public committee or State Department that would administer the criticism or inflict the penalty. The panel system has the great merit of placing the remedy largely in the hands of the patient. Flagrant cases are, in addition, treated by the public authorities with fine or expulsion, but the principal power lies with the panel patient himself. In the first place, he is free to choose whatever doctor in his district is of best repute, and if he is dissatisfied with his doctor and loses confidence in his skill or attentiveness he is free to leave him and choose another. There lies the true remedy for slackness and malpractice.

The doctor's income depends on the number of patients who select him and, having selected him, remain with him. Unfortunately, in the past the apathy of some of the doctors has been as nothing compared with the apathy of the great mass of panel patients. They have been apt to 'grouse' but not to act. They are at last beginning to realize their powers; and it is up to them, by a mere process of selection, to eliminate from the ranks of panel doctors the dwindling minority of slackers—the only ones who gain publicity.

Under the Insurance Act no provision has yet been made for specialist and hospital treatment, which nowadays forms so essential a part of a complete medical service. Until these additional services are included, and until the dependants of the employed population also come under the panel system, it cannot be regarded as complete even for its limited purposes. But so far as it goes it is, in my opinion, the best system yet devised, and I should much like to see it applied to other departments of practical economics.

It is not fair to debit the panel system with the fundamental defect of the National Insurance Act, which is that it is applicable to one class of the population only, affording a typical instance of class legislation. Nor is it a defect in the panel system itself that, even within that class, its potential benefits are available only to certain individuals in each family, or that, as stated above, it provides only an incomplete medical and surgical service, the more urgent and vitally important services being still entirely outside the insured person's reach.

Were the present panel service of general practitioners supplemented by an efficient and properly organized service of operating surgeons, and ophthalmic, gynaecological, and dental specialists, and adequate hospital accommodation, including all modern means of diagnosis; and were greater 'freedom of choice' given to the individual patient, the machinery simplified, and the connexion between the medical service and approved societies abolished, it is doubtful if a better system could at present be devised. The old-fashioned individual fee-hunting medical practice is condemned by experience as well as by the merest common sense. Under it, proper medical attention is barred for the majority of poor people. A salaried general practitioner service, on the lines of the Poor Law, would essentially reduce the position of the individual patient to a status difficult to describe other than as that of a pauper, for no comparison is possible between a 'family doctor' service and such services as the police or judicial. It would give increased power and security to the slackers in the medical profession, while discouraging hopelessly the more zealous. Keen men will do good work under any system, but the system is the best which places within the reach of the greatest number all the medical skill available, and gives the maximum encouragement to its exercise."

My views to-day are pretty much the same as they were then.—I am, etc.,

London, E.1.

HARRY ROBERTS.

SIR.—May I comment on a point in your leading article (April 20, p. 612) and on another issue that has been frequently raised in correspondence about the Bill. You suggest that the Minister should drop his salary proposal and see that doctors be remunerated on a capitation basis. If, however, the Minister did do this, would it be wholly fair to those doctors who, working single-handed before, have returned from the Forces to find their practices considerably diminished and their panel lists reduced by half or more? Thus one colleague, after some years away, sees his panel list reduced from 2,400 to 600; another from 1,700 to 700. If the Bill is passed all panel lists will presumably be dissolved and patients will be given afresh the duty of selecting a doctor. What real chance will the Service doctors have then of regaining their former practices? As we know, many people will, from inertia, tend to choose the doctor on whose list they were prior to the Act coming into force, with the result that those doctors who have been away will be at a considerable disadvantage. If this applies to once-established practitioners, how much more does it not apply to the young men and women about to start on their careers? The B.M.A. announces that it has them in mind and is making, or has made, arrangements to enable them to borrow money with which to buy a practice. This is very well, but if a man does not want to burden himself with a heavy debt—and one knows how heavy and harassing such a debt can be—then it's just too bad. He is, after all, free to struggle for a living as others have done before him. One cannot wonder that there are many who cordially welcome the proposal that a substantial part of our remuneration be by salary. It is idle to preach unity to a profession that is so divided by circumstance.

A different issue raised by many of your correspondents is this. They suggest that, when all may be treated "free," doctors will be swamped with the trivial complaints of patients who would not have attended had they been obliged to pay at each visit. Nothing, to my mind, is less likely. Many years of private and panel practice, and some recent experience as an Army medical officer, have but served to confirm what has repeatedly been proved before, and been conclusively demonstrated by the Peckham Health Centre, that, taking it by and large, sick people do not go to the doctor early enough. Not because they can't afford to—it is not only the poor who come to us with inoperable carcinoma or advanced disease—but because even when people know they are ill they are frightened of being told they are ill. We ought, then, to welcome the trivial complaint when we meet it, for we have seen too many patients die of what was first thought to be a trivial complaint or a neurotic symptom. And besides, if we pretend to be interested in our work we should be glad to study early symptoms and signs. For, as John Macmurray put it, "The man who goes to the doctor is a sick man."—I am, etc.,

London, E 1

M. MARCUS.

SIR.—Whatever one thinks of the new Health Service Bill there is one thing that stands out in startling relief—the fact that the Minister of Health has treated with contempt the members of the medical profession, in that he has declined any negotiation with its chosen Negotiating Committee. He has produced his Bill and has stated that its "framework" must stand. These are the actions of a dictator issuing an ultimatum.

When one studies this framework, "which must be accepted," one cannot but see clearly that it is not only a framework but is also a sepulchre designed carefully for the reception of the ashes of many things that have hitherto been held dear by the profession—individuality, initiative, independence, etc.—and it has also a special funeral urn for the ashes of the great and glorious traditions of our voluntary hospitals, dear to us also in a way that no other hospitals can be. It will be a very bad day for the moral and spiritual welfare of our country if its citizens are to be for ever deprived of the pleasure and uplift of contributing, to the succour of the sick and needy, gifts that are always twice blessed. How easily it could be avoided by the provision of grants in aid in order that our great voluntary hospitals should continue to lead, as they have always done, in the story of hospital progress.

Looking to the future under this Bill, what are likely to be the prospects of the profession with regard to the relationship of their various advisory committees to the Minister of Health? Is he compelled or is he likely to act on their advice? In view of his initial dictating the prospect is gloomy in the

extreme. I feel strongly that in resisting this Bill as it now stands the profession will be acting in the best interests of the people, and I am sure that the people generally wish us to remain, as heretofore, their own personal advisers, and not become mere civil servants whose first loyalty must be to the State. I cannot conceive that the profession will be so spineless as to accept tamely the Bill as it now stands, and I hope that all Branches will adopt the slogan: "No service under the Act until conditions of service acceptable to the profession have been reached as the result of negotiation freed from dictation."

—I am, etc.,

Egham, S E 9.

WILLIAM T. MILTON.

SIR.—Judging from the letters published in the *Journal* and from opinions expressed both in public meetings and in private, it appears that a considerable number of doctors object strongly on principle to certain proposals in the National Health Bill. Their objections are based on the belief that the proposals will tend neither to raise the standard of medical treatment nor to improve the health of the nation. The Bill sets us on the road leading to a full-time State salaried service, and the sacrifice of freedom and initiative thereby entailed should not be demanded by the Government until we are certain that a commensurate benefit will be derived from it by both doctor and patient.

Owing to the fact that the majority of general practitioners have commitments and dependants for whom they are responsible, they are not in a position to refuse service under the proposals of the Bill unless they know that a sufficient proportion of their colleagues are prepared to stand by them. If the B.M.A. should arrange a plebiscite in the form, "Are you prepared to work in the National Health Service as laid down in the Bill?" the majority will be obliged, however unwillingly, to answer "Yes." I venture to suggest that this difficulty might be overcome if questions were circulated in some such form as the following:

(a) Apart from economic reasons, are you in favour of accepting service under the National Health Service Bill as a matter of principle?

(b) If not, is your objection so strong that you would undertake to refuse such service provided that a sufficient number of your colleagues would unite with you in such a refusal?

Our leaders in the B.M.A., having studied the answer to these questions, would then be in a position to judge whether a sufficient proportion of general practitioners are prepared to stand together to make such action advisable, and could instruct members accordingly.—I am, etc.,

Stammore

H B WOODHOUSE.

SIR.—I do not dare say that I will not accept service under the Bill, but would willingly sign a statement that, providing 50% of doctors do likewise, I would refuse service. Many of us are afraid of being left "holding the baby," but such a document would probably be signed by 90% of the profession. The percentage agreeing would be the true percentage wishing to refuse service. Could not the B.M.A. try out such a document at once and see what happens.—I am, etc.,

Halesowen, Wores

H. W. BLAND.

SIR.—Recent correspondents have drawn attention to discrepancies in the Ministry of Health's Summary of the Proposed New Service as compared with the Bill itself. May I put forward a further point.

The Summary (para. 4) states that "all the service, or any part of it, is to be available to everyone" (*italics mine*). This appears to cover the right of a patient to consult a general practitioner outside the service, and not thereby deprive himself of hospital, consultant, and other benefits in the scheme. I can, however, find no reference to this privilege in the Bill itself.

Without suggesting that the treatment would be better, I believe there will be patients who, for personal and other reasons, prefer a private practitioner as their family doctor. It is of vital importance that such practitioners have access to the facilities of the service on behalf of their patients, and this right should be established, if possible, by a clause in the Bill. It may be suggested that the position could be secured by regulation, but regulations are too easily altered or cancelled by succeeding Ministers.—I am, etc.,

Sheffield, 10

HENRY BROWN.

Fallacy of the Health Service Bill

SIR,—May I be allowed to say that I believe the present attempt of the profession to resist regimentation is illogical. We are proposing to stop a symptom instead of the disease which produces it. The Government is committed to the task of gradually organizing the whole country for the purposes of mass production, and is therefore, from its own point of view, perfectly in order when it proceeds to the regimentation of the medical profession. Indeed, it is clear that, on the Government's own assumptions, the medical profession will form one of the most effective agencies in bringing about the desired organizing of the country's man-power. This the profession will do by virtue of its power of issuing or withholding certificates. If a cog stops arbitrarily in a machine the whole machine is thrown out of gear. Without a doctor's certificate no man in future will be allowed to leave his work. It being decreed that mass production through the agency of the State machine is henceforth to be Britain's aim in life, the organizing of medical certification will obviously have to be gradually tightened up until no one escapes the net. Hence the Health Service Bill is only a symptom. The disease is the drive towards the servile State. Therefore the doctors are surely the very people to point out the fallacy involved in merely "resisting the Bill."

Those of us who understand what freedom is and love it, and who are prepared to make some personal "sacrifice" in its cause, had better probably change our methods. Let us, I suggest, point out what is happening in the psychological sphere. That "feeling of frustration," to which many newspapers have lately been drawing public attention, would now seem to be deepening into an actual psychoneurosis, which is perhaps best described as *balked or thwarted personality*. And this again is apparently not only at the root of a major part of our growing insanity rate but also, via the "nervous system," producing many bodily ailments as well. If, therefore, we can demonstrate that the general advance of mechanization, standardization, and mass production by the State is bringing about more disease than it can ever possibly cure, the Government might conceivably be induced even now to drop its present Health Service Bill—nay, more, to reverse the general policy which is promoting so much disability in this country.—I am, etc.,

North Queensferry, Fife.

A. J. BROCK.

The G.P. and the Health Service Bill

SIR,—“Words,” said Voltaire, “were given to man in order that he might conceal his thoughts.” We have had a spate of words lately and are likely to have more. Even so, to ask an average doctor to put in a concrete form exactly what the N.H.S. Bill means to him is to ask an impossibility. He just doesn't know. Nevertheless, he is asked to be prepared to dive into his private treasury and be ready to part with anything from £25 to £100 to support some scheme, he doesn't quite know what. “Trust,” of course, is the essence of the contract. But some of us remember the slogan “Trust Baldwin,” and what a morass that led us into. Flocking to meetings is all very well, but does it prove anything except the existence of a gregarious instinct and a sheep-like tendency to be led by some dominating personality with a golden tongue? Let the orators beware when they think they are swaying those serried ranks of medical humanity in front of them. *Quot homines, tot sententiae*, and perhaps, as they file out, one hears an echo of old Omar, “but evermore Came out by the same door as in I went.”

I am no Socialist, and I have no love for Mr. Bevan or for any of his works, neither have I had any regard for any Minister of Health for the last 20 years, for they have scarcely troubled to disguise their own lack of interest in our profession. For that matter has the B.M.A. always been so perfervid about the interests of the G.P. as it appears to be to-day? The doctor-patient relationship is worked to death and savours slightly of cant. One feels sometimes that it is those doctors who wear themselves out in the interests of their patients who say least about it, and who would like to have a little of this burden taken off their backs. To pass some of our troublesome patients along occasionally to one of our colleagues would be as good as a holiday. Doctors are harassed by the ability of a certain section of the community to get medical treatment for next to nothing, and the result is that our waiting rooms are filled with

hypochondriacs and our nervous and physical energies dissipated listening to their doleful stories.

These troubles will inevitably get worse. But let us, for Heaven's sake, not always invoke the sacredness of the doctor-patient relationship. To the specialist who sees his patient once or twice this is all very touching, and so it would be to others did they not have to live for ever among them.—I am, etc.,

Hove.

G. L. DAVIES.

SIR,—A National Health Service Bill will inevitably be passed. There is a danger that we may lose precious time in debating Principles and freedoms when we should concentrate on briefing our medical Members and other M.P.s to advocate amendments.

Any scheme to lighten the financial burden of severe illness on the middle classes is welcome and overdue. Their health is primarily in the hands of the G.P., and my main criticism of the Bill is that it carries a few steps further the down-grading of the family doctor, a process that has been going on for twenty or more years.

I practised abroad for 14 years in places where necessarily a doctor had to rely on his own judgment, and I found on my return that, apart from the treatment of minor ailments, a general practice was mainly a distributing centre to direct patients to appropriate specialists and to hospitals and clinics. Success often appeared to be measured by the size of the panel and the speed with which patients could be supplied with a bottle or dispatched with the necessary specialist's letter. Hospitals, clinics, and specialists are all needed in abundance, and it is wonderful to think that they will be more easily available to the middle classes, but what interest does a G.P. get out of the service if he is to be converted into a medical clerk at a mass distributing centre or communal surgery, as the health centres will at first be?

Give us proper diagnostic clinics attached to the local hospital or sub-hospitals, with ancillary special departments and specialists in attendance and access to general-practitioner beds to work under the staff of the hospital. Give the family doctor a chance to keep alive his clinical acumen, and follow his patients as a friend and adviser through all stages of disease, encourage him to take his part in preventive medicine by employing him more in pre-natal clinics, child guidance clinics, rheumatism clinics, vocational psychiatric clinics, or whatever he may be most interested in or adapted for. Unless this is done no one will be interested in medicine as a career unless he can become a specialist, and you will have an ill-balanced service with many experts in restricted fields of therapeutics and an overworked rank and file of disgruntled disinterested medical clerks.

Demand for us more interest in our work and demand that we know definitely the conditions of service. Our salary and our compensation, and the method of assessing the latter, should be approved by Parliament and not left to be settled by regulations subsequently inserted by the Minister. If the compensation is adequate and fairly assessed, let us cease our opposition to the sale of goodwill. The old system of the sale of practices will never be an issue on which we can be united, as shown by the B.M.A. Questionnaire, in which 52% of all doctors who replied voted for its abolition. Whatever form the service may take the selling value of many practices will probably fall, and unless we are careful the Minister will be quite agreeable to let us miss the substance of £66,000,000 for the shadow of an unknown value later on.—I am, etc.,

Leigh-on-Sea, Essex.

H. W. TOMS.

Destruction of Freedom under the Bill

SIR,—As time passes it seems obvious that if the National Health Service Bill is passed into law it will completely destroy the freedom of the medical profession by any of four well-aimed blows.

The first and most fatal blow is that there has been no opportunity for the profession to save its liberty by negotiation before the Bill was presented. The second blow is that the Minister dictates the hospital, consultant, and general practitioner service, with the profession having no effective power to govern its own affairs above the level of local executive councils. These councils only have disciplinary and disbursement functions.

The third blow is the decision to prevent doctors owning the goodwill and freehold of their practices. Basic salary and

capitation fee, in whatever arranged proportion, are equivalent to salary and must lead to direction of practitioners and loss of independent medical attention. The public will suffer with their doctors by this outrageous proposal that doctors cannot own their goodwill as can other professions which are free, for the doctor will always have his eye on the State officials to be sure he is not being over generous to any of his patients. There could well be a general practitioner service of salaried type for those doctors who prefer this form of service and for those patients who do not object to communal surgery attendance, while leaving the majority of doctors the freehold of their practices. By this combination of salaried practice and freehold practice the public and the profession would safeguard their rights and avoid monopoly medicine.

The fourth blow is that the charitable bequests and endowments which have been bestowed on the voluntary and great teaching hospitals of the country are to be transferred to the ownership of regional and hospital governing boards under the control of the Minister, thereby striking a mortal blow at the independent consultant service in the hospitals, at their traditions, and at local pride, replacing private benevolence by official meidity. How much more practical it would be to give State subsidies in proportion to the needs of each voluntary hospital, in exchange for the acceptance by the hospitals of adequate central co-ordination of effort and perhaps of the purchase and supply of the numerous requisites for treatment and maintenance—I am, etc.

London W 1

GEORGE ROSSDALE.

Security

SIR,—It has been stated in some letters to the *Journal* that the doctors being released from the Services naturally want security. On this peg it is expected that demobilized medical officers will hang approval of the present proposals for a National Health Service. I submit that this conception of security, however fashionable and "progressive," is false.

In the last 15 years we as a nation have seen three forms of security attempted in the world. The first was that of acquiescence in evil, the so-called security of appeasement. This implied trusting that the good nature of our enemies would triumph if we did nothing to annoy them. In the meantime the money was coming in, and we were apparently economically more secure than we would be if we opposed the evil before us. Ultimately this system failed because it became clear that our principles would have to be sacrificed completely if we continued. The neutral countries did continue and ended in slavery. The French adopted the Maginot system of security, relying on complex static defences they forgot that security demands action, imagination, and inspiration by principles. Inertia is no guarantee of impregnability. They ended in slavery. Lastly we adopted the method of war, the method of insecurity and action. At a time when prudence demanded we keep our armour at home it was all sent to Egypt. Victory began soon after this rash act. Security, however uneasy, has temporarily been achieved by vigour and action, and I suggest that this must always be so. Security must be won, it cannot be dispensed except to slaves.

Even if it were true that a large majority of Service doctors desire security above everything—and it is doubtful—it does not follow even apart from the preceding argument that acceptance of the Bill will achieve it. Ministers of Health do not hold office for ever, and consistent progress is doubtful if they change frequently, nor is there any evidence that they will be very much concerned with our security. Those of us who are also looking for houses are not unaware that the source of the present Bill is the one which forgot that bricks are needed for houses. In fact this rather elementary architectural lapse makes us wonder if similar omissions in the much more complex and much more important task of building health are not perhaps concealed in the new Bill. It would be tedious to go into details but among the possibilities are that there may not be enough doctors, that housing and education are more important than health centres and certificates that our patients need servants and not masters that suffering humanity needs personal care not official patronage. Government action inspired by political motives as it usually is cannot be a substitute for personal action inspired by humane motives.

No, Sir, considerations like these do not create such confidence that we are eager to trust our security to any Minister, whatever his blandishments, financial or otherwise. It is not correct to assume that all we are waiting for is direction from on high, happy in the thought that we shall be well looked after and need never think for ourselves again. Some of us have had experience of this type of security. Are we to appease, thinking of our pockets, to be neutral and inert on grounds of security, or are we to act in accordance with fundamental principles—I am, etc.

P. A. GARDINER,
Sed. Ldr., R.A.F.V.R.

Selling Out the Profession

SIR,—An ancient profession such as ours is something which has come down to us through the centuries and is likely, so far as anyone can see to last for all time coming. It is something which one generation of doctors passes on to the next. It is far too big a thing for the doctors of this generation to hand over lock, stock, and barrel to the local authorities or the present Government. It is just conceivable, of course, though I doubt it, that at some dim and distant date when the world is a much better place than it is to-day the then generation of doctors might be justified in handing over our profession to some kind of international body as a gesture say, for international peace, but this would apply to the doctors not of one country only but of all.

Let us take long views in this matter. The local authorities have been concerned in the treatment of the sick in any great numbers only during the past 25 to 30 years. Now, it seems, most of this work is to be taken from them. Who would have dared to prophesy five years ago that this withdrawal of their powers would be contemplated to-day? Who knows but that in another 50 years the Government of this country will have nothing whatever to do with medical or surgical treatment?

Having given much thought, then, to the vital question exercising all our minds to-day I can come to no other conclusion than that it would be utterly wrong for us to give up our present right to buy and sell our practices, accepting in return for this sacrifice compensation at the hands of the Government. After all, a perfectly good medical service is quite possible without selling out our profession. I sincerely trust doctors will decide accordingly. I also hope they will reject the idea of a basic salary as payment on any other than a capitation basis would be almost as dangerous to our profession's welfare as a lost right to buy and sell its practices—I am, etc.

Glasgow

J. INGLIS CAMPBELL

Competition in a Whole-time Service

SIR,—In one of the explanatory paragraphs on the principles adopted by the Negotiating Committee appears the following statement: "It [a whole-time salaried medical service] might tend to replace competition for patients by competition to avoid them." The implication is that this would necessarily be bad. Is this really so? The panel doctor tends to take on many more patients than he can treat adequately. Is it not desirable to reduce somewhat the size of practices in the interest of the patient? These remarks apply with equal force to hospital out patients.

Secondly, in the past there has been a tendency (implicit if not explicit) to confine the number of entrants to the profession to those able to make an adequate living from the practice of medicine. The new Health Service Bill coupled with new educational provisions will make it possible to take in sufficient entrants to secure an adequate medical service for all. The abolition of competition for patients will result in professional welcome for, instead of opposition to, the flow of new entrants. Thirdly, if in the heat of the competition to avoid patients doctors are led to take a renewed interest in public health and hygiene will this be a bad thing for the patient?

Finally, those—and they are many—who experienced the doubtful bliss of long periods of enforced idleness as a result of the war will remember the enthusiasm with which patients when they finally did appear were greeted by whole-time salaried servants of the State,—I am, etc.

St. Mary Cray Kent.

BRIAN H. KIRMAN.

Naples Typhus Epidemic

SIR,—I was very glad to read Lieut.-Col. H. J. Crauford-Benson's notes (April 13, p. 579) on the Naples typhus epidemic. Many references have been made to the Naples typhus epidemic, in both the lay and medical press. In the majority of these the impression is given that the outbreak was terminated solely by the large-scale use of D.D.T. As Crauford-Benson points out, such statements require considerable qualification.

D.D.T. was brought into use at a relatively late stage of the epidemic. Large-scale dusting of the Neapolitans with this insecticide began at a time when it was evident that the initial methods employed had brought the epidemic under control. Its arrival in the field was nevertheless timely. This non-irritating, persistent insecticide is the ideal agent for dealing with an undisciplined populace, when regular bathing and laundry facilities are absent. The setting up of the mass delousing scheme, and the intensification of other control measures, so energetically pursued by the U.S. Typhus Commission, turned the defeat of the typhus enemy into a complete rout.

The Allied Armies and the civilians employed by them did not use D.D.T. They were protected by periodic dusting with insecticides containing pyrethrum or derris. This was done quickly and efficiently by hand-gun or power-gun apparatus. The number of civilians protected by inoculation was negligible, whilst when the epidemic was at its height the British Army inoculation rate was considerably less than 100%. The most important preventive measure employed was, therefore, the mechanical use of insecticide powders (for preventing lousiness as well as for treating infested individuals) using any efficient insecticide.

There was also a rigid military discipline, a highly organized scheme for case-searching, contact-dusting, and hospitalization, together with intensive military and civilian propaganda, and control of movement in and out of Naples. All these measures contributed to the cutting short of the outbreak and the prevention of spread to the Allied Forces. The control of civilian movement was, for various reasons, the least efficient part of the organization, and as a consequence many new foci of infection occurred in villages and towns outside Naples. Each of these had to be dealt with separately.

Many lessons were learned in Naples. First, the value of mechanical dusting methods was established beyond question. Secondly, the large-scale use of D.D.T. showed it to be a most remarkable insecticide, which, though somewhat slow in effect, possessed a residual action which prevented re-infestation. Finally, that this method of large-scale disinfection, invaluable though it is, must still be regarded as only one of the many measures to be put into operation to combat a typhus outbreak. It should also be mentioned that the whole-hearted co-operation of the British and American medical services, with the pooling of resources of personnel and equipment, contributed in no small measure to the success of the undertaking. An account of the epidemic, with particular reference to the preventive action taken by the British Army, is in course of publication, and in this emphasis is laid on the points mentioned above.—I am, etc.,

H. D. CHALKE, Col.,

London NW 6

Late Senior Hygiene Officer, Allied Armies in Italy

Sjögren's Syndrome with Rheumatoid Arthritis

SIR.—In their article on iritis in the rheumatic affections (April 20, p. 597) Prof. A. Sorsby and Dr. A. Gormaz remark: "Moreover, rheumatoid arthritis seems to be part of the Sjögren syndrome." They refer to H. Sjögren himself (1940) in *Modern Trends in Ophthalmology* (ed. Ridley and Sorsby, p. 403). From the literature I also referred to the apparent association of rheumatoid arthritis with Sjögren's syndrome, in a paper regarding non-ocular features of Sjögren's syndrome (*Brit. J. Ophthalmol.*, 1945, 29, 299), but, though rheumatoid arthritis is fairly common in this country, I have never myself seen nor have I heard of an example (in this country) in which it has been accompanied by Sjögren's syndrome. It would be interesting to hear if Prof. Sorsby or Dr. Gormaz have.—I am, etc.,

London W 1

F. PARKES WEBER.

Suprapubic Drainage of the Bladder

SIR,—Perhaps I have unintentionally diverted the important points raised by Mr. E. W. Sheaf (March 2, p. 331). It is well known that scarring from a suprapubic sinus, notably one of long duration, is troublesome in a subsequent prostatectomy. Being right-handed, the higher it is the greater my difficulty. Excision of the scar may involve opening the peritoneal cavity or wounding small intestine, which indeed seems to be attracted to it, together with the omentum, by the inflammation present. This attraction sometimes occurs when the sinus is situated low down.

It is generally recognized that sufficient space should be left for the lowest part of the Hamilton-Irwin apparatus to rest well above the bone, so that the fit of it is not interfered with and no excessive pressure has to be used. With this in mind the skin incision is planned accordingly. In my own apparatus this point did not arise, but that apparatus was troublesome to work, rather messy, and sometimes failed, especially on a phosphate-coated skin, so that its replacement by Irwin's apparatus was welcomed. The apparatus is now only of historical interest, as having been the first of such things, and its manufacture has been discontinued.

Puncture of the bladder can evidently be made either backwards and upwards or backwards and downwards according to an estimate of the size of the viscus after it has assumed its more permanent state. A small, thick-walled bladder, which requires rest to allay an intense and frequent desire to micturate, if punctured in a downward direction is apt to cause the trocar to skid. By stretching the lower end of the incision downwards such a bladder can be entered more easily in the upward direction. Whether the low position of the sinus causes more subsequent contracture of the bladder than a highly placed one is a difficult matter to decide in the presence of so many other factors.—I am, etc.,

London, W.1.

G. H. COLT.

Physical Therapy in Mental Disorder

SIR,—I appreciate Dr. Skottowe's criticism (April 6, p. 548) of the official recovery rate, but in my previous letter I also pointed out various factors which must be considered in assessing its value, and might have added others. For instance, in the Board of Control's annual report for 1928 the following passage occurs: "There was, as usual, a marked difference between the county and the borough mental hospitals with respect to recovery rates, the percentages being 29.7 and 37.1, respectively, a subject which, when opportunity presents, we propose to investigate." I do not know what the figures are now, but imagine the difference would be less, except perhaps in the more remote and sparsely populated areas. The fact that voluntary patients have been admitted to public hospitals for a number of years may cause a slightly increased recovery rate as compared with that of the past. While in a number of cases the term "voluntary" is hardly appropriate, yet it implies the admissions of some mild cases of a type which would be unlikely to be sent to mental hospitals in former years, and presumably usually favourable as regards prognosis.

Dr. Skottowe's "useful discharge rate" is of much interest. I have observed in recent articles on convulsive therapy a tendency to use the word "remission" rather than "recovery." The idea I had in mind when I wrote to you, Sir (March 23, p. 447), was that if convulsive therapy is of benefit, then there must be an increased recovery rate, and mistakes in diagnosis would not matter. If there is no increased rate that would imply that the patients who received shock treatment and recovered would have done so in any case. Owing to causes due to the war, I doubt if, at present, the Board of Control would be in a position to state, by the statistics they receive, whether this treatment has been of general benefit or not, but in the course of a year or two they should be in a position to do so. In an article in the *Journal of Mental Science* (January, 1944, p. 435) Dr. L. C. Cook summarizes by stating that the position of convulsive therapy in schizophrenia remains controversial, but that in affective states its value is not open to doubt. He does not, however, state whether in his opinion it has caused an increase in the general recovery rate. From Dr. Skottowe's high "useful discharge rate" in 1945, allowing for his comparatively small admission rate, it is evident that

very good results can be obtained by other means. While I have stated that it may be some time yet before the question can be settled, it would be of much interest if some medical officer, who has used the treatment extensively, would state whether he considers it has caused an increased general recovery rate in his hospital as compared with the rate for that hospital prior to the introduction of convulsive therapy, assuming that the types of the admissions were more or less constant.

In regard to Dr. Wright Lambert's letter (April 13, p. 589) my statement that Shaw Bolton found micrometric deficiency was made from memory of his work *Amnesia and Dementia*, which ran through the *Journal of Mental Science*, 1905-8. I note from an old medical directory that, in the same journal in 1901, he published "Histological Basis of Amnesia and Dementia," and that in the 1910 journal G. A. Watson published "Observations on Morbid Anatomy of Mental Disease." Knowing of the fine work done by the Lancashire asylum pathologists early in this century, and remembering especially that done by Drs. David Orr and R. G. Rows, I should be sorry not to have given due honour to Dr. Watson, but it would appear that Dr. Shaw Bolton was the first at all events to publish the matter. I am glad to know that Watson believed dementia praecox to be the result of an innate anatomical deficiency, and I certainly share his view. I would again urge that more pathological work be done, especially, if possible, to discover the early lesions in mental disease. The difficulties are many. There are few deaths, and it is not easy to get normal brains as controls. Post-mortem changes have to be allowed for, and artefact considered. Many people are now in favour of cremation, and if a person desires to be cremated, surely that person could not object to his brain being examined after death. It would certainly be of value to cerebral pathology if intelligent persons would allow this. It has occurred to me that the brains of war criminals who receive the death sentence could be removed very soon after death, and thus, after doing so much harm in life, they might do a little good after death! These latter remarks are a digression from the subject of convulsive therapy, but I am sure those who practise it would like to add to their knowledge of the histopathology of the brains they work upon.—I am, etc.,

Hastings.

HARVEY BAIRD.

Smallpox in the Vaccinated

SIR,—Dr. Killick Millard states (April 20, p. 625) that the child population is at present protected from smallpox by vaccination as the members of his staff on smallpox duty were. He suggests that the abolition of compulsory vaccination is not likely to be followed by an increase in the mortality from smallpox. It seems to me illogical to think that so large an increase in the unprotected population should not be followed by an increase both in the numbers and severity. At present our freedom from smallpox depends on the vigilance of our port sanitary officials. With the increase in air transport many infected people might arrive in this country apparently in perfect health.—I am, etc.,

Erdington

ROBERT ANDERSON.

Tropical Medicine

SIR,—In the *Journal* of Jan. 19 (p. 102) there are two letters under the caption "Tropical Medicine in the United Kingdom." Will you allow me to point out to your readers that probably the largest hospital in the Empire for tropical diseases is that situated in the 3,000,000 city of Calcutta. It is most efficiently staffed. It has many doctors taking the D.T.M. course who are also engaged upon research. The medical papers, records of treatment upon several million cases, the medical books published by the staff are a gold mine—vide Col. Napier's latest two-volume book.

My suggestion is that our future tropical disease specialists should have some training in that hospital, and that medical men at home should consult the papers and books mentioned before treating patients. If this suggestion be carried out some at any rate of the tragedies of the S.E.A.C. campaign might be avoided in future.—I am, etc.,

Bombay.

H. E. RAWLENCE,
Late Residency Surgeon in Kashmir.

"Congenital Malaria"

SIR,—With reference to Dr. I. G. Cameron's letter (April 6, p. 544), during the twenty years (Jan., 1922-Dec., 1941) that I spent in Singapore, in charge of the maternity hospital there, we had over 71,500 deliveries. Many cases of malaria were seen. In 1938 we had 241 cases of malaria in 5,551 deliveries. Yet in only one case—a European—can I say the malaria was transmitted before birth.

The patient, a primipara, was admitted with subtertian malaria, and on the sixth day after a normal delivery the child had fever and S.T. parasites were found in its blood. For some months after that blood was taken from the cord at delivery in all cases where the mother had, or had had, malaria, but in no further cases were the parasites seen. The marvel to me is that there are not more cases on record considering the intimacy of the two blood streams.—I am, etc.,

Lisburn, Ireland

J. S. ENGLISH.

"Cord Round the Neck"

SIR,—I am indebted to Dr. H. Tudor Edmunds for his observations (April 13, p. 588) on stillbirth in association with cord round the neck. I have noted the condition in two successive labours in a multipara. On the first occasion the woman was delivered of a female child, stillborn, attributable to the cord round the neck. In her next labour she was allowed to deliver herself naturally and gave birth to a male child, stillborn, attributable to the cord round the neck. I concluded that the cause of death in each case was asphyxia due to strangulation.—I am, etc.,

Harthill, Lanarkshire

S. H. P. McLAUCHLAN.

SIR,—I was much interested in reading the letter by Dr. H. Tudor Edmunds as I have had a similar case in which the cord was 5 ft. (1.5 m.) long and seven times round the neck; no interference with the circulation and the child was born alive. At the time I felt it was a record length of cord, but Dr. Edmunds's case beats it. I might mention that I once had a case where the cord was only 6 in. (15 cm.) long and yet round the child's neck once—in a primipara. The cord was stretched till it looked like a thick piece of string. It had to be cut before delivery could be obtained and the child naturally was dead. After the confinement was finished I measured the total length of the cord and found it exactly 6 in.

Another interesting record case I once had was where a woman in labour had a most abnormally large abdomen with such an enormous quantity of liquor amni—on emptying, it gushed on to the floor, ran out of the room, under the front door, down two steps, across the pavement, and just reached the gutter—I am, etc.,

Hove

E. MISTIN.

Spontaneous Hypoglycaemia

SIR,—With reference to the very interesting paper by Dr. N. G. Hulbert and Mr. R. J. McNeill Love on subtotal pancreatectomy in a case of spontaneous hypoglycaemia (April 20, p. 603) I would like to confirm that in such cases as described operation is fully justified. My own modest experience comprises only three similar cases, but I had the privilege to hear an unforgettable lecture by Prof. Evarts A. Graham of St. Louis, when he was a guest professor to this country in July, 1939, on what he called "The Applied Physiology and Surgery of Hypoglycaemia." May I quote the following points from the notes I made then, for what they are worth.

(1) The biggest tumours of the islets of the pancreas he (Graham) had seen at that time weighed 500 g. The smallest visible tumour to the naked eye had a diameter of only 5 mm. This is one of the reasons for the difficulty in finding the tumours in many cases.

(2) There are, incidentally, cases in which paroxysmal attacks of spontaneous hyperinsulinism exist without any apparent pathological change in the pancreas. In such cases it has to be assumed that there is a hyperfunction of normally shaped islet cells, and Prof. Graham removed up to 80% of the pancreas with good results in several cases. One patient, a small child, had been followed up for two years after the successful operation when he made his statement.

(3) Bigger tumours look, frequently, like a carcinoma macroscopically but turn out to be adenomas on microscopical examination.

(4) Post-mortem examination of the pancreas in cases of diabetes mellitus revealed tumours of the islets in a surprising number of cases.

(5) Two cases of Graves's disease of his own observation were mentioned. In one, paroxysmal attacks of hypoglycaemia began after thyroidectomy. On exploration an adenoma of the pancreas was found and removed. The hypoglycaemic attacks disappeared, but signs of myxoedema developed. In the second case of Graves's disease with low blood sugar and hypoglycaemic attacks the pancreas was explored. No tumour was found, but 80% of the pancreatic tissue was removed. After that not only did the hypoglycaemic attacks cease but the symptoms of the Graves's disease also disappeared.

I thought that these notes might be of interest as I have not seen them recorded at the time, and I hope that they reflect Prof. Graham's statement fairly correctly.—I am, etc.,

V. C. MEDVEI.

London, S.W.3.

Hospital Administration

SIR,—Your leading-article entitled "The Hospitals" (April 13, p. 575) contains a deliberate attack on medical superintendents and resident medical officers of municipal hospitals in general which does not appear called for on grounds of political expediency and is certainly quite contrary to the facts. We realize that in any considerable body of men there will usually be some isolated individuals who do not accept the standards of outlook and behaviour respected by the body as a whole, but we strongly repudiate and resent the suggestion that more than a few isolated examples occur. To appropriate words attributed to the Secretary of the British Medical Association five pages later in the same issue of your *Journal*: "Those who maintain that our profession is obstructive and stands in the way of a better health service either do not know the facts or are wilfully misrepresenting them for their own purpose." Or, Sir, are you advocating lay control of all hospitals, and thus opposing the fundamental B.M.A. maxim of "No lay control?"—On behalf of the Medical Superintendents' Society, we are, etc.,

J. J. O'REILLY, President,

R. KELSON FORD, Chairman of Council,

London, W.C.1.

JOHN M. MILLOY, Honorary Secretary.

The National Hospital, Queen Square: A Disclaimer

SIR,—During 1945 a group of private persons interested in ascertaining the cause of, and in finding a cure for, paralysis agitans, approached the National Hospital, Queen Square, and voluntarily forming themselves into a "Parkinson's Research Society," decided to raise funds to support research into diseases of the nervous system with special reference to paralysis agitans. At a meeting held at the hospital in July, 1945, the members elected a chairman and committee and, by donations and covenants, provided a sum of money which was handed to the hospital for the prosecution of the research in question. To this lay committee was added a member of the honorary medical staff of the hospital, while I became the honorary secretary of the society.

Steps had been taken to start this enterprise when, early in this year, it came to my knowledge, and to that of members of the honorary medical staff, that the chairman of the society, without previous consultation with the hospital authorities and upon his own initiative, was notifying members of the society and some sufferers from paralysis agitans, by letter, that in fact the cause of the disease had already been found to be bacterial and that a cure for it had been discovered. The name and address of a medical practitioner not connected with the National Hospital, in respect of whom these claims were made, was given in these letters, and patients were advised to put themselves under his treatment.

The board of management of the National Hospital is advised by its medical committee that these claims cannot be endorsed, and that it is not in the public interest that the hospital should collaborate with an organization that sponsors and gives publicity to them. I am therefore authorized to ask the courtesy of your columns for an announcement that the National Hospital dissociates itself wholly from the Parkinson's Research Society and from all claims made by it. The chairman of the society has been so informed and the two members of the society's committee who are connected with the hospital have resigned from it. The members of the society are being offered the return of their donations and subscriptions which were given to the hospital for the purposes of the proposed research.—I am, etc.,

H. EWART MITCHELL,
Secretary.

The National Hospital, Queen Square, W.C.1.

Obituary

SIR HAROLD STILES, K.B.E., LL.D., D.Sc.,
M.B., C.M., F.R.C.S.Ed.

Sir Harold Stiles, the greatly gifted Edinburgh surgeon, died on April 19 at his home at Gullane, East Lothian, aged 83. An Englishman, he went to Edinburgh as a student, and the whole of his professional life, apart from war service, was spent there. Twenty-one years ago, at the height of his fame, he retired from practice and teaching and, with a mind still keen and fresh, devoted himself to geology, and later, when physical activities had to be cut down, made botany his main interest. He joined the B.M.A. soon after qualifying and held office in Scientific and Clinical Sections at four Annual Meetings, including the presidency of the Section of Diseases of Children at Belfast in 1909.

Harold Jalland Stiles, son of Henry T. Stiles, M.D., was born in Lincolnshire, at Spalding, on March 21, 1863. His grandfather also had been a doctor, and from boyhood his heart was set on becoming a surgeon. After schooldays at Totteridge Park he entered Edinburgh University and graduated M.B., C.M. in 1885 with first place in the first-class honours list and the Ettles scholarship and Beaney prize. He spent some time as demonstrator of anatomy under Sir William Turner, took the F.R.C.S.Ed. in 1889, and was appointed assistant surgeon to the Edinburgh Sick Children's Hospital, to the Royal Infirmary, and to Chalmers Hospital. Before then he had paid a long visit to the Continent to gain first-hand knowledge of surgical practice in hospitals at Freiburg and in Berne, and his translation of Kocher's *Operative Surgery* became a standard textbook in this country. In 1919 Stiles, who had by then been for some time full surgeon to the Royal Infirmary, was appointed to the Regius Chair of Clinical Surgery at Edinburgh in succession to Prof. Francis Caird, and when he retired from the chair in 1924 he became Emeritus Professor and many high tributes were paid to him. Not only did he win early distinctions at Edinburgh, but in 1895 the Royal College of Surgeons of England awarded him the first Walker prize as having done the best work during the previous five years in advancing knowledge of the pathology and therapeutics of cancer. In the 1914-18 war he served in the R.A.M.C. with the brevet rank of colonel, and was appointed a member of the commission which investigated the administration of military hospitals in France and Britain; he also did fine work for wounded soldiers at Bangour Hospital, especially in the realm of orthopaedics.

Sir Harold Stiles was a past-president of the Royal College of Surgeons of Edinburgh and of the Association of Surgeons of Great Britain and Ireland; an honorary graduate of the Universities of St. Andrews, Edinburgh, and Leeds; an honorary Fellow of the American Surgical Association and the American College of Surgeons; and an honorary member of the American Medical Association, the British Orthopaedic Association, and the Royal Academy of Medicine, Rome. He was created a knight in 1918 and a K.B.E. in 1919; he was also Extra Surgeon to King George V in Scotland. These and other honours reflected the fame he had won in the eyes of colleagues at home and abroad. Harold Stiles's power of intense concentration, his self-reliance in judgment and action, and his technical brilliance as an operator won him a unique place in the Edinburgh Medical School. Few surgeons of his time can have equalled him in sheer craftsmanship or in mastery of the foundations of good surgery. He gave up practice in 1925 in a manner characteristic of the man, making



[Press Portrait Bureau]

a clean cut from professional and public ties, except those of friendship. In a personal letter written nine years ago he described himself as "not idle though one of the unemployed," and of his geological pursuits he wrote: "Living in the past is a privilege of old age, and my hobby carries one back for about 2,000 million years and gives me more scope for reflection and imagination than surgery did!"

S. P. JAMES, C.M.G., M.D., F.R.S.

Lieut.-Col. I.M.S.(ret.)

Lieut.-Col. Sydney Price James died at the age of 74 on April 17 at Chichester after a short illness. He was a distinguished officer of the Indian Medical Service, who engaged in research work throughout the greater part of his service in India and after his retirement in 1918; especially on malaria, on which he became one of the leading experts.

He was educated at the St. Mary's Hospital Medical School and took the M.B. degree of London University in 1895, the M.D. in tropical medicine in 1906, and the D.P.H. in 1907 while on leave from India. He entered the Madras Medical Service in 1896 and saw active service on the North-West Frontier of India in 1897-8 and in the Boxer Campaign in China in 1900-1. He then joined the recently instituted bacteriological department of research workers, and was nominated by the Government of India as a member of the Royal Society's Malaria Commission in India during 1902-3, an appointment which influenced his whole subsequent career. During this period he was the first to describe a non-malaria three-day (pappataci) fever in the Punjab and to differentiate it from malaria. While working in Madras he had independently discovered that the infection of filariasis is due to inoculation of the young worms through the bites of mosquitoes, and not through water as Manson had suggested. In 1904 James received the coveted Simla post of Statistical Officer with the Government of India; this he held for many years, during which he made short inquiries on kala-azar and on the danger of yellow fever being carried to India. He also wrote a valuable book in 1909 on *Smallpox and Vaccination in India*. Previously he had published in 1902 a report on the causation and prevention of malarial fevers, in which he recorded his work with the Royal Society Commissioners, and in 1904 he wrote with W. G. Liston a monograph on anophelid mosquitoes in India; both of these appeared in further editions. He also edited *Paludism* in 1910-14. During the 1914-18 war he served in an administrative post in Mesopotamia. He retired in 1918 from the I.M.S., but was soon appointed adviser on tropical diseases to the Local Government Board (now the Ministry of Health) and he served on the League of Nations Commissions on malaria in Eastern European countries and on Colonial Office inquiries in East Africa. For his many public services he was awarded the C.M.G. in 1935.

Col. James was a quiet little man, who was more interested in preventive than in curative medicine. During his long service in Simla he was responsible for compiling the annual sanitary reports of the Government of India and wrote valuable summaries of recent advances in medicine for those reports, but he took every opportunity of engaging in research. After he came to work in England he was in charge of the Horton laboratory for making use of malaria therapy for mental diseases, which gave him more time for research. He made such good use of these opportunities that he was elected a Fellow of the Royal Society in 1931. After retiring from his appointment with the Ministry of Health he transferred his energies to the Moltano Research Institute at Cambridge, and latterly lived at Chichester. He thus led a full and useful life with a great variety of interests. He held office as vice-president of the Section of Tropical Medicine at the Annual Meeting of the B.M.A. at Cambridge in 1920 and as president of the Royal Society of Tropical Medicine and Hygiene in 1937-9. He married early in his service and his wife survives to mourn his loss.

SIR RICHARD CHRISTOPHERS, F.R.S., writes:

The announcement of the death of Lieut.-Col. Sydney Price James will be received with feelings of deep regret by malariologists all over the world. His contributions to knowledge of malaria were very great, and especially in the field of the scientific study of drug treatment and prophylaxis he was undoubtedly the first authority. It was not, however, only in the recording of facts about malaria

that James's influence made itself widely felt but in the fresh approach and the spirit of interest and enthusiasm which he infused. Looking back one realizes how wide a field in the course of years his activities covered. In his early days we find James almost the first to bring mosquitoes, so to speak, on to the screen as living, interesting creatures—delightful simple descriptions, almost the first ever made—the tiger mosquito and its larva—all very elementary now but quite new then. In 1904 he wrote, with Liston, that early mosquito classic the *Monograph of the Anopheline Mosquitoes of India*, with its plates by Turkud giving accurate pictures of every then known species of Indian anophelids. In that year he was appointed Statistical Officer with the Government of India. But he still continued his interest in mosquitoes, adding much that was new to the second edition of the monograph and later being editor of *Paludism* and active in bringing about that golden period of research which followed on the Imperial Malaria Conference at Simla in 1910 when the Provincial Malaria Organizations were formed and for the first time the broad facts about malaria in India were ascertained. Later he is on deputation from the Indian Government to visit Panama and seaports between that country and India and to report upon the serious question of how far there was danger from opening of the Panama Canal of the introduction of yellow fever into India—an investigation which led to his being later one of the foremost authorities on this disease and president of the Yellow Fever Commission of the Office International d'Hygiène Publique, Paris. In 1916 sickness contracted in Mesopotamia was followed by his retirement from the Indian Medical Service and his appointment as adviser on tropical diseases to the Local Government Board (now the Ministry of Health). The malaria therapy centre at Horton, constituted towards the end of the 1914-18 war, owed its origin and later development to him. It might so easily have become a centre for routine treatment of general paralysis by blood inoculation. Instead it has been the chief centre in this country undertaking systematic malaria research, investigating clinical aspects of the disease, studying relapses, dealing scientifically with the principles of treatment, testing out new antimalarial drugs, and much else. At Horton was finally established the validity of *P. ovale*. From Horton came the first indications of the existence of strains in malaria—a fact now fully accepted. It was James who brought forward the idea of "causal" prophylaxis, not a very good name in some respects, but embodying an idea that has grown in importance and may eventually be the final answer to prophylaxis of malaria. Then how much should we know of the indigenous malaria of this country were it not for the interest infused by James?

When the League of Nations was formed James threw himself with all his active mind and energy into the wide investigations then made by the Malaria Commission of the League. So also in the war just over, though then retired from his post in the Ministry, he nevertheless again threw himself into the arena, ever intensely concerned in everything to do with what he regarded as the most urgent of all problems connected with malaria—viz., effective prophylaxis and ability to cure the disease. Certainly few can show such a record of work and results as James.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

G. W. Harris, M.D., has been reappointed university demonstrator in anatomy with tenure to Sept. 30, 1948, and M. M. Bull, M.B., B.Chir., with tenure to Sept. 30, 1947. J. Davies, M.B., Ch.B. Leeds, D. A. W. Edwards, M.B., B.Chir., and J. D. Green, B.M., B.Ch. Oxf. have been appointed university demonstrators in anatomy for three years from Jan. 1, 1946.

The Professor of Anatomy gives notice that applications for the Marmaduke Sheild Scholarship in Human Anatomy are to be sent to the Registry before May 20 in the present term.

In March the titles of the degrees of M.B., B.Chir. were conferred by diploma on M. A. Brown, of Girton College.

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

ACADEMIC POSTGRADUATE DIPLOMA IN MEDICAL RADIOLOGY.—*PART I*: P. H. Beamish, M. C. Connell, S. Curwen, M. A. Egan, E. E. Faerber, E. H. Hanson, H. S. Hogg, Ethel P. Johnson, Mary J. C. McIntosh, L. L. McKelvie, M. Mandelstam, J. J. Nally, B. Naved, P. E. S. Palmer, G. W. Pimblett, Ella Preiske, E. J. Richardson, M. P. Shapiro, W. V. Taylor, B. C. H. Ward.

UNIVERSITY OF GLASGOW

The Senatus Academicus proposes to confer the honorary degree of Doctor of Laws on Archibald Wilson Harrington, M.D., formerly Muirhead Professor of Medicine in Glasgow University; on Sir Edward Mellanby, K.C.B., M.D., F.R.S., Secretary of the Medical

Research Council; and on Ronald Aylmer Fisher, F.R.S., Professor of Genetics in the University of Cambridge. The graduation ceremony, at which these and other honorary degrees are to be conferred, will be held on June 19.

At a graduation ceremony on April 13 the degree of M.D. was conferred, with high commendation, on J. B. Morrison.

UNIVERSITY OF DUBLIN

Adams Andrew McConnell, M.B., B.Ch., F.R.C.S.I., has been appointed Regius Professor of Surgery in the University in the room of the late Sir Arthur Ball.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Election of Fellows

At a quarterly comitia of the College held on April 25, with the President, Lord Moran, in the chair, the following were elected Fellows:

T. F. Fox, M.D. (London); Perrin H. Long, M.D. (Baltimore, U.S.A.); R. E. Roberts, M.D. (Liverpool); Andrew Topping, M.D. (London); G. C. Linder, M.D. (Rondebosch, S. Africa); K. S. Hetzel, M.D., F.R.A.C.P. (Adelaide, S. Australia); H. S. Le Marquand, M.D. (Reading); Gladys M. Wauchope, M.D. (Hove); Lord Amulree, M.D. (London); L. C. Hill, M.D. (Bath); Wilfred Evans, M.B., F.R.A.C.P. (Sydney, N.S.W.); F. B. Parsons, M.D. (Cambridge); E. W. Anderson, M.D. (Exeter); E. G. Robertson, M.D., F.R.A.C.P. (Melbourne, Victoria); G. G. E. Smyth, M.D. (Blackburn); R. Freeland Barbour, M.B. (Bristol); Arthur Willcox, M.D. (Sidecup); A. Morton Gill, M.D. (London); F. Avery Jones, M.D. (London); Alice M. Stewart, M.D. (Cardiff); C. G. Parsons, M.D. (Birmingham); W. T. Cooke, M.D. (Birmingham); Ian Gordon, M.B. (Aberdeen); G. W. Hayward, M.D. (London); E. E. Pochin, M.B. (London); J. W. Aldren Turner, D.M. (London); K. O. Black, M.D. (Poona, India Command); Alan Kekwick, M.B. (London); E. R. A. Merewether, M.D. (London); A. J. Orenstein, M.D. (Johannesburg); J. Douglas Robertson, M.D. (London); Emanuel Miller, M.R.C.P. (London); Robert Cruickshank, M.D. (London); F. R. G. Heaf, M.D. (London); John McMichael, M.D. (London).

Prof. James Mackintosh was appointed to represent the College at the Health Congress of the Royal Sanitary Institute and Prof. Alan Moncrieff on the Medical Advisory Committee of the Colonial Office. Lord Moran was elected a representative of the College on the governing body of the British Postgraduate Medical School and Dr. W. S. C. Copeman on the committee of management of the Chelsea Physic Garden in succession to the late Dr. J. D. Rolleston. Dr. G. E. S. Ward was appointed an external examiner in medicine for the Fellowship Examination of the Faculty of Radiologists.

On the nomination of the Council the following were elected representatives of the College: Dr. F. S. Langmead on the Central Midwives Board; Prof. James Mackintosh and Dr. I. E. McCracken as examiners for Part I of the D.P.H., and Dr. J. Bishop Harman on the Committee of Reference and the Central Medical War Committee.

The President reported that he had nominated a committee to consider the prevention and management of rheumatic heart diseases.

Membership

The following candidates, having satisfied the Censors' Board, were elected Members:

M. Abdel-Malik, M.B., M. Z. Ahmad-Soudan, M.B., F. P. Antia, M.D., A. Batty Shaw, B.M., W. D. Brinton, B.M., J. B. Cavanagh, M.B., J. Colover, M.B., G. M. Colson, B.M., E. Cronin, M.D., J. H. Dadds, M.B., A. J. Daly, M.D., P. R. C. Evans, M.B., F. J. Flint, B.M., P. B. S. Fowler, B.M., J. P. Gemmell, M.D., P. W. Hardie, M.D., H. F. Harwood, M.D., M. A. Jallil, M.B., W. E. J. Jones, M.D., J. W. Landells, M.B., E. H. Larkin, M.B., S. H. Llewellyn Smith, B.M., M. J. G. Lynch, M.B., M. B. Matthews, M.B., B. E. Miles, M.B., R. I. Milne, M.B., J. D. N. Nabarro, M.B., Lucy M. B. Nelson, M.B., D. P. Nicholson, M.B., S. Olecky, M.B., W. S. Peart, M.B., L. G. Picciotto, M.B., T. R. E. Pilkington, M.B., R. J. Pugh, M.B., Elizabeth V. Rohr, M.B., D. W. Smathers, M.D., P. N. Taneja, M.D., D. Taverner, M.D., D. J. Thomas, M.B., C. H. Warren, L.R.C.P., Marcia I. P. Wilkinson, B.M., K. A. A. Wray, M.B., C. H. Wyndham, M.B., R. K. W. Yang, M.B., J. Yudkin, M.D., J. V. Zammit-Maempel, M.D.

Licences

Licences to practise were conferred upon the following 125 candidates (including 32 women) who had passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board, and who have complied with the necessary by-laws:

Queenie M. F. Adams, J. Aminoff, R. Armatage, J. N. Badham, J. K. Baird, Roberta S. J. Baker, D. V. T. Baldwin, D. H. Barnbrook, M. S. Bentley, A. J. Berman, P. Blackledge, A. G. Brown, J. Butler, A. R. C. Butson, Margaret J. S. Caten, Monica L. Chalmers, J. Chalom, G. B. Chamberlain, A. O. Chase, I. C. Church, J. F. Cleobury, Betty L. Coles, A. P. Cornwall, L. T. Cotton, J. Cox, M. I. Cox, J. L. Crammer, D. T. Crook, R. R. Davis, Nina Dawson-Reid, J. F. Delafresnay, D. J. Dennison, W. R. Denny, R. de A. Denton-Cardew, Margaret M. Dickinson, J. H. O. Earle, Hilda A. Elman, J. B. D. Evans, H. S. Eyre, A. J. Fournier, Joan E. Garside, J. Z. Garson, Dorothea E. Garwood, Marjorie Golomb, F. R. Goodwin, R. V. H. Goulder, Joyce F. Grant, I. R. Gray, E. P. Hall, Joyce Hanscomb, Dorothy A. Harvey, J. R. Hawkins, T. D. Hawkins, L. M. Henry, C. W. J. Hington, K. J. Hoffmann, Philippa A. Howard, D. H. Isaac, J. P. Jackson, Gillian F. Jacob, Maureen B. Jeffrey, P. Jordan, Ellen M. Knight, Barbara M. Leach, G. L. Leathart, R. E. Leighton, T. R. Littler, Joan N. Mackover, H. R. Macleod, B. MacMahon, Anne Maguire, I. W. H. Mansfield, Joan C. Mason, J. W. B. Matthews, J. G. Millichap, M. L. Montagnon, J. D.

Montagu, R. A. Morris, A. H. G. Murley, D. P. North, H. Nussbaum, D. W. J. O'Neill, O. Pacovsky, Hilary C. Parton, F. Patuck, Phyllis H. Phipps, Margaret H. Pond, M. J. Raymond, J. A. Reynolds, E. F. W. Richards, Stella M. Ring, K. D. Roberts, G. Robins, M. Roper, J. D. S. Rowntree, F. C. W. Royle, J. N. Sampson, P. R. B. Sankey, R. O. K. Schade, O. C. A. Scott, R. F. M. Seaton, F. W. R. Seward, V. E. Sherburn, Alice M. Sibby, D. R. Smith, Pamela M. Smith, J. Sutcliffe, Bernice A. Tanner, J. J. Teeuwen, R. G. Thomas, L. F. Tinkler, J. K. Trotter, J. Walsh, J. I. Wand-Tetley, E. H. P. Warburton, Sylvia D. M. Waters, W. R. Wardill, A. P. H. Wilkison, R. H. L. Wolfsohn, F. J. Woodley, Ann Wyatt, H. W. Wyile, P. M. Yap, Stella Yeomans, S. C. B. Yorke.

Diplomas

Diplomas in Ophthalmic Medicine and Surgery (22) and in Physical Medicine (3) were granted, jointly with the Royal College of Surgeons of England, to the successful candidates whose names were published in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of March 30 (p. 509).

Diplomas in Medical Radio-Diagnosis, in Medical Radio-Therapy, in Tropical Medicine and Hygiene, and in Child Health were granted, jointly with the Royal College of Surgeons of England, to the following successful candidates:

DIPLOMA IN MEDICAL RADIO-DIAGNOSIS: J. C. Bishop, J. D. Dow, N. E. Dunn, E. E. Faerber, M. H. Fainsinger, K. H. Gaskell, H. B. Howell, G. B. Locke, V. G. Peckar, G. W. Pimblett, G. L. Rolleston, O. E. Smith.

DIPLOMA IN MEDICAL RADIO-THERAPY: W. G. Evans.

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE: J. G. Makari, G. J. Murray.

DIPLOMA IN CHILD HEALTH: Enid I. M. Addenbrooke, Sheila W. Anderson, Muriel C. Andrews, Margaret M. Ballantine, Laura M. Bates, D. W. Burnford, Ethel F. Caplan, S. Chaudhuri, J. D. Cruickshank, Barbara S. Davies, A. N. D'Cotta, Elizabeth S. A. de Wit, Constance M. Duddle, S. P. Dundon, H. L. LeV. D. Durell, Frances M. Earle, B. E. Finch, J. E. Francis, Margaret Garnett, Elinor Ginsbury, P. R. Headley, G. Hildick-Smith, Dorothy D. Jones, H. M. Khan, S. Kowaty, Winifred M. Markham, Nancy S. Marshall, B. McNicholl, Margaret Middleton, Joyce B. Mole, D. Naidoo, Catherine A. Neill, C. O'Donovan, C. Ounsted, Eileen E. Perry, Mildred I. Pott, T. H. Powell, Maïre M. Pugh, J. Revans, A. P. Roberts, Doreen C. B. Stevenson, G. L. Stumbles, Janet Sutherland, P. N. Taneja, Megan J. Tanner, Mary Townsend, Morwenna M. Tunstall-Behrens, Patricia B. Vicary, J. R. D. Webb, Mary E. Wehner.

Medical Notes in Parliament

Budget Concessions

In the Budget statement for 1946-7, made on April 9, Mr. DALTON proposed that the earned income relief from income tax should be increased to one-eighth, subject to a maximum allowance of tax of £150. The increase would operate for the whole year, but effect would not be given to it until the second half of the year. The allowance in respect of a wife's earned income would be increased from a maximum of £80 to a maximum of £110. It was proposed to free from duty certain cocoa materials used for the production in this country of theobromine. Exemption from purchase tax was proposed for epidiascopes. The duty would be reduced to 33½% of the wholesale value on bags, pouches, and similar receptacles, of leather, hide, or skin, designed for use solely for the purposes of any trade, profession, employment, or vocation, and unsuitable for use for other purposes. A similar reduction was made in photographic cameras, enlargers, projectors, lenses, and unexposed sensitized photographic paper, plates or film.

Infantile Paralysis in Singapore

Mr. BELLENGER reported on April 9 that he was aware of an outbreak of infantile paralysis in Singapore. Up to March 26 17 Army cases with 6 deaths had been notified. Thirty-three cases with 6 deaths occurred in the other Services. The outbreak was first reported in a signal dated Feb. 20. A research epidemiologist nominated by the Medical Research Council left by air on March 2 to investigate the outbreak, and, in preliminary reports dated March 13 and 19, gave his opinion that the outbreak had passed its peak and that all possible measures were being taken to prevent a recrudescence. The outbreak had been attributed to the presence of carriers of the virus in surroundings where, owing to Japanese neglect, unsanitary conditions favoured the spread of the disease. The incidence was mainly among young Chinese children. Cases occurring among Service personnel were believed to have originated from contact with carriers or cases among the civilian population.

Release of Doctors

On April 11 Mr. HECTOR HUGHES asked Mr. BEVAN whether the view which he expressed some months ago of reducing the number of doctors serving in the Forces to a ratio of about 2% of personnel had been achieved, and how many of the doctors so released since VE-Day were Scottish doctors who had returned to practise in Scotland. Mr. BEVAN replied that if Mr. Hughes had in mind the ratio of 2 per 1,000 referred to in Mr. Bevan's reply to Colonel Stoddart-Scott on Dec. 13, the answer was "Yes." The number of doctors released from the Forces since VE-Day included 926 who were recruited from

Scotland but it was not at present known how many of these had returned to practise in that country

Nursing and Domestic Staff of Hospitals

Mr JOHN MORRISON inquired on April 11 in which category of hospital—voluntary or municipal—the shortage of nurses was greater. Mr BEVAN said shortage of nurses was in general greater in the municipal hospitals, which included tuberculosis sanatoria and a large number of beds for the chronic sick.

Mr ISAACS announced on April 11 that the Government had decided to admit foreign women for domestic employment in hospitals. It was proposed to approach the Governments of a number of European countries with a view to extending to those countries a recruitment scheme now successfully operating with the assistance of the Belgian Government. In addition it would be open to hospitals to apply for permits for the admission of individual foreign women.

E.M.S. Service and the Defence Medal

Sir E. GRAHAM LITTLE asked on April 15 for what reasons the award of the Defence Medal was withheld from medical staffs who had given service in the Emergency Medical Service and other war work, while subordinate hospital servants such as theatre porters and mortuary attendants were eligible for the award. Mr ATTLEE replied that hospital officers and servants, other than nurses and midwives were not, as such, eligible for the award of the Defence Medal. It was granted to civilians primarily for civil defence service. Medical officers of the civil defence first aid services were eligible, subject to the approved conditions. If medical officers of hospitals, whether in the E.M.S. or otherwise were included, it would be difficult to exclude any qualified medical practitioners and it was hard to see where the line could be drawn.

General Medical Council

Sir HENRY MORRIS-JONES asked on April 18 whether Mr Herbert Morrison would consider reviewing the present constitution and powers of the General Medical Council in view of a recent decision of the High Court. Dr MORGAN, on the same date suggested legislation to reform the Medical Act of 1898 to give the General Medical Council a more democratic constitution, and especially to make provision for the hearing and investigation of unethical or unlawful charges against medical practitioners by an independent tribunal presided over by a judge. Dr MORGAN suggested, alternatively, the setting up of a Select Committee to review the functions of the present G.M.C. and consider any changes necessary in its constitution and procedure.

Mr EDE said he had been asked to reply. He understood that the G.M.C. itself appointed a committee in November, 1944 to consider the consolidation and amendment of the Medical Act. He assured Sir Henry and Dr Morgan that the whole position was being examined. The possibility of legislation at a suitable opportunity would be kept in mind.

Sir HENRY MORRIS-JONES said he made no reflection on the impartiality of the Council but asked if Mr Ede knew there was grave doubt about its competency to deal with the issues it had to decide. He asked Mr Ede to inquire into the possibility of strengthening it on the general practitioner side, over which class of doctor it has virtually the power of ruin on the uncorroborated evidence of neurotic women. Mr EDE said he would pass these observations to Mr Morrison.

Dr MORGAN asked whether it was right that the G.M.C., the body which needed reform, should be asked to reform itself. Was it not for the Government to see that errant doctors got justice according to the law? Mr EDE replied that self-reform was always a desirable occupation, but he would tell Mr Morrison that Dr Morgan thought a little stimulus from outside might assist. Mr HECTOR HUGHES said it was wrong in principle that the G.M.C. should be judge in its own cause and wreck the careers of people on inadequate evidence.

Dr MORGAN termed Mr Ede's reply unsatisfactory and gave notice that he would ballot to raise the subject on the adjournment.

Deafness in Children—Miss ELLEN WILKINSON states that she has no definite evidence of an increase in the incidence of deafness among children, but there appears to be a growing appreciation among parents of the importance of early diagnosis and treatment and increasing demand for special school education for the younger deaf children. There are 43 special schools for the deaf with accommodation for 4,230 children in England and Wales.

Notes in Brief

The number of civilian patients under care in mental institutions in England and Wales under the Lunacy and Mental Treatment Acts at the end of 1938 was 158,723 and, at the end of 1944, 146,268.

During the war years no case of yellow fever among British troops has been notified from Gibraltar or any other area.

Release by the Admiralty of the Physiology Department of University College Medical Faculty, and by the infection branch, Ministry of Food of the anatomy building of the same faculty, will take place in stages, beginning it is hoped, at the end of April.

A ration of 2 oz. of cooking fat, compared with the normal civilian ration of 1 oz., has been made available for persons suffering from tuberculosis whose condition entitles them to the special milk allowance.

During the three years 1943, 1944 and 1945, 184 prison or Borstal inmates were selected for psychiatric investigation. Of these, 24% were relieved or improved by treatment and are not known to have been reconvicted.

Mr Wilmot is not satisfied that the British x-ray industry can at the moment meet home and export requirements. To improve the position he has set up a committee to consult with the manufacturers on measures for the further development of the industry.

Vaccination and inoculation are not compulsory in the Merchant Navy, nor in the Royal Navy. Arrangements are made for merchant seamen to be informed of the danger of contracting smallpox and other diseases in foreign ports and for their vaccination and inoculation if they are willing.

Mr Bevan has stated in the House that the bovine tubercle bacillus is estimated to cause less than 2% of all cases of pulmonary tuberculosis, and about 30% of all forms of non-pulmonary tuberculosis, but it is not possible to give a separate figure for tuberculosis of the bones and joints.

It is estimated that at Dec. 31, 1945, there were in England and Wales approximately 182,000 persons under treatment for pulmonary tuberculosis and 54,000 for non-pulmonary tuberculosis, but no separate figures are available regarding non-pulmonary bone and joint cases.

Eleven cases of smallpox have been admitted this year to the Port Health Hospital New Ferry. Of these six were members of the Forces and one a member of the crew of a ship arriving at Liverpool.

Medical News

A Chadwick lecture on "The Rehabilitation of Displaced Persons and its Hygienic Bearings" will be given by Major Evre Carter at the Allin Hall, Palmer Street, Westminster, S.W., on Tuesday, May 7, at 2.30 p.m.

A meeting of the Medical Society of the L.C.C. Service will be held at the County Hall S.E., on Wednesday, May 8, at 2.30 p.m., when there will be a discussion on "The Treatment of Minor Injuries and Infections of the Hand," to be opened by Mr R. V. Lewys Lloyd, Mr J. C. Gillies, and Mr J. Gabe.

Dr A. S. Parkes, F.R.S. will read a paper on "Hormones" before the Royal Society of Arts, John Adam Street, Adelphi, W.C.2 on Wednesday, May 8 at 1.45 p.m.

Meetings of the Royal Sanitary Institute will be held at Ipswich Town Hall on Friday and Saturday, May 10 and 11. At 2.30 p.m. on May 10 papers will be read by Dr M. Markowe on "The National Health Service Bill" and by Mr J. B. Sorey on "The Use of Standard Concrete Housing for Temporary Hospital Buildings at Ipswich." At 10.30 a.m. on May 11 papers will be read by Dr S. M. Laird on "The Operation of Regulation 33B" and by Dr Dons E. P. Jolly on "The Adaptor Act."

The South Wales Children's Nutrition Council has arranged a conference on school meals (How to "Speed Up the Scheme") on Saturday, May 18 at 2.30 p.m., to be held at Engineers' Institute, Park Place, Cardiff. The discussion will be opened by Dr Greenwood Wilson, medical officer of health for Cardiff and Dr Evan Thomas, deputy medical officer of health for Glamorgan, with Mr Eddie Williams, B.Sc., in the chair. Delegates from all interested organizations are invited.

Recent advances in medicine will be the general subject of a course of lectures arranged by Prof. Pasteur Vallery Radot, to be held at the Hôpital Broussais, 96, Rue Didot, Paris, on May 17, 18, and 19. Endocrinology, pathology of the liver and kidneys, the sulphonamides, penicillin, blood transfusion and its problems and the treatment of burns are among some of the subjects to be covered. Further details may be obtained from the Scientific Office, French Embassy, 1, Carlton Gardens, London, S.W.1 (Tel. Whitehall 5444 Ext. 403), or Dr Jean Hamburger, 29, Boulevard de Courcelles, Paris 8.

The Harveian Society of London announces that the Harveian Lecture on "Progress of Aviation Medicine in the R.A.F. and its Application to Problems of Civil Aviation" will be delivered by Air Marshal Sir Harold Whittingham at the Royal College of Surgeons of England (Lincoln's Inn Fields, W.C.), on Monday, May 27, at 5 p.m.

The spring meeting of the British Orthopaedic Association will be held at the Royal Victoria Infirmary, Newcastle-upon-Tyne, on May 24 and 25.

A meeting of the directors of the Society for Relief of Widows and Orphans of Medical Men was held on April 10, with Dr. R. A. Young, president, in the chair. The death of a member, Dr. F. C. Kempster, who was elected in 1892, was reported; also the deaths of two of the widows in receipt of grants, of whom one had been on the funds since 1920 and had received from the Society £2,074, the other since 1934 and had received £982. The annual general meeting will be held on Wednesday, May 8, at 5 p.m. Any member who has been serving in H.M. Forces and who is now demobilized is asked to inform the secretary of his present address. Membership is open to any registered medical man who, at the time of his election, is residing within a twenty-mile radius of Charing Cross. Relief is granted only to the widows and orphans of deceased members. Full particulars may be obtained from the secretary of the society, 11, Chandos Street, Cavendish Square, W.1.

Three representatives of the Greek Ministry of Hygiene—Dr. Phoebus G. Copenaris, director-general; Dr. Stephopoulos, secretary; and Dr. Razi, chief of quarantine—have arrived in this country under the auspices of the British Council to study our health services. In co-operation with the Ministry of Health arrangements have been made for them to meet British authorities and to visit hospitals and other medical institutions.

Sir Alfred Webb-Johnson, P.R.C.S., has accepted the presidency of the Association of Certificated Blind Masseurs, which exists to safeguard the professional interests of blind chartered physiotherapists; and Dr. William Moodie has been appointed general consulting psychologist to the National Institute for the Blind.

The Central Midwives Board for England and Wales has re-elected Mr. Arnold Walker as chairman and Mr. J. P. Hedley as vice-chairman for the year ending March 31, 1947.

The next meeting of the Ophthalmological Society of Australia will be held in Melbourne in October, 1946.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the notifications of measles increased by 284. Other infectious diseases declined: whooping-cough by 175, acute pneumonia 96, scarlet fever 26, and dysentery 24.

The increase in measles was confined to London and Lancashire, where there were 214 and 58 more cases than in the preceding week; the London notifications were 37% of the total for the country. Whooping-cough declined in most areas, except London and the south-eastern counties, where the cases rose from 351 to 393; the largest falls were Warwickshire 65 and Yorkshire West Riding 41. The total new cases of diphtheria remained unchanged, and the only local alteration of note was a fall of 10 in Warwickshire. There was a decline of 29 in the incidence of scarlet fever in Lancashire.

Dysentery notifications were fewer than in any previous week this year. No new outbreaks were notified. In Surrey 31 further cases were recorded, compared with 67 in the preceding week. Other large returns were Lancashire 43, London 26, Warwickshire 17, Leicestershire 14, Essex 11, Staffordshire 10.

In *Scotland* large decreases were recorded for acute primary pneumonia 87, and scarlet fever 61, while rises occurred in the incidence of whooping-cough 26, and diphtheria 11. Scarlet fever is now at the lowest level for recent months. The rise in diphtheria was in the Western Area, where the cases increased from 78 to 90. Zetland County, where no case was recorded in the preceding week, had 43 cases of whooping-cough.

In *Eire* notifications of diphtheria increased by 10; dysentery and diarrhoea in infants under 2 years of age increased in Dublin C.B. from 36 to 40.

In *Northern Ireland* the only appreciable change was a decrease of 12 in cases of scarlet fever.

Death from Smallpox

A soldier recently returned from the Far East and admitted to the Clayton Smallpox Hospital on April 21 died there on April 28. There has been no further case so far, and all known contacts are being kept under observation.

Week Ending April 20

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,051, whooping-cough 1,607, diphtheria 415, measles 2,392, acute pneumonia 652, cerebrospinal fever 64, dysentery 189, paratyphoid 9, typhoid 3. Three cases of smallpox were imported during the week.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended April 13

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable; no return available.

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	78	7	41	1	1	70	4	28	3	
Deaths		3	—	—	—		2	3		
Diphtheria	463	41	118	56	14	438	14	111	100	
Deaths	6	—	2	1	—	6	—	1	5	
Dysentery	270	26	32	3	—	463	32	180	—	
Deaths		—	—	—	—		—	—	—	
Encephalitis lethargica, acute	1	—	—	—	—	2	—	—	—	
Deaths		—	—	—	—		—	—	—	
Erysipelas	—	—	39	7	4	—	1	44	13	
Deaths										
Infective enteritis or diarrhoea under 2 years				46	—				7	
Deaths	61	12	7	10	—	49	7	3	9	
Measles*	2,552	950	810	46	3	20,342	1,651	394	86	
Deaths	2	—	—	1	—	12	1	4	1	
Ophthalmia neonatorum	68	3	21	—	—	63	5	15	1	
Deaths										
Paratyphoid fever	4	—	—	—	—	2	—	—	1(B)	
Deaths	—	—	—	—	—	—	—	—	—	
Pneumonia, influenzal	871	44	8	13	4	664	46	4	2	5
Deaths (from influenza)†	24	2	2	1	—	13	—	1	—	
Pneumonia, primary			227	27	10			172	30	6
Deaths		35		7			33		7	
Polio-encephalitis, acute	1	—	—	—	—	—	—	—	—	
Deaths										
Polio-myelitis, acute	5	1	—	1	—	5	1	1	—	
Deaths		—	—	—	—		—	—	—	
Puerperal fever	—	—	19	—	—	—	4	13	—	
Deaths										
Puerperal pyrexia‡	124	13	15	1	—	131	9	11	—	
Deaths		—	—	—	—		—	—	—	
Relapsing fever	—	—	—	—	—	—	—	—	—	
Deaths										
Scarlet fever	1,366	105	132	25	27	1,215	57	207	20	62
Deaths	—	—	—	—	—	1	—	—	—	
Smallpox	3	—	—	—	—	—	—	—	—	
Deaths										
Typhoid fever	3	2	—	—	1	8	—	1	11	
Deaths	—	—	—	—	—	—	—	—	—	
Typhus fever	—	—	—	—	—	—	—	—	—	
Deaths										
Whooping-cough*	1,934	180	120	28	18	1,234	56	192	33	26
Deaths	8	11	—	2	1	3	—	3	1	
Deaths (0-1 year)	402	54	40	27	15	367	45	52	42	27
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,730	752	599	188	129	4,480	648	632	226	132
Annual death rate (per 1,000 persons living)				13.2	12.0			14.3	14.6	
Live births	7,697	1148	926	402	255	6,643	740	830	441	269
Annual rate per 1,000 persons living				18.6	25.8			16.6	28.5	
Stillbirths	236	34	38	—	—	211	20	21	—	
Rate per 1,000 total births (including stillborn)				39	—			25	—	

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Including 2 imported cases.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: All clerg. H. essent. London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary is stated.

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B.M.A. SCOTTISH OFFICE: "Drumchapel Gardens," Edinburgh.

ANY QUESTIONS?

Epilepsy and Intercurrent Infections

Q.—Is there a biological antagonism between schizophrenia and epilepsy? Do epileptics undergo a remission of fits in varying degree while suffering from severe general infections particularly pneumonia? If so could the remission of fits during pneumonia be due to the altered respiratory rhythm? Would the induction of an artificial pneumothorax be of value in such cases?

A.—Chronic epileptics may show a lessened fit incidence during the acute phase of some intercurrent disorder of an infective nature. Measles is a good example, also pneumonia during the febrile stage. I know of no evidence to suggest that the alteration in the respiratory rhythm is responsible, or that artificial pneumothorax in epileptics would produce a relative or temporary remission. A condition of acidosis is usually regarded as the explanation of the temporary improvement in epileptics during infections. Of course, hyperventilation of the lungs (as from deliberate over-breathing) is known to aggravate the abnormal cortical rhythm of epileptics, and even at times to precipitate an attack. An antagonism between schizophrenia and epilepsy has certainly been claimed, but has also in all probability, been exaggerated.

Nocturnal Erections

Q.—Two male patients aged 48 and 50, one married and the other single, complain of being awakened at night by erections. There is no pain but an urgent desire to micturate. Both have clear, sterile, normal urine, blood urea normal, radiological and cystoscopic findings normal. Prostatic enlargement is not noticeable. Both confess to some sexual frustration. Is this a physical or a psychological condition? What further investigation and treatment do you recommend?

A.—Very little help can be given about these patients. Sometimes in single men psychological factors can be found which explain nocturnal erections. I have known cases in which they occurred only at night and by day the patient was impotent and without desire. But this would not apply to the two cases in question. They have been examined and the existence of a physical cause has been excluded. Possibly it might be helpful to examine prostatic fluid expressed by massage for the presence of pus cells. In any case, a course of prostatic massage might be a useful form of treatment. Small doses of luminal should be given before going to bed. But I have to admit that I have had several cases, but in more elderly men, who have suffered from this trouble, and who have not received benefit from any form of treatment. No explanation could be found for the condition, and I have regarded it as being a symptom of a "male climacteric."

Botryomycosis

Q.—What is the best treatment for botryomycosis?

A.—The term botryomycosis was used to describe an affection of the scrotum occurring in castrated horses and thought to be due to fungus. A similar type of lesion in man as the result of minor injury or infection in any site led to the term botryomycosis hominis being employed. Since Radcliffe Crocker's paper in 1903 (*Med Soc Trans Lond*, 26, 143), however, the term granuloma pyogenicum or infective haeman-

gioma has more commonly been employed. The lesion is no more than a small tumour of granulation tissue and is therefore highly vascularized.

The most effective treatment is to remove the tumour with a curette, using local anaesthesia, and cauterize the base—liquor hydrarg. nitratis acidus is useful for this purpose. Many authorities also give an application of x rays following this treatment—about 400 r units unfiltered, at 60 kV. The lesion will usually clear with x ray therapy alone, and occasionally will respond to sulphonamides by mouth and local antiseptic measures.

Carbon Monoxide Poisoning

Q.—Is there any evidence that inhalation of air polluted with carbon monoxide gradually and progressively kills the white blood corpuscles?

A.—There is no evidence that inhalation of carbon monoxide has any effect on the white blood corpuscles. The toxic action of carbon monoxide can be completely explained on the basis of chemical asphyxia. Carbon monoxide is not a cumulative poison and there is no such condition as chronic carbon monoxide poisoning. Daily exposure to small amounts of carbon monoxide may lead to a continuous mild carboxyhaemoglobinemia producing a partial deficiency of oxygen to which the body will respond in the usual way—i.e., typically by a mild polycythemia. There is no evidence that the white cells are involved in the process.

Contact Lenses for Myopia

Q.—What is your opinion of contact lenses for high myopia? What is the best solution to employ with the lenses? Are there any possible ill effects from their prolonged use?

A.—Contact lenses are useful in high myopia. The length of time the lenses can be tolerated by the eyes varies from one case to another. The least period of time for which they can be worn is usually four hours the most about eighteen hours. No ill effects result if the lenses are used intelligently and care is exercised in putting them in and removing them. In fact if one theory of the causation of myopia is correct they may have a beneficial effect. The best solution which has been so far discovered to use with the lenses is 2% sod. bic.

Boiling Coffee Twice

Q.—It is popularly supposed that boiling coffee again after it has been made changes its flavour or makes it bitter. Is this true? If so why?

A.—Boiling coffee again results in a loss of aroma and of certain volatile flavouring materials, and the underlying somewhat bitter flavour thus becomes more apparent. There is no increase in bitterness. At the same time there are certain oxidation changes which take place, and these also tend to change the flavour.

Dimethyl Phthalate and Artificial Silk

Q.—A note on dimethyl phthalate (D.M.P.) states (Jan 26 p 153) that it "dissolves certain types of artificial fabrics." What fabrics?

A.—The phthalates dissolve cellulose, nylon, polyvinyl chloride, methacrylates, polystyrene, neoprene, and Buna N. Materials made of these synthetic substances will be attacked—e.g. stockings or other underwear of "artificial silk," spectacle frames, fountain pens, buttons and some types of artificial jewellery.

Migration of Foreign Bodies

Q.—A patient ran a needle into her thumb in 1934 and half of it was recovered. Yesterday, when she was vomiting, the other half appeared in the vomit! I have examined both pieces and the second half fits exactly on to the first half. Is this remarkable or not?

A.—Numerous examples of the migration of foreign bodies in the tissues have been recorded. As in the present instance, some are well authenticated, and the phenomenon, although remarkable, does not appear to be very rare. Gould and Pyle (*Anomalies and Curiosities of Medicine*, New York, 1937) cite some strange cases, mostly dating from antiquity. Lambert

from Egypt he mentioned a mode practised by the Arabs. It was to approximate the edges of the wound with finger and thumb of one hand, and to induce as many as were necessary of the large strong-mandibled ants to be found in those parts to clip the edges together, holding the insect with the other finger and thumb. As soon as the jaws closed, the operator pulled off the rest of his able collaborator, leaving only its head holding on like grim death! In this ingenious manner as many ants were used as were required to close the incision neatly. There being no ants of the size required available in this happy isle I have never been able to prove the value of the procedure. It has often occurred to me that the Zoo authorities might be induced to furnish a supply of large ants for the treatment of incised wounds in "rheumatic" subjects, for more than one of my rheumatic patients have reported a freedom from their symptoms after a visit to Burnham Beeches, where they were treated, free gratis and for nothing, by the ants that there abound. I could think only of formic acid as an explanation. Do you think "there may be something in it"?

A Clean Shave

Dr. L. ERASMUS ELLIS writes from Durban, South Africa: In your issue for Dec. 29, 1945 (p. 923), you give a review of *Medical Uses of Soaps*, and in doing so you mention an assertion in the book that a dull razor causes less trauma to the skin than a sharp one. This I can fairly conclusively support by practical experience. For years I have adopted the plan of using a different razor blade, in a safety holder, every day of the week, having seven blades in commission. Using these blades only once a week, some of them last for months, but they all vary in the "finish" of their respective shaves. After shaving, I use a mildly antiseptic lotion containing a large proportion of spirit on the shaved surface. Applied to an ordinary skin surface this spirit lotion is cooling, but does not smart. On application to the newly shaved area of the skin, however, it tingles and sometimes smart considerably, and I notice that this reaction is much greater after using a new razor, which gives a much cleaner shave than one that has been used for some time, which produces a less smooth skin surface. The difference is quite remarkable, and brought home to me the considerable amount of trauma that we inflict upon the skin by shaving. This is all the more interesting to me personally, as I happen to be specializing in dermatology.

Aphthous Ulceration of Mouth

Dr. JOHN HALLAM (Liverpool) writes: With reference to the question and answer under the above heading (March 9, p. 379), I have seen between 20 and 30 cases of this painful condition in the past eighteen months. A considerable proportion of these attacks are either associated with, or follow, a mild gastro-intestinal disturbance. I have had 100% success in treating them with:

R Sodium thiosulphate (hyposulphite) .. 10 gr. (0.65 g.)
Tinct. card. co. 5 min. (0.3 ml.)
Aq. ad 1/2 oz. (15 ml.)
Sig: 1 2 oz. (15 ml.) i.d.s., p.c. Taken for one week.

I have been able to follow up about half the cases and have no record of any recurrence. I cannot agree with the indiscriminate use of penicillin lozenges or pastilles as you advocate. In fact, the buccal flora would, on clinical evidence of recurrence of oral infections originally treated with penicillin, have great power of becoming penicillin-fast. This has been so evident that I now use local penicillin only as a "boost" dose to a systemic course.

Sunflower Seeds

Mr. E. F. HURT writes: A question and answer on sunflower seeds (March 25, p. 455), discussed the possible therapeutic and nutrient value of this seed. To-day sunflower is considered one of the world's most important oilseed crops, the numerous varieties being capable of growth in almost any climate or soil. Its value lies partly in the oil (32 to 40%) and partly in its high protein content (about 55%). Up to 1939 the most important growing countries were Russia, with a production of some 3,000,000 tons of seed annually, Rumania, and the Argentine, while smaller quantities were produced in Hungary, Uruguay, India, Egypt, and even France and elsewhere. The oil is very largely used for the manufacture of margarines and vegetable lards, and was also most extensively used for cooking on the Continent as well as for canning sardines, etc. The seeds have long been considered a national food in Russia, and of more recent years have been dehulled and sold in packets in the U.S.A., in a similar manner to ground- or pea-nuts. But the most important advance is shown by the report in *Science* (U.S.A., April 27, 1945) on the findings of Prof. and Mrs. Harry G. Day, of Indiana University, in co-operation with Ezra Levin of Monticello, Ill. They found that sunflower seed was an important source of B vitamins, superior to wheat germ or corn germ and far superior to defatted soya-bean meal in this respect. Prof. H. H. Mitchell, of the University of Illinois, had already shown the protein in sunflower seed, after oil extraction, to be in the same class as oats, wheat, and barley, such

residue being nearly 50% protein. Similar solvent-extracted leave residue was also experimented on for human food, and a Dr. Levin report on the latter described it as a "palatable light-colored powder" which could be satisfactorily blended with white flour, etc., to make very appetizing baked goods. Since this report appeared commercial manufacture of protein foods from sunflower seed has commenced in the U.S.A., and Mitchell, Hamilton, and Bradley of the University of Illinois, point out, in the *Journal of Nutrition* (1945, 29, 13), that such protein was 94.3% digestible with a biovalue of 64.5%. By heat treatment, for low-temperature extraction of oil, the protein content was improved and was found to be higher than that of other foods such as soya-bean and coco-nut. A very recent report (Jan., 1946) from Canada shows the stress that the Canadian Ministry of Agriculture are putting on increased sunflower production in the prairie provinces this year. It is a pity that so little has been done commercially with sunflower in this country in the way of experimenting on its many uses, particularly during the war years when the crop was being developed here.

Trench Mouth

Dr. JACK FREEMAN (London, W.) writes: I feel that comment is called for on the reply to the inquiry "What is the best treatment for so-called trench mouth?" (March 16, p. 419). "Trench mouth" is acute ulcerative gingivitis, and I do not propose here to enter into the various signs, symptoms, and differential diagnosis. I would stress the aetiology and the simple means it offers for treatment. Briefly the organisms found in the lesion are spirochaetes and accompanying fusiform bacilli. These organisms can be isolated from most mouths, but it is only when conditions are such as to encourage their growth that the clinical picture develops. The prime condition is anaerobiosis, and this is accelerated by the accumulation of food or greasy particles around the necks of teeth and filling the interdental spaces. Hence the outbreaks among communal groups—e.g., the Services, factory canteens, etc.—where cooked fats are readily from stews and fatty gravies. First step in treatment is, therefore, the use of soap combined with the thorough rinsing of the oral cavity with 10% hydrogen peroxide to combat the anaerobes. The soap prepares the way, loosening the grease, lowering surface tension, and neutralizing acids. The oxygen is then liberated where it can do its work—i.e., in the depths of the interdental ulcers. The main aims of treatment are: (1) removal of stagnation areas and grease; (2) destruction of the harmful bacteria; (3) stimulation and keratinization of the mucous membrane.

Escharotics, such as chromic acid, should be avoided. One has little or no control of their activities. They deepen pockets and interfere with granulation. They are extremely painful in an already painful ulcer. The lesion is already acid in reaction, and an alkaline agent, soap, not only relieves pain but gives better results. With very acute cases coming into my surgery I use a spirochaetocidal N.A.B. or mapharside, sprinkled direct from ampoule to gingiv (infection is localized and not blood-borne, and injection technique is neither indicated nor necessarily effective), and massaged through closed lips, and finally worked gently into pockets with a blunt earler. Patient is dismissed with the most lucid instructions for soap and H₂O₂ therapy at home. Soap applied with tooth-brush or cotton wool, and thorough rinsing with H₂O₂.

This treatment gives 100% cure. All symptoms are gone inside twenty-four hours, and if the indicated home oral hygiene is efficiently carried out, ten days will see the ulcers healed and the mucous membrane firm in appearance. M. J. Glickman was the first to approach this infection correctly from the aetiological factor and his findings and conclusions should be more widely known. Other factors favouring the onset of the condition, such as malocclusion, misplaced teeth, incorrect fillings, badly fitting crowns, excessive tartar, etc., require the attention of the dental surgeon. Avitaminosis, general debility, mouth-breathing, and all other conditions leading to a preliminary gingivitis need the attention and assistance of the physician, and the co-operation of both on the right lines is the ideal.

Naples Typhus Epidemic: Correction

Lieut.-Col. H. J. CRAFTURD-BENSON writes: In my article published in the *Journal* of April 13 (p. 579) entitled "Naples Typhus Epidemic 1942-3" I regret that there has been a mistake in the date. The epidemic referred to was, of course, 1943-4. Naples was not occupied by Allied Forces until September, 1943. I apologise to you and your readers for the error.

Disclaimer

Dr. J. TUDOR LEWIS, Medical Officer of Health, Barnsley, wishes to be known that recent references to him in the daily press were inserted without his permission or knowledge.

We learn that Lieut.-Col. Gopal S. Chawla, hon. secretary of the Punjab Branch of the B.M.A., has received the title of Sarder Bahadur among the Indian honours recently conferred.

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ECONOMIC STATUS AND THE HAEMOGLOBIN LEVEL OF CHILDREN OF MEN IN THE FIGHTING SERVICES AND OF CIVILIANS

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The Committee on Haemoglobin Surveys of the Medical Research Council (1945) has stated categorically that "it has been clearly shown in the past that haemoglobin levels vary with family income" (Spence, 1934; Fullerton, 1936; Ross and Summerfeldt, 1936; Reid and Mackintosh, 1937; McCance *et al.*, 1938; Yudkin, 1944a). The lower haemoglobin level associated with a lower economic status may have multiple causes, but McCance and his colleagues (1938) have demonstrated a close correlation between income, adequacy of the diet, and haemoglobin level.

The object of this investigation was, first, to compare the haemoglobin level of children of men in the Forces and of civilians; and, secondly, to study whether the composition of the household or evacuation of the children affected this level.

Clinical Material and Technique

Just under 500 children, aged 4 to 14, were examined in December, 1944, at a county council school in an urban district in Surrey. This school was chosen because, being near a military depot, nearly half of the pupils were children of men in the Forces. The teachers recorded for us on each child's card the parents' occupations, the composition of the household, the total number of siblings, with information as to evacuation and the consumption of dinners or milk in school. There were 264 children of civilians among the 493 examined. Their fathers' occupations are shown in Table I. About 65% of the total were

account of the flying-bomb attacks and evacuation of children, so that when the examination was carried out many of the children had recently returned from evacuation.

Estimations were made by the Haldane method, and figures are given with the National Physical Laboratory B.S.I. corrections applied for colour tubes and pipettes, together with a mean correction for the diluting tubes. Each observer used 8 diluting tubes in strict rotation, and the N.P.L. corrections for each group of 8 were almost identical with each of the other two groups. The maximum individual correction on any one diluting tube neglected by using a mean correction was -0.9 at 80%. The children were grouped by age, and each observer estimated approximately one-third of the children of each year of age. Each child warmed a hand in hot water just before the estimation and the blood was taken from a prick in the thumb.

Difference in Colour-matching Between the Three Observers

Three colour tubes were used in this survey—one by each observer. It was found that K. B. fairly consistently matched at a lower level, L. W. at an intermediate level, and H. M. M. M. at a higher level (see Table II). L. W.'s mean and H. M. M. M.'s

TABLE II—Mean Haemoglobin Level at each Year of Age: Results of Each Observer

Age in Years	Mean Haemoglobin Level							
	All Observers		K. B.		L. W.		H. M. M. M.	
	Hb	No.	Hb	No.	Hb	No.	Hb	No.
4	82.0	4	81.6	1	81.6	2	83.3	1
5	85.4	42	82.5	12	84.4	16	89.1	14
6	87.2	60	85.7	22	83.6	18	87.5	20
7	87.6	66	88.2	21	85.3	23	89.5	22
8	88.3	48	84.7	18	89.1	18	92.6	12
9	87.5	59	84.1	20	87.3	17	90.8	22
10	90.4	42	87.8	13	89.4	13	93.3	16
11	88.3	59	85.8	19	88.2	20	90.6	20
12	91.1	47	87.6	16	91.4	17	94.7	14
13	91.9	53	89.6	20	90.7	21	96.5	17
4-13			85.2	162	89.2	165	91.3	158

TABLE I—Occupations of the Fathers in Civilian Employment

Occupation	No.	Per cent.
Artisans (including mechanics)	64	24
Male nurses	38	14
Labourers:		
General	38	14
" " " " " " " " " " " "	34	13
" " " " " " " " " " " "	31	12
" " " " " " " " " " " "	24	9
" " " " " " " " " " " "	18	7
Administrative workers and farmers	4	2
Unknown	13	5
Total	264	

in one or other of the following categories: artisan, male nurse, general or agricultural labourer. Many of the mothers were working outside their own homes, and some were in full-time employment—for example, as nurses in the neighbouring mental hospital. The investigation was originally planned for the spring of 1944, but had to be postponed until the end of the year on

mean were higher by 3.0 and 5.1 respectively than K. B.'s. When the differences between the mean values of the three observers in December, 1944 (present survey), were compared with the differences between the means of the same three observers in the summer of 1943 (Committee on Haemoglobin Surveys, Medical Research Council, 1945, p. 67) it was found

that though the difference in colour-matching between H. M. M. M. and L. W. had remained approximately unchanged, the difference between K. B. and the other two observers had increased. It seems probable that this was in part due to the actual colour tubes used, in spite of the fact that the N.P.L. correction was applied in each case; for in yet another investigation carried out by H. M. M. M. and K. B., when one and the same colour tube was regularly used by both observers, it was found that the difference in colour-matching between these two was only about 1% as late as the summer of 1945. The differences in colour-matching of the observers, in the present survey are taken into account in the analysis of the figures.

Analysis of Results

Haemoglobin Level in Relation to Age.—The mean haemoglobin level was 85.4 at 5 years of age, and there was a steady rise to 91.9 at 13 years (Table III). At 7 to 11 years the values

TABLE III.—Mean Haemoglobin Level by Age: "Forces Children" and "Civilian Children" in Present Series Compared with Other Series

Age in Years	Present Series, 1944						Series of 1942-3		M.R.C. Survey, 1943			
	All Children		"Forces Children"		"Civilian Children"		Boys and Girls		Boys		Girls	
	Mean Hb	No.	Mean Hb	No.	Mean Hb	No.	Mean Hb	No.	Mean Hb	No.	Mean Hb	No.
4	82.0	4	82.0	4	—	—	—	—	83.9	74	86.0	41
5	85.4	42	84.5	18	86.0	23	—	—	89.4	32	92.7	41
6	87.2	60	86.4	35	88.1	24	—	—	91.8	45	93.4	48
7	87.6	66	86.2	34	89.1	32	87.8	76	90.3	37	92.2	46
8	88.3	48	87.7	23	89.2	23	88.4	126	92.0	104	92.8	89
9	87.5	59	86.8	30	88.0	28	89.8	119	91.4	94	90.8	70
10	90.4	42	90.3	13	90.4	24	92.1	105	91.0	123	93.6	76
11	88.3	59	89.6	17	87.6	39	91.6	49	92.7	128	93.0	94
12	91.1	47	90.5	18	91.4	29	—	—	94.6	136	93.5	144
13	91.9	58	92.2	13	91.8	42	—	—	97.1	223	94.3	134

are similar to or slightly lower than those obtained at two other county council schools in 1942 and 1943 by two of us with R. H. Dobbs (Dobbs *et al.*, 1944). At each age from 5 to 13 years they are slightly lower than those of the corresponding age groups in the Medical Research Council Haemoglobin Survey (1945) carried out in 1943. In view of the alteration in

teachers as a school unit. The duration of evacuation varied greatly, but children who had been evacuated with their teachers had for the most part remained away until shortly before the date of this investigation. Since the great majority of those evacuated with their teachers were 10 years of age and over, a simple comparison of mean haemoglobin values of those remaining at home or evacuated with the school is invalidated by the difference in age. For this reason the observed mean value of each group is compared with the expected mean, taking into account both the age composition of the group and the observer carrying out each estimation. The figures from which the expected mean has been calculated are given in Table II, which sets forth the observed mean haemoglobin value obtained by each observer at each age. The difference between the observed mean and the expected mean for children of all ages not evacuated, children privately evacuated, and children evacuated with their school was under 1% (Table IV).

TABLE IV.—Mean Haemoglobin Level of Children who were Evacuated and of Children who Remained at Home

	Not Evacuated	Privately Evacuated	Evacuated with Teacher
No. of children	187	183	62
Observed mean Hb	88.3	88.8	88.6
Expected mean Hb	87.7	89.7	89.0
Difference of observed from expected mean	+0.6	-0.9	-0.4

Effect on the Haemoglobin Level of Economic Status as indicated by Number of Wage-earners and Number of Dependent Children.—Under the existent conditions of shortage of man-power and shortage of housing there were in many households earners other than the parents, whose presence had an important bearing on the financial resources of the household. These earners might be older children, grandparents, aunts, cousins, etc. In order to obtain a comparison of haemoglobin levels of children in households with larger and smaller incomes per head as determined by the composition of the household, the children have been allocated to different subgroups. The first group was one in which the mean income per head was likely to be considerably above the average: in this group were placed children from households in which there were not more than two dependent children together with three or more wage-

TABLE V.—Relation of Mean Haemoglobin Level to the Composition of the Family

		3 or more Earners		Parents only Wage-earners						(A) minus (D)
		1 or 2 Dependent Children		1 or 2 Dependent Children		3 Dependent Children		4 or more Dependent Children		
		Mean Hb (A)	No. of Children	Mean Hb (B)	No. of Children	Mean Hb (C)	No. of Children	Mean Hb (D)	No. of Children	
County council school, 1943:										
	Mean observed haemoglobin	92.0	18	90.2	160	89.7	47	88.5	19	
	Mean expected haemoglobin	90.3		89.9		90.4		90.2		
	Observed less expected Hb	+1.7		+0.3		-0.7		-1.7		
Present series, 1944:										
(a) All available cases:										
	Mean observed haemoglobin ..	91.1	46	88.9	186	87.5	70	86.3	65	
	Mean expected haemoglobin ..	89.7		88.6		87.9		87.7		
	Observed less expected Hb ..	+1.4		+0.3		-0.4		-1.4		2.8 ± 1.20
(b) 4-9 years old, inclusive:										
	Mean observed haemoglobin ..	90.4	17	87.8	123	86.7	40	84.8	47	
	Mean expected haemoglobin ..	87.2		87.5		86.5		86.9		
	Observed less expected Hb ..	+3.2		+0.3		+0.2		-2.1		5.3 ± 1.75
(c) "Forces children":										
	Mean observed haemoglobin ..	90.9	13	87.9	85	87.0	29	85.4	34	
	Mean expected haemoglobin ..	89.1		87.4		87.6		87.5		
	Observed less expected Hb ..	+1.8		+0.5		-0.6		-2.1		3.9 ± 1.69
(d) "Civilian children":										
	Mean observed haemoglobin ..	91.9	29	89.8	92	88.0	36	87.2	30	
	Mean expected haemoglobin ..	90.0		88.8		88.1		87.9		
	Observed less expected Hb ..	+1.9		+1.0		-0.1		-0.7		2.6 ± 1.58

K.B.'s matching level in the present investigation, and the small numbers involved, it is possible that the real differences in haemoglobin level between the children examined in the Medical Research Council Survey and the present one were smaller than the figures suggest.

Effect of Evacuation on the Haemoglobin Level.—About half the children under 10 years old had been evacuated—the great majority privately, and many with their mothers. Nearly three out of four of the children aged 10 to 14 years had been evacuated, and of this evacuated group about one-third went with their

earners—e.g., the father, who might or might not be resident in the home; and two other wage-earners, one of whom might be the mother. The other subgroups consisted of children from households where there were no wage-earners other than the parents and where the dependent children numbered respectively (a) 1 or 2; (b) 3; and (c) 4 or more (Table V). Since some of the children did not fall into any of these subgroups the number shown in Table V falls short of the total examined. As before, the difference of each observed mean haemoglobin value from the expected mean has been calculated to allow

both for the effect of age and for the differing levels of colour-matching of the three observers. Table V shows the results.

There is a progressive fall in the observed mean haemoglobin level between the first subgroup and the last. Moreover, the differences between the expected means and the observed means also fall into sequence. Children of households with three or more earners and only one or two dependent children have the highest mean haemoglobin (1.4 over the expected mean); the children of households where the parents are the only earners and there are four or more dependent children have the lowest mean haemoglobin (1.4 under the expected mean); and those children whose parents have one and two or three dependent children are intermediate in the series. As evacuation was likely to have smoothed out differences due to differing home circumstances, Table V shows also results when the children of 10 years old and upwards (three-quarters of whom had been evacuated) are excluded. This smaller group shows a greater difference between the various subsections: 3.2 over the expected mean for the first subsection, and 2.1 under the expected mean for the last, or a difference of 5.3 between children living in the better-to-do households and those in families with four or more dependent children. Two other groupings are shown—children of Service men and children of civilians, with similar gradations in haemoglobin level. The unbroken sequences in haemoglobin level in all the different groupings of children shown in Table V are striking. In the last column of Table V are given the differences in mean haemoglobin level between the first subsections and the last—i.e., between the children of better-to-do households and those of families with four or more dependent children, in each series. The differences in the four series—(a), (b), (c), and (d)—vary between 5.3 and 2.6, and the first three are statistically significant. Thus in spite of the complicating factor of the evacuation, there is shown to be a strong correlation of haemoglobin level with the number of the dependent children. These findings tally closely with the results obtained at another county council school in 1943 (Dobbs, Mackay and Bingham, 1944) and correspond with Yudkin's findings (1944b) for elementary-school children in Cambridge.

Haemoglobin Level of Children of Men in H.M. Forces compared with that of Children of Civilians.—The mean haemoglobin level of children whose fathers were in the Forces was slightly lower than that of children of civilians at each year of age from 5 to 9 years inclusive (Table III). From 10 to 13 years there was no consistent difference, but from 10 years of age upwards nearly three out of every four children had been recently evacuated from their homes, so that differences in haemoglobin level due to their own home conditions would probably have been obliterated by evacuation. The difference between "Forces children" and "civilian children" shows itself in various groupings of the figures: (a) When the whole series are grouped by age it is apparent at each year of age up to 9 years (Table III). (b) When the series are grouped according to the observer estimating the haemoglobin it is apparent in each subgroup (Table VI). (c) If the children of civilians

VII). Since in all these groupings or subdivisions the "Forces children" have a lower mean value it is certain that the difference is a real one and has not arisen by chance.

TABLE VII.—Frequency Distribution of Haemoglobin Values of "Civilian Children" and of "Forces Children"

Haemoglobin	3 or more Earners		Parents only Wage-earners			
	1 or 2 Dependent Children		1 or 2 Dependent Children	3 Dependent Children	4 or more Dependent Children	
	Civilian	Forces	Civilian	Forces	Civilian	Forces
Under 71.0	1	—	1	1	—	1
71.0-75.9	—	—	1	2	1	3
76.0-80.9	1	—	8	4	2	3
81.0-85.9	4	3	16	25	7	12
86.0-90.9	5	4	23	27	8	10
91.0-95.9	11	4	26	13	6	5
96.0-100.9	3	2	8	11	1	1
101.0-105.9	3	—	5	2	—	—
106.0-110.9	1	—	—	—	—	—

Discussion

It is well known that the standard of living of children in the social class to which the children in this school belonged was much higher in 1944 than it was in the pre-war years, as a result of full employment and higher wages, together with some food priorities for school-children in wartime. Yet, even with this higher standard of living, families with only the parents earning were handicapped in health, as indicated by their lower mean haemoglobin level, when compared with children in households with three or more earners. This handicap increased with the number of dependent children in the family. There was a lowering of the mean haemoglobin level of the children in the larger families by 5% in comparison with children attending the same school but coming from families with more wage-earners and fewer dependent children (Table V). Moreover, in spite of progressive and much-needed improvements in the family allowances for men in the Forces, their children were still, at the end of 1944, handicapped as compared with "civilian" children, whether coming from small or large families. Though a 5% difference in mean haemoglobin level may seem small, yet, by analogy with younger children, we believe that a lowering of haemoglobin level in school-children by this amount is likely to result in a rise in morbidity rate (Mackay, Bingham, and Dobbs, awaiting publication), and this is the reason why a difference in haemoglobin level of this order is a matter of importance.

Since the country must continue to maintain a considerable standing Army as well as a Navy and an Air Force, it is essential that the nation should see that the service of men in the Forces is not performed at the expense of the well-being of their families.

Unless the problem of the economic handicap of large families can be solved at least to the extent of ensuring that an increase in the number of children does not mean an inadequate diet for the family, the birth rate, except among the improvident, is unlikely to rise.

Summary

A series of 493 children aged 4 to 14 years were examined in December, 1944, at a county council school in a town in Surrey. Previous evacuation of the children had little effect on the mean haemoglobin level. When the proportion of wage-earners in the household was high the mean haemoglobin level of the children was also relatively high; when the number of dependent children increased the haemoglobin dropped correspondingly: findings which confirm those of an investigation undertaken earlier in the war. Children of men in the fighting Services had a lower mean haemoglobin level than the children of civilians at all ages under 10 years, after which home influence on the haemoglobin level was masked by evacuation. There was a similar difference in haemoglobin level between "Forces children" and "civilian children" when results were analysed to show the effect of increasing numbers of dependent children. We have no evidence as to the optimum or normal mean haemoglobin level for school-children, but the lowered haemoglobin level in "Forces children" and among the

TABLE VI.—Mean Haemoglobin Levels as obtained by Each of the Three Observers; "Forces Children" and "Civilian Children"

Observer	All Children		"Forces Children"		"Civilian Children"	
	Mean Hb	No.	Mean Hb	No.	Mean Hb	No.
K.B.	86.2	162	85.2	64	86.8	94
L.W.	89.2	163	87.2	74	91.0	86
H.M.M.M.	91.3	158	90.3	67	92.3	80

and of men in the Forces are separately grouped to show levels in households of three or more earners as well as in families of increasing numbers of children, the results are similar for "Forces children" and "civilian children," but in each subsection the children of Service men have a slightly lower mean haemoglobin level than the children of civilians (Table V). (d) When the individual values at different ages obtained for "Forces children" and "civilian children" are ranged in order to show their frequency distribution, the frequency of lower values is greater in each subsection of "Forces children" than in the corresponding subsection of "civilian children" (Table

children belonging to larger families reflects, we believe, an inadequate standard of living among at least a proportion of those composing these groups.

Our grateful thanks are due to the teachers, particularly to the heads of the three sections of the school—Mr. J. A. Richardson, Mr. H. S. Jones, and Miss G. Ellis—for their generous co-operation in this investigation with all the extra work it threw upon them. We are indebted to the Medical Officer of Health for Surrey, Dr. J. Ferguson, for permission to carry out the work, to the medical students and others who gave up several days to assist us, and to Dr. W. J. Martin for advice on statistical methods.

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WEIL'S DISEASE OCCURRENCE AMONG WORKERS IN WELSH AND SCOTTISH COAL-MINES

BY

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During recent years numerous articles have been published on Weil's disease (synonyms—spirochaetal jaundice, acute infective jaundice, leptospiral jaundice, spirochaetosis ictero-haemorrhagica, and possibly Nanukayami or 7-day fever of Japan, and slime fever of Eastern and Central Europe). The present paper is the result of inquiries conducted during the past few years into its incidence among mine workers in the Scottish and South Wales coalfields. Cases of Weil's disease among miners occurring during the past three years have been followed from mine to home or hospital into convalescence and return to work. During the past year a number of miners suffering from the disease have been treated with penicillin with most promising results. In this paper the incidence and prevention of the disease are dealt with, and the features referred to are mainly those peculiar or of special interest to coal-mining.

From April 1, 1940, infection by *Leptospira ictero-haemorrhagiae* has been included, subject to special conditions, in the schedule of industrial diseases under the Workmen's Compensation Act. Since man is usually infected through the medium of water or slime in or from places infested by rats, as mines, sewers, fish-cleaning premises, piggeries, farm middens, and slaughterhouses, and since infection may also occur from bathing in polluted water, no special process or work was included in the Order. It therefore rests with the worker to show that the disease was contracted in the course of his or her employment.

The disease has varied in name since it was first described. "Weil's disease" and "spirochaetal jaundice" remain in common usage although the Departmental Committee on Industrial Diseases recommended in its Third Report (1936) that these terms should not be used synonymously for infection by *L. ictero-haemorrhagiae* on the grounds that the illness may not in all cases be due to infection by that particular organism and that infection may occur without producing jaundice.

The disease is notifiable in Scotland but not in England and Wales. In British coal-mining the main events in chronological order are as follows. 1923: Buchanan and Gullard recognized and established the occurrence of spirochaetal jaundice among East Lothian miners. 1924: Spirochaetal jaundice became notifiable as an infectious disease in Scotland. 1933: Attention of Mines Department first drawn to cases occurring among Welsh coal-miners. 1940: Scheduled as an industrial disease.

Incidence

The following figures and tables show the prominent part played by certain Scottish and Welsh coal-mines in the epidemiology of the disease.

Scotland.—According to the annual returns, the numbers of cases notified since 1924, when the disease became notifiable, are as follows:

1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945
19	52	27	73	33	21	67	22	34	23	32	24	57	41	48	25	25	33	50	45	5	5

The returns do not indicate the occupational groups affected, nor do they state whether the diagnosis was confirmed. In 1934 Smith (Aberdeen) introduced Schüffner's agglutination test, which is highly specific. The incidence of known confirmed cases among Scottish mine-workers is as follows:

Year	Fatal	Non-fatal	Year	Fatal	Non-fatal
1924	..	2	1942	..	2
1932	..	3	1943	..	3
1934	..	1	1944	..	1
1936-7	..	7	1945	..	2
1938	..	1			
1939-41	..	5			22
					30

South Wales.—Gardner* between 1939 and February, 1943, examined 385 sera from patients all over Great Britain suspected suffering from Weil's disease. Altogether 58 cases gave positive reactions, and 21 of these were from South Wales (Carmarthen Glamorgan 8, and Monmouthshire 3, mainly coal-miners). The following cases have been reported as occurring among mine workers:

Year	Fatal	Non-fatal	Year	Fatal	Non-fatal
1933-5	..	1	1943	..	1
1937	..	1	1944	..	2
1939	..	1	1945	..	1
1940	..	2			11
1941	..	1			36
1942	..	3			

In all the cases noted above as occurring after 1935 the diagnosis was confirmed by serological and/or bacteriological examination. There is now a greater awareness of the disease, and since its inclusion in the industrial diseases in 1940 no case is certified unless confirmed by serological examination.

Mine-workers in Scotland and Wales formed a high proportion of the confirmed cases, fatal and non-fatal, occurring each year. These confirmed cases, Gardner states, may represent only a fraction of the infections actually occurring. Jaundice is usually present before the disease is suspected. According to Schüffner, jaundice is present in only 60% of cases. To quote Gardner: "It would be well if doctors dealing with patients exposed to the special risks by occupation or accident would have a serum test done in febrile cases developing headache, muscular pains, conjunctivitis, and intestinal irritation, without waiting for jaundice to develop."

In the table opposite the incidence in mines of known risk is listed together with certain pertinent data for each mine.

In Scotland and South Wales the mines concerned are drifts, levels, or slants, or if pits (i.e. having shafts) there are one or more connexions to slants. Each mine is known to have been infested with rats to varying degrees at the time of occurrence of the disease. The underground workings are wet over long portions, and collections of water (pools) are frequent. Horses or ponies are employed underground in all the Welsh mines concerned and in the two Scottish mines which show the highest incidence of cases. The regulations under the Coal Mines Act require in effect that horse-feed and water should be taken inbye when horses or ponies are employed underground.

All the recorded cases in mines occurred among underground workers except for one surface worker in Scotland who may have paid visits a little way inbye. Cases have occurred in practically all grades of underground employment.

Seasonal Incidence.—The numbers of cases recorded are insufficient for assessing a causal seasonal factor. There may be a slight relationship between the seasonal variation in the

* Bulletin of the Emergency Public Health Laboratory Service, May, 1943.

occurrence of the disease and the breeding of rats. If there is a seasonal influx of rats to mines with the onset of winter it would seem that certain conditions are required before clinically recognizable human infection can ordinarily occur, as most cases of infection appear from spring onwards.

Underground Environment

The mines of known risk are what are commonly called day drifts, slants, or levels, and lead direct from the surface into the mine workings. The actual coal face may be from 800

drawn traffic by subsidiary rope haulages. Stables are generally maintained underground.

Water from the surface, underground streams, or old workings forms scattered pools along the roadways and workings. Gutters or channels are made along the side of the levels or slants, and the water is thus directed to a central sump or reservoir, from which it is pumped to the surface. It is, however, often impossible to prevent shallow pools forming in the depressions and undulations along the mine roadway. Water is thus splashed about the sides of the roadway during

Weil's Disease in Mines of Known Risk

Mine	No. of Men Employed		Incidence of Weil's Dis. etc.			Type of Access Depth of Cover (Yards)	Horses		Stables		Surface Environment	Nature of Underground Workings	Rats Infested
	Sur-face	Under-ground	Year	Fatal	Non-fatal		Under-ground	Sur-face	Under-ground	Sur-face			
Scotland													
1	123	414	1924	2	—	Shaft and slants (160)	No	No	No	No	Cultivated	Wet	Yes
			1940	—	3								
2	43	117	1942	—	1	Slant and airway (86)	"	"	"	"	"	Roads wet, faces dry	"
			1976	—	1	Shaft and slant (200)	Yes	"	Yes	"	Woodland	Mostly very wet	"
3	106	380	1936-7	7 (proved) 13 (reported)	6								
			1942	2	3	Shaft with adit to riverside	"	"	"	"	Cultivated	Roads damp, faces wet	"
			1933	—	1								
			1934	—	1								
4	20	120	1929	—	1								
			1941	—	1								
			1942	—	6								
			1943	1	1								
			1944	—	—								
5	30	130	1939-41	4	1	Slants (400)	No	"	No	"	"	Wet throughout	"
			1941	—	2								
6	17	45	1938	—	1	Slant (90)	"	"	"	"	Cultivated orchard	Roads wet, faces dry	"
7	117	255	1943	1	—	Slant	"	"	"	"	Mainly grazing	Wet	"
8	38	465	1943	—	1	Slant and shaft	"	"	"	"	Grazing	"	Not examined
9	54	251	1945	1	1								
			1941	—	—	Slant	"	"	"	"	Moorland	"	Yes
10	80	280	1943	1	—	"	"	"	"	"	"	"	Not examined
11	10	90	1943	—	1	"	"	"	"	"	Cultivated	Very wet	Result not known
12	45	219	1944	1	—	"	"	"	"	"	Moorland	Faces and roads very wet	Yes
13	44	131	1945	—	1	"	"	"	"	"	Edge of town	Mainly wet	"
14	168	666	1945	—	1	Shaft and slant	"	"	"	"	Cultivated	Moderate, some roof water	Not examined
15	27	77	1945	1	—	Slant	"	"	"	"	"	Very wet and muddy	Yes
South Wales													
1	112	441	1940	—	1	Slant (350-600)	Yes	No	Yes	No	River rat infested, sheep farm	1 seam partly wet	Not examined
			1941	—	2								
2	24	97	1939	—	1	Level (45)	"	"	No	Yes	B looks near	Mainly wet	"
3	54	242	1933	1	4	" (170)	"	Yes	Yes	"	Two streams near by each entrance	Generally damp, some wet	"
			1941	—	—								
			1944	1	3								
4	16	498	1937	—	—	Slant (100)	"	"	No	"	Brook near entrance	3 seams 1 damp, 1 wet, 1 dry	Yes
5	136	453	1943	1*	—	" (350)	"	No	Yes	"	River near entrance	Generally d.w.	Not examined
6	79	426	1940	—	1	" (450)	"	"	No	"	Streams near by	Faces wet and dry, pools in roads	"
7	93	330	1945	—	1	" (450)	"	"	"	"	Streams near	Some faces wet	"
8	47	181	1944	—	4	" (100-500)	"	Yes	"	"	River intersecting small holdings	Faces dry, levels wet, pools in roadway	Yes
			1941	1	—	Drift (70)	"	No	"	"	Small farms and streams	Wet	"
			1942	1	—								
9	119	543	1943	—	1	" (170)	"	"	Yes	No	"	"	"
			1941	—	1								
10	48	278	1942	—	1								
			1943	—	1	Shaft and level (150)	"	"	"	"	Farms and streams	"	Not examined
11	124	650	1943	—	1								
			1945	1	1								
12	6	95	1945	—	—	Level and slant (180)	"	"	No	Yes	Farms	Not wet	"
			1943	—	1	" (60)	"	"	"	"	Moorland	Extremely wet	"
13	16	107	1943	—	1	Level (150)	"	"	"	"	Small stream	Damp throughout	"
14	14	62	1942	—	—						Grassland	Moderately damp, wet for first 800 yards	"
15	32	578	1944	1	—	Slant intersected with shaft and drainage level (300)	"	Yes	Yes	"			"
16	26	568	1944	—	1	Slant (400)	"	"	"	"	Farms, brook runs through colliery surface	Wet in parts	"
17	3	24	1944	—	1	" (100)	"	No	"	No	Cultivated	Wet	"

* An ostler who worked in the underground stables.

to 3,000 yards or more inbye. Double partings, or passbys, are formed at convenient points inbye, and serve as distributing and collecting centres. Horses or ponies bring along the coal-tubs from the working face to the double parting, where a journey, or rake of full tubs, is formed and brought to the surface by rope haulage. Many mines have replaced horse-

the passage of horse-drawn traffic and men. Slime and fungal growths in which the organism has been cultivated are often seen on the roof and timber supports. Water droppings from the roof are frequent. Under very wet conditions the men may wear oilskins and gum-boots but dispense with them in the drier parts of the mine.

The day's stock of horse-feed is sent down in sacks to the feeding-points, usually at or near the double partings, where it is emptied into large bowls. Practice, however, varies, and the horses may feed from nose-bags. Spillage is common, and it is usual to find the greatest number of "worked holes," and thus rats, near the feeding-points. Cuts and minor abrasions are a fairly common occurrence underground. Prompt first-aid attention is generally available if required.

There is extensive cover available underground for rats in the goafs (gobs and wastes). The only limiting factors in the distribution of rats in mines are deficiencies in food supply, movement of traffic, and the coal face itself. It appears that rats are attracted to the mine by the horse-feed. The slant or level provides easy access. The extensive cover, mine temperature, wetness, and darkness provide a favourable environment.

Rats

The main carrier of the *Leptospira* is the sewer-rat, *Rattus norvegicus*, and, far less commonly, the black rat, *Rattus rattus*.

Fecundity.—The female is fertile at three months. Oestrus, which lasts for three weeks, occurs every six weeks. Gestation lasts about 22 days. In a year six to eight litters are normally produced. The maximum life of the rat is about two years. A single pair of rats may in one year give rise to progeny numbering 600 or more. Rats are cannibals, and mortality among them is very high.

Breeding.—Under very favourable conditions breeding may take place throughout the year. Under ordinary conditions little occurs during winter months. The peak period is from early March to the end of May, with a lesser peak about the end of August.

Reinfestation.—Experience in factories and warehouses has hitherto shown that reinfestation occurs in roughly ten weeks after extermination has been effected.

Distribution of Rats in Mines.—There is little agreement regarding migration of rats into or from the mines. Some observers state that the rat colonies apparent underground maintain fairly level numbers and that migration is not noticeable. Others take the view that there is migration to the mines with the onset of winter, particularly if they are convenient to rivers, canals, or other waterways. The rats gain access to the mine workings by slants or slopes (surface mines) or via horse-feed. Horse-feed and scraps of bread thrown away by workers are the main sources of food for rats. Men generally carry their food in tin containers, but the practice is not entirely a universal one; even if it were it is often discounted by the unfortunate habit of throwing crusts and other scraps of food away. Human and horse excreta may also form part of the rat diet. Traces of rats in mines are somewhat different from those found in surface buildings or in the open. Often everything is wet and there are no smears. Droppings are often rapidly covered and obscured in the main roadways, and in disused roads are soon coated with fungal growth. Used rat places are polished and worn. These are the main traces. It is said that rats and mice do not coexist in the mine, although exceptions are instanced. It has also been recorded that in a mine where the only access was via the shaft the rats soon exterminated themselves when horses were replaced underground by mechanical haulage.

Preventive Measures

The prevention of Weil's disease in mines of known risk requires the co-operation of the men and the management. Some of the preventive measures are of a specialized nature and will be referred to only briefly. We are of the opinion that the first measures should be: (1) extermination of rats; (2) prevention of reinfestation; (3) rendering all food inaccessible. Further measures to implement the above are: (4) drainage of water and/or rendering stagnant pools unsuitable for the organisms; (5) use of protective clothing; (6) prompt and effective use of first-aid arrangements; (7) pit-head baths.

1. **Extermination of Rats.**—This requires to be intensive, and for this purpose the surface and underground workings should be considered as a single entity. In 1944 the Rat Infestation Branch of the Ministry of Food undertook, with a high degree of success, the extermination of rats in one of the

Welsh mines of known risk. Similar treatment of a Scottish mine took place in 1945. This occasion was correlated to extensive surface measures. It is estimated that the rats killed on this occasion numbered: surface, 315; underground, 215. The measure adopted is briefly:

A plan of the mine is inspected and a thorough survey for traces of rats made. The mine is divided into appropriate working sections. A system of pre-baiting with poisoned baits (arsenic or barium carbonate) and post-baiting is adopted. A test for reinfestation is made a month later. Where sections are continuous, special treatment of the overlapping area is called for. Full details of the planning, standard procedure, organization of the squads, and safety precautions are contained in the memorandum on Instructions in Poisoning Rats in Pits and Levels, issued by the Rat Infestation Branch of the Ministry of Food.

In one mine the manager reports that during a holiday period a few years ago, when horses were all taken to the surface, poisoned biscuits were laid down intensively, with good results. No rats have since been seen. At two mines the use of horses underground was discontinued. Rats, formerly rampant, ceased to be noticed anywhere underground within a few months and had not reappeared. This was attributed to starvation plus cannibalism. Even if these reports should be accurate it does not necessarily follow that haphazard methods are as efficient as carefully controlled methods.

2. **Prevention of Reinfestation.**—The proofing of main levels or drifts against rat movement is virtually impossible owing to the requirements of haulage traffic. Old roadways and airways may be effectively sealed against rats by suitable doors, which may be solid or of suitable stout mesh construction. This would depend on the requirements of ventilation. These physical deterrents, however, will not suffice where food is made available underground.

3. **Rendering Food Sources Inaccessible.**—(a) Horse-feed: Underground storage should be in steel bins with close-fitting lids. One mine has for this purpose a brick cabin with concrete floor and an accurately fitting door of steel plate. The regulations under the Coal Mines Act require in effect that horse-feed should be taken inbye where horses are employed. As stated previously, the replacement of horse traffic by mechanical haulage results in marked diminution in the rats seen. (b) Workmen should all carry food in metal boxes and should desist from throwing away crusts. (c) Full use of chemical conveniences, and their importance, should be stressed. (d) Restriction of the number of horse-feeding points would simplify the disposal of horse excreta.

4. **Drainage of Water and/or Chemical Treatment of Stagnant Pools.**—Where there is a definite incline drainage by narrow channels to lodgments is to be commended. From these lodgments there should be ultimate pumping to the surface. Level or undulating conditions tend to promote areas of stagnant water. Where such pools are unavoidable, acidification of the water will produce conditions inimical to the viability of the organism. Scottish authorities have recommended the liberal application of lime and/or chloros to roadways, etc., and are of the opinion that this gives satisfactory results. It is difficult to determine just how accurately the treatment is pursued and therefore to what extent it is effective. As in the case of horse-feed, water for horses or for any other purposes requires to be protected adequately from contamination.

5. **Protective Clothing.**—The main practical measure in this regard is the use of gum-boots. This is particularly important where, as often happens in wet mines, workers may be exposed to prolonged or repeated wettings in traversing certain stretches of roadways. In some cases gum-boots are worn to get through such places, and under drier conditions at the coal face the worker changes to ordinary boots.

6. **First-aid Measures.**—Where there is a known risk first-aid treatment should be given for even minor scratches and abrasions. In two recent cases there was a history of a cut on the hand (7 and 14 days respectively) before the onset of symptoms of Weil's disease. In both cases some time had elapsed before the wound received attention. It is believed that these wounds provided the means of entry of the organism.

7. **Pit-head Baths.**—These provide a general hygienic measure, and their use should be encouraged to the fullest extent. Although baths have been provided at a great many collieries for some years now, a few men do not use them. As a further

measure the washing of hands before eating should be urged. This does not seem easily feasible in the case of underground workers, but it ought not to be impossible.

Present Position and Observations

In general the occurrence of Weil's disease is for all practical purposes confined to mines which have direct access from the surface by levels, drifts, or slants, which are generally wet, and which are infested with rats. In South Wales horses are employed and feed is taken inbye in all cases. In Scotland horses are in use in only two of the mines concerned, but these two have the highest incidence of infection continuous over a period of years. The geographical distribution of cases is widespread in both regions, and several recent cases occurring at mines widely separated were the first to be recorded among miners in these areas. Most Scottish cases have, however, occurred within a comparatively small area. Within this same area there are several mines each employing some hundreds of men below ground—mines which have horses with stables below ground and are known to be rat-infested, but which to date are not known to have had a recorded case of Weil's disease.

The occurrence of a case, particularly of a fatal one, usually leads to intensive rat-extermination measures being undertaken for a time at least. This no doubt partly accounts for the sporadic nature of the incidence. The recent success of the Rat Infestation Branches of the Ministry of Food and of the Department of Agriculture in Scotland suggests that much can be done in rat extermination, but any underground efforts in this respect require to be co-ordinated with extensive surface measures. Periods when horses are withdrawn to the surface would seem to be the most suitable, since food for rats will then be at a minimum and poisoned bait will be more likely to be taken. The probability is that the disease is much more widespread than recorded cases indicate. It is rarely diagnosed without jaundice having appeared, and the high rate of mortality justifies the most energetic measures that can be taken to clear mines of rats and keep them clear. In South Wales intensive measures are being undertaken at the mines of known risk. From each of the mines concerned one or two men were selected to undertake a course in the methods of rat extermination adopted by the Ministry of Food. It is hoped that this will result in a marked diminution in the appearance of new cases of Weil's disease.

Certain questions remain unanswered. Among these are: What conditions favour increased virulence or attenuation of the organism? What is the viability of the organism in pit water and slime? Are rats infected *de novo* from such water and slime, or directly or indirectly from other rats? Is there a proper seasonal variation in the incidence or is it related to breeding?

All but one of the cases recorded were among underground workers. In nearly all of them the conditions of work were wet or necessitated traversing wet places. Cuts and abrasions are commoner underground and so facilitate the entry of the organism into the body; moreover, first-aid attention is more difficult than at the surface.

Glossary of Mining Terms

- Coal face** : The place where coal is hewn and filled.
Drift : A roadway, usually inclined, driven in stone from the surface to the workings.
Goad (gob or waste) : The area from which the coal seam has been extracted, partly or completely filled with debris.
Inbye : In a direction towards the working face and away from the outlet; the reverse of outbye.
Level : A roadway so driven in a particular stratum as to maintain a level course.
Outbye : In a direction away from the working face towards the shaft or outlet; the reverse of inbye.
Slant, slope : See Drift.

Summary

Cases of leptospiral jaundice occur among Scottish and South Wales mine-workers with such regularity and such a high mortality rate as to make the disease a definite occupational risk in certain types of mines.

The mines known to be concerned are all wet and infested with rats, and form a small proportion of the number of colliery undertakings in both regions. Rats gain access to the workings via levels, drifts, or slants, and possibly with horse-feed in course of transit.

In most cases live rats caught in the mines have been proved to harbour the *Leptospira*, which has also been isolated from specimens of pit water and slime.

Unless circumstances provide a guide there is every possibility that the disease may be mistaken for other conditions, particularly in the early stages. Proof is by positive agglutination reactions in ascending titres.

Facilities for laboratory diagnosis and hospital treatment are available and adequate in both the Scottish and the South Wales coalfields.

Approximately 33% of the recorded cases were fatal. Two to three months is the usual period of illness. One attack confers immunity.

Determined efforts at rat extermination are of primary importance, and should be so co-ordinated as to deal with surface and underground problems simultaneously.

We are grateful to many persons and bodies whose kind co-operation and advice have greatly facilitated the investigation and the compilation of this report. In particular we would mention Dr. S. W. Fisher, Chief Mines Medical Officer, who initiated the investigation and helped us in our labours throughout. We are also indebted to the Mines Inspectorate and to the Rat Infestation Branches of the Ministry of Food and of the Department of Agriculture for Scotland for guidance on the environmental aspects. Our thanks are again due to several medical officers in our respective regions for the notification of cases and advice on the medical aspects of the disease.

INSULIN SHOCK TREATMENT OF BRONCHIAL ASTHMA

BY

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Insulin shock was first introduced into the treatment of bronchial asthma by Wegierko in 1935; his later report on this subject (Wegierko, 1937) revealed very promising results, as he was able to remove the symptoms of asthma permanently or to mitigate them considerably for many months or even years. He thought (Wegierko, 1937) that the mechanism of insulin shock in the treatment of bronchial asthma lay in a violent stimulation of the whole vagal system, leading consequently to relaxation of the total smooth musculature of the body, including the spasmodically contracted bronchioles in these cases. He thus recommended insulin shock treatment for all conditions connected with spasmodic pains, such as nephrolithiasis, cholelithiasis, migraine, etc. He based his explanation on the fact that, in his observations, some of the cases in the early stages of insulin shock showed a slight fall of blood pressure, bradycardia, hot flushes, etc.—all symptoms described as due to vagal irritation; in the same stage of insulin shock patients began to feel a notable relief of breathlessness. It should however, be borne in mind that the vagal fibres of the bronchial plexus bring to the bronchial muscles a constrictory stimulus. Thus either the toxic doses of insulin produce a paralysing effect on the vagal system and thus cause relaxation of the bronchial muscles (but in that case cannot develop vagal symptoms), or insulin shock transiently stimulates the vagus nerve but the agent causing the relaxation of the bronchial spasm is not directly dependent on the insulin action.

On the other hand, physiologists have clearly proved, by numerous experiments on cats (Cannon *et al.*, 1924; Elaut, 1929), rabbits (Langecker, 1928), dogs (Tscherboksaroff and Malkin, 1925), mice (Elaut, 1929), and pigeons (Riddle *et al.*, 1924), that insulin shock unmistakably caused a higher production of adrenaline, found either in the blood by biological assessments (Cannon *et al.*, 1924; Tscherboksaroff and Malkin, 1925) or in the adrenal medullas by histochemical or histological investigations (Langecker, 1928; Elaut, 1929). The hyperproduction and increased dissipation of the adrenaline in those cases is a sort of regulative measure of the organism, preventing or diminishing the toxic effects of massive doses of insulin. Bearing these facts in mind, I began to apply insulin shock in cases of bronchial asthma. As the physiologists' explanation of the insulin shock action seems to be more plausible—although not yet proved in human clinics—than the original one suggested by Wegierko (1937), only those cases of bronchial asthma with an allergic aetiology were considered to be suitable for this treatment. A no less important problem

is to exclude from insulin shock treatment all types of arterial hypertension, acute and chronic failure of the circulation, and cases with even a slight impairment of carbohydrate metabolism: a more detailed account of this question will be found in the "Discussion."

Methods

Before the patients were submitted to insulin shock treatment they were subjected to the following preliminary investigations after a routine general examination:

- (1) A detailed personal as well as family history of the case was drawn up, with particular stress on the elucidation of the allergic conditions.
- (2) Examination of the circulatory system by: (a) electrocardiogram; (b) x-rays of the chest; (c) repeated control of blood pressure.
- (3) Blood examined by film and for the leucocyte count; B.S.R.; and glucose-tolerance test.
- (4) Sputum examined by culture and for eosinophilia.
- (5) Stool examined for parasites.
- (6) E.N.T. control of the nasopharyngeal region and, if necessary, local treatment.

Insulin Shock.—At 8 a.m. 20 units of soluble insulin were injected hypodermically or intravenously for the first shock. The following doses of insulin were higher by 5 or 10 units; but in cases showing a violent reaction to the first dose only an equal amount of insulin was repeated; the insulin shocks were usually repeated twice weekly; sometimes, however, in the early stages of treatment they were given three times a week. The individual insulin shock usually lasted three hours and ended in self-recovery or was arrested by the injection of 50 ml. of 20% glucose solution (only if the patient lost consciousness) or by oral administration of 300 ml. of 10% glucose solution. During the whole period of shock the following controls were carried out: (1) the blood sugar was estimated every half-hour—if necessary, also immediately before the arrest of the shock; (2) the blood pressure was measured every 10 minutes—if necessary more often; (3) somatic and mental symptoms were controlled every half-hour.

It is sometimes very difficult to decide whether the treatment is complete or not; discontinuation of the attacks or of permanent breathlessness is, of course, the best criterion in this respect. In practice, however, there is sometimes a recurrence of breathlessness, and in such cases one or two additional shocks have to be given.

Results

Eight cases of severe allergic type and 3 of non-allergic bronchial asthma lasting from a few weeks to a few years, treated previously by various generally known therapeutical methods without any obvious results, were subjected to insulin shock treatment. Particulars as to age, sex, and number of shocks given are shown in the accompanying table. The courses

of treatment varied from 6 to 9 weeks. The lowest glycaemia (18 mg. per 100 ml., Case 6) was found during a shock when 70 units were injected. It is worth mentioning that in the same case the blood sugar during the next insulin shock, when 80 units were injected, was only 24 mg. per 100 ml. In both cases the patient became unconscious several times, but only for a very short period, recovering by himself. He, however, developed a slight tremor, but predominant symptoms were those of the emotional reactions, such as crying, anger, quarrelsomeness, etc.

In all 11 cases the blood pressure rose regularly about 15 to 70 mm. Hg above the initial level, usually at the end of the

first hour of insulin shock, but this elevation never lasted longer than two hours after the blood sugar had regained the normal limits (Valis, 1945). After the treatment eosinophilia in 7 cases out of 8 dropped 10% to 60% of its initial value. I consider this symptom of great importance, since the diagnosis of an allergic cause of bronchial asthma was based almost entirely on it (Ratner, 1943), apart from the local findings of the mucosa of the nasopharyngeal region or skin changes typical of an allergic state.

Improvement in the asthmatic condition varied so much from case to case that it seems impossible to make any classification in this respect. The only feature common to almost all cases was a subjective feeling of relief of breathlessness during the shock itself, even although typical symptoms of bronchial asthma were still present; in such cases dyspnoea usually returned in a few hours. In 7 cases out of 8 complete recovery from symptoms occurred without any regularity; in each of the above-mentioned cases, when the stage of clinical recovery was reached, two additional insulin shocks were given as a matter of routine. So far the complete subsidence of asthmatic phenomena has in 7 cases lasted from 8 months to 2½ years—i.e., from their discharge from hospital up to the present time. Case No. 8 was thoroughly free of symptoms for 5 months, but recently again developed some breathlessness of asthmatic type. Although at the time of his discharge from hospital he was without any asthmatic symptoms the eosinophilia remained at its initial level; in view of this fact one might accept the fluctuation of the eosinophilia as a good criterion of the response to insulin shock, and as an indication whether or not the treatment has to be discontinued.

The 3 cases of non-allergic bronchial asthma showed no improvement whatsoever, although during the shocks each felt a transitory respite from breathlessness. In all 11 cases the blood sugar remained within normal limits after the treatment was completed.

Discussion

From the previously quoted data it becomes clear that only allergic bronchial asthma should be selected for insulin shock treatment. Since, during the shock, allergic and non-allergic cases showed a conspicuous rise in blood pressure, it seems easier to accept the physiologists' conception of the insulin shock mechanism. Thus artificially stimulated suprarenal medullas dissipate more adrenaline to the peripheral blood, causing the well-known symptom of relaxation of the smooth muscles of the bronchioles, but at the same time giving a stimulus to the peripheral circulation which produces a transitory rise in blood pressure. To offer a satisfactory explanation of a permanent or prolonged improvement in bronchial asthma by means of

Table giving an Analysis of the Cases

No	Age and Sex	Type of B.A.	Eosinophilia		Allergic Condition other than B.A.	No. of I.S.	B.P. Before I.S. Treatment	Highest B.P. During I.S.	Largest Dose of Insulin (Units)	Lowest Glycaemia (mg./100 ml.)	I.S. Symptoms	Result
			Before I.S. Treatment	After I.S. Treatment								
1	38 M	Allergic	7%	6%	++	13	130/89	162/92	135	36	Convulsion; perspiration	Positive for 2 years
2	29 M	"	9%	6%	+++	11	105/69	155/95	130	27	Tremor	Positive for 2½ years
3	33 M	"	13%	6%	0	7	123/83	191/118	85	28	Convulsion; unconscious	Positive for 18 months
4	37 F	"	14%	7%	+++	10	129/96	172/112	100	20	Tremor	Positive for 2 years
5	19 M	"	11%	8%	++	13	126/80	164/90	100	36		Positive for 1 year
6	21 M	"	8%	6%	++	6	118/78	180/90	80	18	Excitement; unconscious	Positive for 10 months
7	26 M	"	10%	6%	+++	6	127/84	188/95	80	23	Perspiration; convulsion	Positive for 18 months
8	34 M	"	5%	5%	++	7	116/69	180/98	90	30	Excitement; perspiration	Relapse after 5 months
9	22 M	Non-allergic	4%	3%	0	6	119/81	168/115	80	20	Palpitation; perspiration	Negative
10	46 F	"	3%	2%	0	9	124/86	171/75	100	28		"
11	33 M	"	4%	2%	0	11	115/78	168/90	120	22	Palpitation; convulsion	"

of treatment varied from 6 to 9 weeks. The lowest glycaemia (18 mg. per 100 ml., Case 6) was found during a shock when 70 units were injected. It is worth mentioning that in the same case the blood sugar during the next insulin shock, when 80 units were injected, was only 24 mg. per 100 ml. In both cases the patient became unconscious several times, but only for a very short period, recovering by himself. He, however, developed a slight tremor, but predominant symptoms were those of the emotional reactions, such as crying, anger, quarrelsomeness, etc.

In all 11 cases the blood pressure rose regularly about 15 to 70 mm. Hg above the initial level, usually at the end of the

clinical experiments is a very difficult task, if not utterly impossible. Accepting, however, the mechanism of insulin shock in animal experiments, mentioned before, one has to expect a permanent hyperfunction or even hypertrophy of the adrenal medullas after the powerful stimulus of the shock has been repeated a number of times. In fact, experiments carried out on rabbits (Langecker, 1928) and pigeons (Riddle *et al.*, 1924) have shown that repeated injections of small doses of insulin are able to develop hyperfunction and hypertrophy of the whole suprarenal gland. Elaut (1929) produced in rabbits, cats, mice, and dogs by a single shock an undoubted hyperfunction of the adrenal medullas, demonstrated by histological and histo-

chemical evidence. If, then, insulin shocks produce hyperactivity or hypertrophy of the adrenal medullas why should this hyperactivity operate in human beings only in the prevention or treatment of bronchial asthma and not lead to the syndrome of suprarenal hyperactivity? The answer to that question lies in Cannon's (1924) experiments in which he showed that the suprarenal medulla works as an emergency measure, by "explosive" liberation of the adrenaline only when stimulated either by nervous impulses or by toxic agents, such as insulin.

From this explanation it also becomes clear that all types of arterial hypertension should be excluded from this kind of treatment. Since, during insulin shock, blood pressure rises transiently to a considerable degree, all types of acute or chronic circulatory failure should also for obvious reasons be eliminated from this therapeutic measure. It has been repeatedly shown (Langecker, 1928; Riddle *et al.*, 1924; Gourmaghtigh, 1931) that insulin in big doses stimulates not only the medulla but also the cortex of the adrenals, which, as is known (Pflüger, 1942), performs through its steroids a powerful antglycolytic action, and thus cases with impaired carbohydrate tolerance must also be excluded from insulin shock treatment.

Chemically, insulin is a protein, and as such, injected into the organism, it might precipitate two different independent actions: (a) as protein introduced parenterally it might sometimes cause more or less pronounced symptoms of anaphylactoid shock; (b) as a glycolytic hormone it causes hypoglycaemia. The former action might begin almost immediately if the insulin is injected intravenously, or later if it is injected subcutaneously. One of the numerous symptoms of anaphylactoid shock is the fall in blood pressure, bradycardia, etc., and this may be the reason why Wegierko (1937) found these symptoms in some of his cases—which led him to the conclusion that vagal stimulation brings relief in breathlessness during insulin shock. In one of my latest cases of bronchial asthma, not included in the present series, three minutes after the first intravenous injection of 20 units of insulin the patient developed symptoms of anaphylactoid shock with severe dyspnoea of asthmatic type, and the whole incident was closed by the injection of adrenaline. The second action of insulin begins in about 30 minutes from its injection and reaches its peak in about 60 minutes; this is also the point when anti-insulin agents of the organism start to operate. The symptoms of the first protein phase are met by adrenaline, dissipated from the medulla as a response to the hypoglycaemic action of the insulin; at this point symptoms of the first phase (fall in blood pressure, bradycardia, etc.) might be mixed with symptoms of the second phase (hypoglycaemia) and symptoms of the third anti-insulin phase (rise in blood pressure, tremor, etc.) caused by dissipation of adrenaline and consecutive relaxation of bronchospasm. The next phase is the complete disappearance of all symptoms of the first protein phase with persistent symptoms of adrenergic type.

Summary

Out of a total of 8 allergic bronchial asthma cases 7 responded to insulin shock treatment, with complete disappearance of symptoms to the present time—i.e., from 8 months to 2½ years. One allergic case responded with a transitory subsidence lasting 5 months.

Three cases of non-allergic type bronchial asthma did not respond to this treatment although during the shock itself each of these patients felt relief for a few hours.

Insulin shock treatment in bronchial asthma seems to operate by means of a stimulus to the adrenal medullas, inducing a hyperproduction and dissipation of adrenaline; this action must be regarded as a defensive measure of the organism itself against the toxic action of massive doses of insulin.

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CARCINOMA OF THE LIP AND ITS TREATMENT BY RADIUM (1928-44)

BY

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The purpose of this communication is to comment briefly on the cases of cancer of the lip referred to the Radium Department of the Western Infirmary, Glasgow, during the years 1928-44 inclusive, and to give details of the methods employed as well as of the results obtained. During this period of seventeen years 293 cases were sent to the department, but 47 were not treated. It must be explained that only 9 of these were rejected as cancer cases too advanced for any sort of treatment; many extensive lesions have been tackled, irradiation being withheld only when it was clear that no benefit would result from treatment. The patient's general condition contra-indicated any kind of intervention in 3 other instances, while 5 more refused any form of treatment; for the balance of the 47 rejected cases surgery was deemed more suitable and convenient owing to the small size of the lesion. The 246 patients who received treatment are therefore not a selected group, but include all stages of the disease, with and without invasion of lymphatic glands, up to those with extension beyond the actual lip area. The result as regards cervical glands is still doubtful in 4 cases treated late in 1944, and so the final group for analysis totals 242. Experience shows that the success or failure of treatment is usually obvious in one year, and so the analysis is taken up to the year 1944: this unusual fact will be dealt with more fully when speaking of results.

General Observations

The primary lesion favoured the lower lip as usual, only 8 being on the upper, while a second primary lesion appearing on the opposite lip at a later date was observed in one upper-lip case and two lower-lip cases, further treatment being successful. With eight exceptions the patients were males, and no special aetiological factors were observed, except possibly the influence of exposure at work. During the earlier years the blood Wassermann reaction was not ascertained as a routine, but it is striking how seldom in buccal carcinoma one meets with a positive result even when leucoplakia is present. Microscopical confirmation was sought only in 75 cases where some doubt existed: there were 3 cases in which the diagnosis of malignancy was doubtful. In most of the patients the diagnosis was quite obvious. By far the greatest number of cases occurred in the fifth, sixth, and seventh decades, but age appeared to have no influence either in the results or on the frequency of glandular metastases. Six patients were under 40 and thirteen over 80 years of age, the latter group doing very well indeed.

Features of Lip Carcinoma

The rational radiotherapy of malignant tumours must depend on the recognition, amongst other things, of the intrinsic biological peculiarities of the varying types of lesion encountered at different sites in the body, or even in the same organ. For example, lingual carcinoma may present a wide range of differentiation from more adult types, but there is usually a great tendency towards glandular metastases. Cancer of the lip, however, is mostly of fairly adult and radio-resistant character, calling for a rather high level of dosage and spreading much less often to the related lymphatic glands. The rate of growth is not often rapid, and this fact, together with the exposed site, helps to make the patient seek advice at a reasonably early stage in the disease. Nevertheless, cases are still seen in which extension has occurred either over the chin or to alveolus, cheek, and upper lip. Such lesions can often be dealt with satisfactorily so long as the mandible itself is not invaded. Of this series 51 had lesions of this degree. The teeth should receive attention before treatment, but only in bad cases of dental sepsis is clearance of the mouth essential.

Adequate treatment of the cervical lymphatic glands is much more difficult than that of most buccal primary growths, and the attitude taken towards these lip cases is dictated by the

pathological considerations just mentioned. Of the cases 208 had no obvious involvement of glands at the time of the primary treatment, and, although the neck was not dealt with, only 19, or about 9%, developed cervical metastases at a later date. The policy with lip cases has therefore been to treat the primary lesion only, and rely upon the routine follow-up examinations to detect any development in the neck at an early stage.

Methods of Treatment

Implantation of radium has been in use from the earliest days, but adjustment of tissue dose, as regards both needle pattern and time factor, had little scientific basis at that time. The growth of physical knowledge has changed this, and efficient treatment is now possible without tissue damage and comparatively little in the way of post-radiational stigmata. The needles employed have a linear intensity of 0.6 mg. of radium element per cm. of active length, and those with a total length of 44 mm. (2 mg. Ra el.) and 32.7 mm. (1.2 mg. Ra el.) have proved most useful. The conservative nature of radiotherapy enables one to treat a wide area, and two common arrangements are a 4.5×2 cm. rectangle (three 2-mg. Ra el. closed at each end by a 1.2-mg. needle) or a 5.5×2 cm. rectangle (six 1.2-mg. needles in tandem pairs, closed at each end by a needle of the same strength). It will be noted that the strength of each line is uniform and so the dose rate must show a rise towards the centre of the area, but the results from every point of view have proved so good that no adjustment has been made. The dose delivered 0.5 cm. from the needle plane in 168 hours varies between about 5,000 r and 6,000 r, with a maximum of 6,700 r towards the centre. The extreme corners of these rectangles fall to a total dose of about 4,000 r, but with the margin provided this part is not in the tumour zone.

Preparation of the skin is important if sepsis is to be avoided. Preliminary removal of any crusts is carried out, and in the theatre soap and water, spirit, and then proflavine oleate 1% in liquid paraffin are used. Simple infiltration by 2% novocain containing adrenaline gives efficient local analgesia after pre-medication by omnopon (1/3 gr. (22 mg.) hypodermically). After careful measurement the implantation is carried out, each needle being stitched in place with silkworm-gut: the whole bundle of silk threads is stitched to the skin. The part is painted with proflavine oleate again, and powdered with sulphanilamide. A light gauze dressing held by a four-tail bandage is the most suitable and comfortable covering. For a week the diet will be fluid or semi-solid, and simple mouth-washes with an occasional dose of aspirin should keep the patient fairly comfortable. Luminal—1 gr. (65 mg.) by mouth at night—is sometimes helpful. Removal of the needles presents no difficulty, and sepsis is a rare complication. No external dressing is required thereafter, the part being dusted with sulphanilamide powder to seal the punctures.

The use of *double radium moulds* for treatment of the lip is the second method which has been employed. This causes no trauma, and from a physical point of view is desirable as giving something nearer a homogeneous distribution than an implantation. A few moulds curved round the lip were attempted before the days of proper physical control, but this method was put on a scientific basis only as a result of the work of Paterson and Parker (1934), the name of J. S. Fulton being specially associated with the technique. From a plaster cast a dental apparatus is worked up in a form suitable for holding a plane of radium needles inside the lip, an outer piece held to this by screws being used to irradiate the skin surface simultaneously. The apparatus is worn for some 8 hours per day with at least one rest, and treatment lasts for about 10 days. With a radium-mucosa distance of 0.5 cm. and radium-skin distance of 1 cm., about 6,000 r is given throughout the lip: the mucosal dose is inevitably higher than this, but no untoward effects will ensue.

After-treatment of the lip is directed to control of the necessary reaction. The skin will show a deep erythema occasionally amounting to moist desquamation unless it is kept dry. The area is not washed, but is dusted with powder from time to time; both sulphanilamide and boric powder have their uses. The patient's co-operation in keeping the skin dry is of the utmost importance. The mucous membrane shows its charac-

teristic "film" of fibrinous exudate, calling for simple mouth-washes, aspirin, and a suitable bland diet. If the lip edges tend to stick some vaseline can be used there, but it is not allowed on the skin. Exposure is to be avoided during the earlier stages of the reaction. The process will have subsided completely in from four to five weeks, and only the first two should have been troublesome for the patient.

The *treatment of cervical glands* does not lend itself to such easy description, the diversity of methods in general use being sufficient indication of the difficulties encountered. The records of our cases mention implantation, resection, radium moulds, x-ray therapy, and radium beam therapy, and it is impossible to attempt any further comment at the moment, except that surgery and implantation of radium are the methods showing most promise. Work is proceeding on the general problem of treatment for malignant glands in the neck, but it will be some time before any definite pronouncement can be made.

The *after-effects of irradiation* of the lip have been studied with regard to the occurrence of tissue damage or excessive skin change, both of which would be particularly undesirable at such a site. As all surviving patients are followed up indefinitely this task has been comparatively easy. After any radical irradiation for malignant disease some degree of fibrosis and endarteritis must be present in the tissues, but in a properly treated lip case there should be no conspicuous change unless destruction by tumour has been such as to cause gross loss of substance and therefore deformity.

Naturally all patients show epilation over the treated area. This is not normally very obvious, but in the case of a man with a dark beard there may seem to be a zone of pallor even where skin change is minimal. With regard to the grosser signs of previous irradiation, 67 of the cases are recorded as showing some definite evidence of scarring, with or without telangiectases. Two cases present leucoplakia with hyperkeratosis, which merely demonstrates once more the fact that this condition responds only temporarily to irradiation: pre-existing leucoplakia will therefore reappear after treatment, although an associated tumour may be satisfactorily healed. Actual tissue damage in the form of late necrotic ulcers has been seen in 6 cases, but 4 of these were treated during the period 1929-31, when no physical control was possible. As might be expected, 5 of these 6 had been treated by implantation, but it is now felt that careful measurement of the needle pattern and placing of the plane in the centre of the thickness of the lip can almost completely obviate undesirable effects. All these necrotic lesions healed with some scarring. None was of greater extent than 1 cm. in diameter, and the lip was never perforated.

Results of Treatment

In the accompanying table an attempt has been made to show how the different groups have reacted to treatment. A small group (B) has been segregated, since irradiation was preceded by excision of the primary lesion. This method was occasionally employed during the earlier years before radiotherapy was so generally adopted for neoplasms of the lip, most of the cases being those in which there was some doubt as to the completeness of the operation. The other sections indicate clearly the good results obtained from treatment of the primary lesion, and show how these deteriorate at once when the cervical glands become involved. Three of the cases in Group C were implanted after excision; but, in view of the obviously satisfactory results achieved in the lip itself, it was thought undesirable to add to the number of groups by presenting them separately. It will be seen that when the cases are not complicated by glandular invasion (Group A), 165 (94%) patients out of a total of 175 were rendered free from disease; or, if the 9 cases requiring accessory excision be excluded, 156 out of 175 (89%). In the table these results are indicated separately for the implant and mould methods.

Where glands were present to begin with, or developed at a later date, the picture is very different, and, although the lip was healed, only 25 out of 53 cases (Groups C and D) were rendered free from disease, this representing about 48%. If all cases treated, with or without glands, are considered, it is found that a satisfactory result was achieved in 83%, but if the rejected (untreated) cases, totalling 47 less 16 operated upon satisfactorily, be added, this figure falls to 73%. The

term "failure" in the table means that the patient died of cancer, usually about a year from treatment. The failures include two fatalities in the form of one anaesthetic death during excision of a primary lesion which had failed to respond and one case of phlebitis with generalized sepsis following operation on glands.

Cancer of Lip, 1928-44 242 Cases treated

	Implant for Lip (168 Cases)	Moulds for Lip (74 Cases)
A Cases without glands or glandular development	Healed 85 Healed died later of other cause 26 Residue or small recurrence excised well 6 Failure 3	32 13 3 7
	Total 120	55
	Free from disease 117 (97%)	43 (87%)
	Free from disease (radium only) 111 (92%)	43 (81%)
B Cases without glands or glandular development, excising then radium for lip	Healed 8 Healed died later of other cause 2 Failure 0	3 0 1
	Total 10	4
C Cases with glands when first seen	Healed 10 Healed died later of other cause 3 Failure (due to glands) 12	1 1 7
	Total 25	9
D Cases which developed glands after successful treatment of lip	Healed 5 Healed died later of other cause 1 Failure (due to glands) 7	2 2 2
	Total 13	6
Totals	168	74

It appears to be a feature of lip carcinoma that in the great majority of cases the result is known in about a year, and the frequency with which this was found made it reasonable to include patients up to the year 1944. The result for every case has been scrutinized to determine this point, and it is a remarkable fact that every failure in the whole 1928-44 series has been obvious in the first year with but 7 exceptions. In only one of these was there a truly late recurrence of disease: the patient was treated successfully in 1931 for the lip, which remained healed, but in 1935 he developed a glandular metastasis, and this proved fatal, no other primary lesion being found. Although the other 6 patients lived two to three years after treatment, within a year it was quite obvious in 4 of these that the patient would die of cancer of the lip or glands, while in another the cause of death was development of an independent antral carcinoma. Only in the one remaining case was the issue in any doubt till 18 months from the time of treatment. It is for those reasons that the survey has been taken up to so recent a date, and this fact must be emphasized, since such a procedure could not ordinarily be adopted while recording cases of cancer.

Owing to the age of many of the patients, a number died of some other complaint a period of years afterwards of all those shown in this category only 24 died within the first five years, the remainder of deaths being at intervals up to thirteen years.

Conclusions

The facts adduced show that the use of radium is a satisfactory radiotherapeutic method for cancer of the lip, although adequate treatment of the cervical glands still presents a serious problem. It is suggested that surgery and implantation of radium are the most promising methods for the neck, but certain work on the radiotherapeutic approach to this problem is not advanced enough for more to be said at present.

The cases treated by implantation of the lip include the worse ones, since the mould method is not readily adaptable to very bulky lesions or those spreading beyond the lip, yet the tabular statement shows that implant results are superior to those obtained by the use of moulds. Moreover, implantations throw less work upon a radiotherapeutic department, and also

on the ward nursing staff, so that this is now regarded from all points of view as being the method of choice for radium.

The malign influence exerted upon results by invasion of cervical glands is strikingly illustrated, but it is shown that the percentage of cases developing this complication is a small one.

It is with pleasure that I acknowledge indebtedness to my colleagues on the visiting staff of the Western Infirmary for their friendly co-operation in giving me every facility, both in wards and in operating theatres for the necessary radiotherapy, to our physicist, Dr McFarlane for working out the dose rates in the standard implants and also any special ones, and particularly to my clinical assistant, Dr W Allan Crawford, for much painstaking work in extracting from our records the details upon which this paper has been based.

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PYLORIC STENOSIS: SELECTIVE MEDICAL AND SURGICAL TREATMENT

FIFTY SUCCESSIVE CASES WITHOUT A DEATH OR FAILED MEDICAL TREATMENT

By

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The surgical treatment of congenital hypertrophic pyloric stenosis is now a very safe procedure in skilled hands, and Levi (1941) and Paterson *et al* (1941) have published large series of cases with a mortality rate below 5%. Although many who have given medical treatment with atropine methylurate a trial know that it will cure some cases, they have in the main abandoned the method. This is because they fear the high mortality rate in the "failed medical case" which subsequently has to have an operation. Some administer "eumvdrin" for a few days and if vomiting does not rapidly cease submit the infant to operation. Such a procedure nearly always fails and in fact it would have been better if the child had been operated on at the beginning. The result of all this has been a swing of opinion back to the view that Ramstedt's operation is the method of treatment for all cases. It is certainly obvious that any alternative method must be able to offer an equal degree of safety.

Jacoby (1944) suggested certain criteria for selecting individual cases for medical or surgical treatment, and had at the time treated 26 cases, with a mortality rate of 8%. Since then considerably more experience of the method has been obtained, and it can now be reported that 50 successive cases have been treated without any fatalities, and what is equally significant, not one of the 26 cases selected for medical treatment failed to respond readily or had to be subjected to operation. On these results it seems reasonable to suggest that medical treatment has a definite part to play, for not only does it avoid unnecessary operations but in certain cases—e.g. where there is secondary infection or diarrhoea—it is probably safer than operation. Moreover in certain suitable cases, admission to hospital can be avoided altogether.

Method of Medical Treatment

It must be stressed that the medical treatment advised in the original paper, and employed ever since is different from that in general use. The main difference lies in the radical reduction of feed volume at the beginning of treatment; and this is vitally important, as without it early cessation of vomiting cannot be expected. I believe that, irrespective of what quantity of feed passes the pyloric sphincter before vomiting occurs the actual vomiting itself is highly undesirable, because it both weakens the infant and fills the attendants with gloom. It appears that atropine methylurate takes three or more days to exert its full effect, and it is probable that during these waiting days the cessation of vomiting is due mainly to feed-volume reduction. At the same time it is obvious that this method of treatment is totally unsuited to a severely dehydrated infant, and in such circumstances should never be used.

To achieve a satisfactory result with medical treatment the following procedure is advised:

1. Exact diagnosis by unmistakable palpation of a "palpable pyloric tumour."
2. Careful selection of cases according to the criteria given.
3. Reduction of feed to 1 oz. (28 ml.) four-hourly in infants under 6½ lb. (3 kg.), and 1½ oz. (42 ml.) in infants over 6½ lb. Breast milk is preferable, but whatever feed is used it should be of full strength.
4. Atropine methylnitrate 0.6% in alcohol—4 drops from a "fountain-pen filler" into the back of the mouth, 15 minutes before four feeds on the first day and then before three feeds on the second or third day; when vomiting has completely stopped, 2 drops three daily for about 16 weeks.
5. No stomach-washing unless the vomit contains large amounts of mucus.
6. No parenteral fluids by any route. A case that is in real need of hydration should be operated upon as soon as possible.

Method of Surgical Treatment

The method of surgical treatment used in this series was that advised by Levi, except that the feeding-chart was modified so as to take nearly six days after operation before full-strength milk was reached.

Criteria for Selection of Cases

The criteria for selection of cases have not been altered since the original paper, though an extra contraindication to medical treatment (haematemesis) has been added. It may perhaps be convenient to recapitulate them here.

1. Indications for Surgical Treatment :
 - (a) Vomiting beginning in the second week or earlier.
 - (b) Severe dehydration.
2. Contraindications to Surgical Treatment :
 - (a) Infection.
 - (b) Diarrhoea.
3. Indications for Medical Treatment :
 - (a) Vomiting starting in the fourth week or later.
 - (b) Vomiting continuous for three weeks or more before the infant is first seen, provided it is not severely dehydrated.
4. Contraindications to Medical Treatment :
 - (a) Severe dehydration.
 - (b) Haematemesis.

Table giving an Analysis of Results

	Medical Cases	Surgical Cases
Total cases	26	24
Male	22	21
Female	4	3
Average age at onset of vomiting	4 weeks	2.7 weeks
Average age on admission	6.3 weeks	4.7 weeks
Average birth weight	7.3 lb. (3.3 kg.)	7.3 lb. (3.3 kg.)
Average weight on admission	8.1 lb. (3.67 kg.)	6.7 lb. (3.04 kg.)
Number breast-fed	12	13
Number artificially fed	14	11
Average no. of days in hospital	13.4	13

These results show very much what would be expected if the criteria were followed. One point, however, is particularly worthy of note, and that is that 50% of the patients were artificially fed. Inquiry as to the reason for discontinuing breast-feeding revealed that in almost every case it was in the belief that the vomiting was due to the breast milk disagreeing with the infant. It cannot be too strongly emphasized that such a condition does not exist, and that artificial feeding can only lead to a worsening of the condition.

Selected Case Reports and Comments

When selecting cases for medical or surgical treatment it is found that in the majority a decision is soon arrived at. There are, however, certain cases in which the various indications and contraindications balance each other, with the result that personal judgment has to be used. The following selection of cases attempts to show how some of these problems were dealt with.

Case 1.—Female, aged 6 weeks; artificially fed; birth weight, 7½ lb. (3.4 kg.). Vomiting started at 5 weeks. On admission the child was collapsed and seemed moribund. The weight had fallen to 6 lb. 5 oz. (2.87 kg.); the temperature was 102° F. (38.9° C.). She

was very dehydrated and was having quite severe haematemesis. It was obvious that no form of treatment other than resuscitation could be undertaken. At the end of 36 hours she was fully hydrated by parenteral means, the temperature had fallen to 98° F. (36.7° C.) and the condition was much improved. As she now appeared, the indications were for medical treatment, but in view of her previous dehydration and haematemesis it was decided that operation must be performed. Recovery was uneventful.

Case 2.—Aged 11 days; birth weight, 8 lb. (3.6 kg.); breast-fed. Vomiting started on the seventh day. Weight on admission, 7 lb. 12 oz. (3.5 kg.). The infant was having six loose green stools daily and had an upper respiratory infection and sepsis at the umbilicus.

Normally, cases that start vomiting so early should be operated on, but here it was felt that the diarrhoea and respiratory infection made this a dangerous procedure. Medical treatment was started, and vomiting had completely ceased by the third day. The patient was fit for discharge by the tenth day.

Case 3.—Aged 2 months; birth weight, 5 lb. 10 oz. (2.55 kg.); artificially fed. Vomiting started at 2 weeks. Weight on admission 5 lb. 9 oz. (2.52 kg.). Was severely dehydrated and having tetanic spasms. Because of the very long period of vomiting associated with dehydration it was felt that rapid relief was required, and an operation was performed forthwith. Seven days later the stools became loose and frequent. The child was given a blood transfusion and then dextrose-saline for 24 hours, and was put on to peptonized breast milk. The stools rapidly improved, and the feed was gradually changed to peptonized artificial feed, which was slowly depeptonized. This infant through its long period of semi-starvation had almost lost its tolerance for food, and after operation presented a feeding problem.

Summary

Fifty cases of congenital hypertrophic pyloric stenosis were dealt with by selective medical and surgical treatment. There were no deaths and no failures of medical treatment.

A method of medical treatment involving feed-volume reduction is described.

Criteria for the selection of cases for medical or surgical treatment are given.

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Medical Memoranda

Diphtheritic Encephalomyelitis

Nervous symptoms, complications, and sequelae of diphtheria occur often enough. They are clinically important though peculiar in type. Their pathology and pathogenesis are not yet perhaps completely understood. References in the literature to diphtheritic encephalomyelitis are very few. Querido (1928), who recorded a case of post-diphtheritic encephalitis, remarked that parenchymatous inflammation of the central nervous system is the rarest sequel of diphtheria. Hall (1932) reported a fatal case of acute toxic encephalitis in a female child aged 18 months. In addition to membrane in the pharynx, from which diphtheria bacilli were cultivated, the necropsy showed distension of cerebral vessels, with linear haemorrhages throughout the white matter.

Below is recorded a fatal case of encephalomyelitis which occurred as a complication of faucial diphtheria. The extreme rarity of the condition warrants this report.

CASE HISTORY

A Sikh male child aged 15 months was admitted into the children's ward with the complaint of unconsciousness with convulsions, duration three days. The onset was sudden. About a fortnight back the child had had vomiting for four days and fever for two days. There was no other history of significance. On examination the patient was comatose; temperature 97.4° F. (36.3° C.), pulse 110, and respirations 26 per minute. The pupils were moderately dilated and reacted to light. The neck was soft, and Kernig's and Brudzinski's signs were negative. There was left hemiplegia. Tendon-jerks were exaggerated and Babinski's sign was extensor on both sides. The tonsils were enlarged, with a small suspicious membrane on the left. Other systems were normal.

Investigations.—**Fundi:** Only slight bilateral venous congestion was present. Cerebrospinal fluid: 15 ml. of clear sterile fluid was drawn out under high tension by lumbar puncture; a few mono-

ates were found; protein was present in traces, sugar 55 and chloride 650 mg. per 100 ml. Blood: Total white cells, 20,500 polymorphonuclears 92%, lymphocytes 5%, and large mononuclears 3%; no parasites. A throat swab revealed a fair number of diphtheria bacilli (confirmed by culture), streptococci, and *M. catarrhalis*. Urine: Acetone present in fair amount. Stool, normal. Wassermann reaction of the cerebrospinal fluid, negative.

Progress and Treatment.—Antidiphtheria serum (32,000 units) as injected intramuscularly. He was put on three tablets of cibazolid 4 minims (0.24 ml.) of nikethamide t.d.s. by mouth per day. Next day a throat swab was again examined and a fair number of diphtheria bacilli, streptococci, and *M. catarrhalis* were seen. 40,000 units of serum were injected intramuscularly. After 24 hours 20 ml of clear cerebrospinal fluid was drawn out under high tension. The fluid, which was sterile, showed protein in traces, sugar 46 mg. and chloride 650 mg. per 100 ml.; a few monocytes were present. A throat swab showed a few diphtheria bacilli. Another intramuscular injection of 40,000 units of serum was given. Next day a throat swab showed no diphtheria bacilli even on culture. 30 ml. of clear cerebrospinal fluid was drawn out under very high tension. The patient's condition gradually worsened and the coma deepened. He started having fever ranging up to 102° F. (38.9° C.), and the pulse rate varied from 120 to 140 per minute. The pupils were dilated and red. Another 10,000 units of serum were injected. The patient died after a further two days. On the last day the child was deeply comatose; temperature 102.4° F. (39.1° C.), pulse rate 170 per minute; pupils widely dilated and fixed. During the last two days seeds and medicines had to be given by the nasal route. Necropsy was not possible.

My thanks are due to Major-Gen. H. C. Buckley, M.D., F.R.C.S., C.S.I., M.S., Principal, Medical College, Agra, for his kind permission to publish his report and also to my colleagues of the pathology and biochemistry departments for the valuable help I received in investigating the case. I wish to express my appreciation of the services of my house-physician, Dr. B. P. Kacker, and the nursing staff in the treatment of the case.

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A Case of Dysphagia in a Woman aged 78 cured by Tonsillectomy

The following case is of interest because, although dysphagia due to chronic hypertrophy of the tonsils is well known in children, it must be extremely rare in the aged, whose tonsils are usually atrophic.

CASE HISTORY

Mrs. W., aged 78½, was first seen on June 28, 1945, when she complained of pain on swallowing. She could not get any solid food down, and nearly choked when drinking water. She had lost 4 st. (25.4 kg.) in weight and was too weak to do her own housework. She also complained of a vague aching sensation in the left side of her throat.

On examination she had a painful enlargement of the left upper cervical glands, and at the time it was thought that the enlargement was probably inflammatory. It was found that the tonsils were chronically hypertrophied and almost touching in the midline. The nose was normal, and on indirect laryngoscopy there was no excess secretion in the laryngopharynx, which is usual in cases of post-ricoid carcinoma. It was thought that the dysphagia was probably due to the enlarged tonsils, but that tonsillectomy was definitely out of the question. She was asked to report back in two weeks' time for a review.

The patient did not return again until Oct. 11, when her complaints were just as bad as ever; the condition of the throat had not changed. After great deliberation she was advised to come into hospital either for diathermy of the tonsils or for removal of one tonsil to begin with. She was admitted on Oct. 23, and with pre-operative seconal gr. 3 (0.2 g.) and omopon gr. 1/3 (22 mg.), the anterior and posterior faucial pillars were injected with a local anesthetic. Dissection of the first tonsil was started, but this caused great respiratory embarrassment, and it was decided to remove both tonsils with a guillotine. The tonsils were mobile and easily enucleated with minimum discomfort. There was little bleeding, and both tonsils were removed within one minute. There was no post-operative complication, and the patient was returned to bed and almost immediately found swallowing greatly improved. She was discharged in one week.

Nothing was heard of the patient until February, 1946, when she was admitted on to the ophthalmic side for a dacryocystectomy. At this time she stated that she was better immediately after tonsillectomy, was eating and drinking normally, had put on weight, and had again started doing her own housework and washing. She was sleeping well at night. Examination of her throat showed that the tonsillar fossae were clear and the faucial pillars intact; there was minimal scarring.

I would like to thank Mr. W. M. Munby for permission to publish this case.

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Reviews

THE GROWTH OF CHILDREN

Nutrition and Chemical Growth in Childhood. By Icie G. Macy, Ph.D., Sc.D. Volume II. Original Data. With foreword by Lawrence Reynolds, M.D., and a Supplement by Julia Outhouse Holmes, Ph.D. (Pp. 1,450; illustrated. \$10.00.) Springfield: Charles C. Thomas.

The results of ten years of research have been embodied in *Nutrition and Chemical Growth in Childhood*, and in Vol. II, issued under the subtitle "Original Data," the facts and figures are fully presented. Dr. Icie G. Macy, who is director of the research laboratory of the Children's Fund of Michigan (the sponsors of the investigation), presented in Vol. I the methods used and the average results obtained. Here she gives in great detail the results of over 600 five-day metabolic balance periods conducted on twenty-one boys and girls. In addition the present volume contains the results of studies of the nitrogen, calcium, and phosphorus metabolism of a further twelve pre-school boys and girls conducted under the direction of Prof. Julia Holmes. The first impression is confusing. The volume is not suitable to be looked through as a continuous text, but careful reading of the study of, say, one or two children begins to bring out the value of the data. Of this there can be no doubt, and more detailed study induces a sense of high regard for the patience and ingenuity shown by the team of workers and the splendid co-operation of the children. Indeed, if there is such a thing as professional training for suitable employment as subjects for physiological and especially nutritional research, these children have had it, and should be certain of steady employment for the rest of their lives!

Vol. III is planned to give the interpretation of the results obtained, and when it is available it will be easier to assess the ultimate value of the tremendous undertaking. It is fair to say of this present volume in isolation that the complicated trees of analytical data obscure the wood of true knowledge. Nevertheless, all workers in the field of nutrition and metabolism will find in it some valuable help, whether it be in relation to problems of growth, with which the whole research project is fundamentally associated, or to special details of the individual chemicals studied. As is pointed out in a foreword, nearly one-third of American recruits in the recent campaign were rejected for physical defects. "A sad commentary," says the writer, Dr. Lawrence Reynolds, "on our boasted wealth and industry." The Children's Fund of Michigan was established "to promote the health, welfare, happiness, and development of the children of the State of Michigan, primarily, and elsewhere in the world." This work of Dr. Macy is an important contribution to that end.

GUIDE TO POST-WAR EUROPE

Health Recovery in Europe. By Sir Arthur S. MacNalty, M.D., F.R.C.P., F.R.C.S., and W. Franklin Mellor. (Pp. 180. 7s. 6d.) London: Frederick Muller Ltd.

This little book is an essay in shadow and subdued light. In the first part of it an account is given of health and nutritional conditions in Europe during and since the war. The authors have continually to apologize for fragmentary and imperfect statements and the lack of precise information, though enough is given to depict a situation which in some parts of the Continent seems to be desperate beyond remedy. That wholly unrelated diseases should have reached their peaks of incidence at about the same time all over the Continent is the last and in some ways the sorriest of the many strokes of Fate. This book made its appearance during the first General Assembly of the United Nations. Even while the delegates were sitting in London the picture was darkened by news of the failure of crops in various countries and the shadow of famine crept closer. Here was an opportunity, with the leaders of nearly all the nations meeting together, for them to sit down and plan to avert the worst calamity. But they did nothing of the kind. They talked politics, not economics; they wrangled over issues relatively unimportant instead of arranging for the pooling of resources and the opening of highways of distribution; and they passed an empty resolution on the food question and went their way with the words of the British Prime Minister in their ears that the success achieved had been remarkable! The proceed-

ings of the United Nations lend an ironic touch to the optimistic title of this book and to the pious ascription at the end, that if the United Nations wield the sword for the coming battle against disease as well as they did the sword of war, then victory is assured.

The story of medical relief work is well told. Four principal bodies have been concerned in health reconstruction: the Civil Administration of the military authorities, U.N.R.R.A. with its Health Division, the voluntary agencies such as the Red Cross and Order of St. John, the Friends' Relief Service, and the Save the Children Fund; and finally the national health and medical services of various countries. One of the two most hopeful elements in the situation is the development of the public medical services, the other being the availability of new remedies and means of combating disease. On one point epidemiologists are still in the dark. The authors say that influenza, which made such terrible ravages in 1918-19, is the only important epidemic disease which has been comparatively unaffected by war conditions. Such outbreaks as have occurred have not even equalled in severity three or four which took place in the inter-war years.

The authors, one of whom is a former Chief Medical Officer of the Ministry of Health and the other a former member of the Health Section of the League of Nations Secretariat, have produced a book which, despite its inevitable gaps and guesses, will be of real use to international health workers. Some day, no doubt, a complete authenticated and statistical record will be compiled.

MEDICAL TREATMENT

Textbook of Medical Treatment. By Various Authors. Edited by D. M. Dunlop, M.D., L. S. P. Davidson, M.D., and J. W. McNee, M.D. Fourth edition. (Pp. 923. 30s. plus 8d. postage.) Edinburgh: E. and S. Livingstone.

This *Textbook of Medical Treatment* by a group of Scottish authors has established itself as the standard work on the subject. It is informed by a spirit of urbane rationalism which avoids alike the perils of therapeutic nihilism and of credulity, and it is written in a gracious and harmonious style instead of being a mere catalogue of remedies. It is not surprising, then, that it has reached a fourth edition, and this edition is to be particularly welcomed because of a change of format. The book is now taller and slimmer, and though austerity has narrowed the margins the type is clear and legible. The price is very reasonable for a book of this size.

The last eighteen months have been a difficult time in which to revise a textbook owing to the continuous reassessment of the sulphonamides, penicillin, and thiouracil. The doses of penicillin here suggested are on the whole smaller and the enthusiasm for thiouracil greater than many of us would exhibit to-day. Penicillin has replaced pentnucleotide in the treatment of agranulocytosis and neo-arsphenamine in Vincent's angina. Less forgivable is the scant notice paid to homologous serum jaundice, which has been the major therapeutic catastrophe of the war. It would not do, however, to end on a note of criticism, and we should like to congratulate the editors on having made available so admirable an account of modern medical treatment, particularly at a time when so many graduates are refurbishing their knowledge for the tasks of peace.

RUDIMENTS OF PSYCHIATRY

A Handbook of Psychiatry. By Louis J. Karnosh, M.D., Sc.D. With the collaboration of Edward M. Zuckerman, M.D. (Pp. 302; illustrated. 25s.) London: Henry Kimpton. 1945.

The authors have set out to prepare a comprehensive but short survey of modern psychiatry in terms which are as non-technical as possible and with the avoidance of unnecessary theory and speculation. They aim at giving the general practitioner who does not seek to become a psychiatric specialist a readable account of everything included under the heading of psychiatry, and at the same time a ready reference book in which he can quickly find what he wants to know about the diagnosis and treatment of any patient with whom he is confronted. In this ambitious task they have succeeded reasonably well, giving prominence to the type of case which is most commonly encountered, though the psychoneuroses, which must surely outnumber enormously even the cycloids and schizoids in any doctor's practice, occupy a late position in the book. Due notice is taken of psychosomatic medicine, psychopathic personalities,

and the war neuroses, and there is the usual chapter psychiatry and the law which again exposes the somewhat unsatisfactory state of this relationship. Treatment is described in sufficient detail, though it is obvious that the judgment which can decide on the right treatment for the particular case can come only from long experience of disorders of personality. Rule-of-thumb methods are even less appropriate in dealing with mental disease than they are when applied to physical disease. Case histories, and photographs of patients as well as of tissues, illustrate and enlighten the text of a book which is to be recommended. It is certainly as good as any volume of this limited scope can be.

A TEXTBOOK OF PHYSIOLOGY

Howell's Textbook of Physiology. Edited by John F. Fulton, M.D., with the collaboration of Donald H. Barron, John R. Brobeck, Robert W. Clark, George R. Cowgill, William U. Gardner, David I. Hitchcock, Harold Lampert, David P. C. Lloyd, Leslie F. Nims, and Theodore C. Rock. Fifteenth edition. (Pp. 1,304; illustrated. 40s.) London: W. B. Saunders Company. 1946.

This important textbook has been very thoroughly revised by the new editors under the leadership of Prof. Fulton, and, indeed, much of it is entirely rewritten on modern lines by experts in the various branches of the subject. The contributors are numerous, for in addition to text written by the editors there are considerable contributions by J. Russell Elkinton, John H. Ferguson, Robert G. Grenell, William F. Hamilton, Ebbe C. Hoff, Hebbel E. Hoff, Chas. W. Hooker, Walter Landauer, Harry D. Patton, Robert F. Pitts, Eric Ponder, Frank W. Weymouth, and Alfred E. Wilhelm, making a total of 24 contributors. The production is thus thoroughly composite in character, and the task of editing must have been correspondingly heavy. It seems, however, to have been done as efficiently as could have been desired, and to give a correct picture of modern American physiology. It is prefaced by a short account of the historical background of American physiology which closes with the significant words: "When peace came again every physiologist who has the future of his subject at heart will hope to pursue the science for its own sake, even as Howell pursued it during sixty-five years of unremitting endeavour—an endeavour dedicated in the first instance to physiology pure and unapplied."

The book can be recommended as a reliable work of reference dealing with physiology in its most modern aspects: the biochemical portions, though adequate and up-to-date, are less fully treated than the more biological portions of the text. There is stress on biophysics, and perhaps relatively too much space is taken up by the chapters dealing with the nervous system and the special senses, which, with muscle and nerve, occupy nearly 540 pages. There are no chapters devoted to the endocrine organs, references to which merely crop up incidentally in the other sections. The whole book is authoritative and will be of value to British physiologists and to advanced students. The print and illustrations are excellent.

Notes on Books

The New York Tuberculosis and Health Association (386, Fourth Avenue, New York 16) has published as a volume in typescript *Tuberculosis Reference Statistical Yearbook* for the year 1944, with comparative summaries for 1943 and the five-year period 1940-1944. The contents include a summary of morbidity and mortality from tuberculosis in New York and New Jersey, the large American cities of the United States generally, Canada, and selected European capitals and countries, and also clinic reports from New York City.

A list of scientific institutions, societies, and research workers in the Netherlands Indies has been reprinted as a pamphlet from *Science and Scientists in the Netherlands Indies*, which was noticed in the columns on March 30, 1946 (p. 488). Copies of this reprint may be obtained without charge by writing to the Library, Board for Netherlands Indies, Surinam and Curaçao, 10, Rockefeller Plaza, 14th Floor, New York 20, or to the Editor of *Chronica Botanica*, P.O. Box 1: Waltham 54, Mass., U.S.A.

The *Dentists Register* for 1946 has now been published for the Dental Board of the United Kingdom by Constable and Co., 10, Abchurch Lane, London, E.C.4, price 15s. The total number of names appearing at the end of last year was 15,422—16 less than the figure for 1944. All but one of the new entries were of persons registered as graduates or licentiates.

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THE BILL IN THE COMMONS

The Special Representative Meeting showed beyond doubt that the majority of medical men are strongly opposed to some of the principal features of the Bill, the Second Reading of which was debated in the House of Commons last week. The power of the Minister to introduce by Regulations almost any change he wishes raises wide apprehension. We must, however, acknowledge that Mr. Aneurin Bevan appears to have resisted pressure from his own party as well as from the Negotiating Committee. Many members of the Labour Party in the House of Commons would have preferred a whole-time salaried State service, with no concessions to private practice. In his temperate exposition of the Bill Mr. Bevan showed himself willing to consider amendments at the Committee stage. The job of the profession is to press hard for those amendments which it considers to be essential to an ordered evolution of the medical services of this country.

From the nature of his work and the imperfect state of medical knowledge the doctor who is non-partisan in politics distrusts revolutionary changes in the forms of medical practice. The British Medical Association has been criticized for interpreting this Bill as the first and deliberate step towards a whole-time salaried State medical service. Mr. Bevan, it is true, has made provision for private practice in both the hospital and the home. In the debate he said: "Some of my hon. friends on this side of the House are in favour of a full salaried service. I am not. I do not believe that the medical profession is ripe for it."

Therefore the main source at the moment through which a general practitioner will obtain his remuneration will be capitation. When Mr. Reid observed that this indicated that "the Minister is out for a full-time salaried service as soon as he feels he can impose that upon the country," Mr. Bevan interjected, "There is all the difference in the world between plucking fruit when it is ripe, and plucking it when it is green." So the medical profession may be excused for feeling uneasy. Mr. Reid went on to ask whether the Labour Party's pamphlet, "A National Service for Health," published in April, 1943, still held good. He quoted this from it: "In the Labour Party's opinion it is necessary that the medical profession should be organized as a national full-time salaried pensionable service." Mr. Arthur Greenwood, the Lord Privy Seal, who wound up the debate, gave the answer: "What was published by my party in 1943, to which the Right Hon. and Learned Gentleman referred, we of course stand by. We have never repealed any of our policy, and we shall continue to march on in the light of that policy." However conciliatory the Minister may now be, the fate of the medical profession is sealed if the Labour Party remains in power long enough to carry out its declared policy. If the medical

profession, as we believe it does, regards a whole-time State service as harmful to the public and the profession, then it must do all it reasonably can to stop at its source a stream that threatens to become an inundation.

What chance is there of modifying the Labour Party's policy for a whole-time salaried State medical service, now we know from the Lord Privy Seal that this policy stands in spite of the provisions of the present Bill? In opposing this the profession fortunately has the strong support of the Parliamentary Secretary to the Ministry of Health, Alderman Key, who, having no vested interest in medicine, cannot be accused of this very wicked thing. In his able speech on May 1 he made two statements of the highest importance—statements which, when they have been made by medical spokesmen, have been derided by those who maliciously claim that doctors have no other concern in their profession than an economic one. Mr. Key said this: "We regard the free choice [of doctor] by the patients as being the more important principle, and, therefore, we put forward a compromise"—the compromise, that is, of paying general practitioners partly by salary and partly by capitation fee. Mr. Key's statement summarized the analysis of the situation previously made by Mr. Bevan: "There ought to be nothing to prevent anyone having advice from another doctor than his own." Mr. Bevan went on to say that if someone hears that a certain doctor in a certain place is good at this, that, or the other, he wants to "go along for a consultation." In response to interjections from his own side of the House, Mr. Bevan remarked that this was a field "in which idiosyncrasies are prevalent. If an individual wishes to consult, there was no reason why he should be stopped."

It is encouraging that the two principal Government spokesmen have not been misled by their own party propaganda on this question of free choice. We should add that no medical spokesman has ever pretended that free choice means unlimited free choice: the choice of any service or commodity is always limited by the circumstances of time and place. To assert that the limitation of choice means the absence of choice is partisan nonsense. Mr. Key carried the argument a significant step forward, thus: "*Second and more important, a full salaried service is inconsistent with the free choice of doctor, to which we have agreed* (Our italics). We have far too much respect for the political acumen and intelligence of Mr. Bevan and Mr. Key to believe that they have been persuaded to this view by what many of their supporters have ridiculed as B.M.A. propaganda. The Labour Party is in fact in a dilemma, and its two principal spokesmen in the debate last week had the courage to admit it. The Labour Party's dilemma is the doctor's dilemma—namely, how to reconcile the free choice of doctor with a whole-time salaried service. If both the medical profession and the Labour Party, approaching this problem from completely different standpoints, reach the same conclusion, then there must be something in it. The medical profession must, therefore, press for amendments to the Bill which will remove the Labour Party from the horns of their dilemma."

Mr. Key carried his analysis still further by relating the whole-time salaried service to direction: "A large salary," he observed, "cannot be paid irrespective of the work

than relieve symptoms, and help to keep the patient quiet and cheerful, so as to give Nature as free a hand as possible in the removal of the cause of his trouble. As for the medicinal substances with which pharmacological investigation chiefly concerned itself in those days, these were very apt to be chosen rather for the definiteness of their action, and for its accessibility to finer physiological analysis, than for any conviction as to their therapeutic importance. So it came about that many of the drugs which were regarded as most attractive for study by the pharmacologist owed their interest rather to the light which their actions were beginning to throw on problems of fundamental physiology than to their special importance in practical therapeutics. Those who were clinical students in those days will not fail to remember the air of cynical discouragement which some of the ablest physicians then adopted to most of the medicinal treatment at their disposal, and the aloofness of the teaching in the wards from what the pharmacologist was studying in his laboratory. This situation was accentuated for the time, rather than alleviated, by the appearance of early representatives of new kinds of remedies having nothing to do with the traditional *materia medica*, or with the conventional pharmacology concerned with these, originating in the discoveries of physiology and immunology—hormones, immune sera, and vaccines, remedies dealing directly with the causes of various disorders.

It was under these conditions that the desire arose for a new kind of impulse in pharmacology, and that the genius of Paul Ehrlich was found to give it direction, system, and a new name, "chemotherapy," to distinguish it from the pharmacology which he had found too academic for his practical aim. This aim was the discovery of new, artificial substances which would deal directly with the causes of infection, and would do so better than the few among the traditional remedies to which such an action could be attributed. The success of this campaign has produced one of the most dramatic among the many great changes in medical science and practice which the present century has witnessed. Salvarsan, germanin (suramin), atabrin (mepacrine), the sulphonamides, and now penicillin, represent wave crests on the rising tide of its achievement. With this successful exploitation of the products of synthetic chemistry for the direct removal of the causes of infection there has been a parallel activity in the provision by synthesis of new and better remedies for the alleviation of symptoms, which must still remain an important if secondary concern of treatment. In all directions pharmacology, with its vigorous offspring chemotherapy providing the scientific basis of medicinal treatment applied in a new atmosphere of well-grounded confidence, has moved into the centre of interest in medical research. It is well, then, that British pharmacologists should have their own journal, to give to the world the results of the growing volume of pharmacological researches which the universities, the Government, and industry may be expected to support. They have hitherto found hospitality for their publications in the journal which Abel founded in Baltimore, as well as in the weekly medical journals, and those devoted primarily to physiology and to pharmacy in their own

country. Their researches have surely attained an importance justifying a special journal to give them to the world, and the new venture should receive a hearty welcome. Its first number represents a full range of pharmacological interests, containing papers which deal with the elucidation of physiological problems by pharmacological methods, with new remedies for symptomatic treatment, and with others for chemotherapy in the stricter sense.

POST-MORTEM FINDINGS IN PREFRONTAL LEUCOTOMY

The operation of prefrontal leucotomy is still in an experimental stage. It has had some brilliant though partial successes. In the catatonic schizophrenic, violence and aggression that have persisted for years have given place to quiet and relatively human behaviour; and the chronic melancholic who has proved refractory to convulsion therapy has been restored to a state of well-being by having the white fibres of his frontal lobes cut. These benefits have had to be paid for with a diminution of some of the higher faculties, and in many cases the anticipated benefit has not been achieved. One of the most serious disadvantages of the operation has been the unpredictability of the results. It has long been recognized that this is partly because the operation is a blind one, and the extent and location of the intended destruction of white matter are not controlled. Post-mortem investigation of anatomical changes and their correlation with degree of improvement have been badly needed.

A beginning in this direction has now been reported by Meyer and Beck.¹ They have investigated 9 such cases with a tenth in which frontal lobectomy had been carried out for basal meningioma in a mentally normal patient. In 4 of these patients—3 schizophrenics and one psychopath—clinical improvement over 8–36 months was considerable, and death eventually occurred from unrelated causes. Two patients died within a week of the operation, and the other three showed no improvement; in one of them the improvement obtained was offset by a severe frontal lobe syndrome. The extent of the surgical lesion varied very greatly from case to case, and in the patients who improved tended to be less than in the others. In one case marked improvement resulted from a unilateral operation, and in another case with a good result the prefrontal region had not been involved. Extensive haemorrhage and a too posterior cut yielded unfavourable results. It seems that patients chronically ill and with much deterioration of personality did less well and required a more extensive severance of the fibres than others. Considerable improvement may take place without cutting the fasciculus cinguli or other midline structure, which had been considered by Freeman and Watts to be of importance in relation to recovery.

Pathological examination has disclosed interesting anatomical findings. Retrograde degeneration of the dorsal medial nucleus of the thalamus occurred in all cases in which thalamocortical fibres had been severed. Owing to the varying extent of the operation it was possible to gain detailed knowledge of the organization of the thalamocortical radiation, which, it was learned, is in the human brain similar to that in apes. Evidence was obtained that the thalamic radiation to the orbital areas of the prefrontal region is of considerable strength. In the prefrontal cortex anterior to the cut there was a slight reduction of the

number of nerve cells, particularly of the third layer. The centre median nucleus of the thalamus, which is thought to serve as a purely thalamic association centre, varies greatly from subject to subject, both in the normal and in the abnormal, and its possible significance to psychiatry calls for study.

The work of Meyer and Beck is of high interest to the neurosurgeon and the psychiatric therapist. But the chief lesson to be learned is that the operation of prefrontal leucotomy is a human experiment in which further study is urgently required. The brain of any patient who dies and is known to have had a prefrontal leucotomy should, wherever possible, be sent for examination to a recognized centre for neurohistology.

UNIFICATION OF PHARMACOPOEIAS

In May, 1945, when victory was won in Europe, the Health Organization of the League of Nations published an interim report¹ of a technical commission of pharmacopoeial experts on the steps which have been taken towards an International Pharmacopoeia. The project sounds as full of hope, and presents much the same difficulties, as that of setting up a United States of Europe. Not that there is difficulty in peacetime in getting an international committee together, but to persuade those of any nationality to surrender their own pet pharmacopoeial habits for the common good is a large undertaking. The Health Organization has, however, been very successful in the closely related field of biological standards, and the present report, published at the moment it was, augurs well for success in this field too.

It describes the conferences which have been held since 1902: these were responsible for the First and Second International Agreements for the Unification of the Formulae of Potent Drugs. The technical commission of pharmacopoeial experts was set up in 1937, it was formed after negotiation with the Belgian Government and in liaison with the International Pharmaceutical Federation. It has as its chairman Dr. C. H. Hampshire, the secretary of our own Pharmacopoeia Commission, and among its members is Dr. Fullerton Cook, representing the United States. It has produced what is in effect a skeleton pharmacopoeia containing no fewer than 47 monographs, all approved by the representatives of seven different countries. It gives a list of about 160 more substances at present being studied. This is an important achievement which should go far to convince those doubtful of the practicability of an international book of this kind. The need for it may perhaps not be fully realized here, but in Canada, for example, some unification of the *B.P.* and the *U.S.P.* would prove a godsend to the pharmacists who have to keep in line with both.

ATOMIC ENERGY IN MEDICINE

Prof. M. L. Oliphant, who was associated with Lord Rutherford in his early work on atomic disintegration, delivered the twenty-fifth Silvanus Thompson memorial lecture—Rutherford himself had delivered the first—to the British Institute of Radiology on April 11, and discussed, with due regard to the secrecy which still hangs over the subject, the uses of atomic energy, especially in biology and medicine. By the bombardment of atoms by protons and deuterons, he said, it was possible to transform almost

every chemical substance, changing it into a radioactive species possessing the property of emitting negatively charged electrons or alpha particles. The tracer elements, as they were called, were likely to play a great part in unravelling the complicated chemical processes which went on in biological phenomena. Some outstanding work had already been done whereby carbon dioxide was shown to be utilized by plants and the method of its transformation into sugars and cellulose, the structural material of the plants themselves, had been disclosed. There were now radioactive species of every chemical element in the periodic table, though it was true that some of them were not very useful, either because their life was far too short or their half-life times far too long. Most of them emitted negative electrons, one or two emitted positive. The process of splitting or fission of uranium was accompanied by a tremendous release of energy. The lecturer described experiments in the New Mexican desert, where, after the explosion of an atomic "bomb," an enormous area was depressed like a bowl and the sand became fused and took on a red colour, as evidenced in some specimen particles he handed round among the audience. The release of neutrons during such an explosion would sear and scorch everything with which they came in contact, and anyone exposed at a distance even of several miles might receive a lethal dose of radiation. Using the material in the form of sprays, it would be possible to contaminate, as if by poison gas, many hundreds of square miles of an enemy territory.

So much for the new plaything of the warmongers. On the other side of the account certain of these fission products, with a radioactivity very similar to that of radium, might be harnessed to industrial and clinical uses. The biological effect of the neutron was about five times that of the gamma rays of radium and gave the same kind of physical effect—namely, ionization. Prof. Oliphant exhibited plans of apparatus for the production and distribution of these radioactive materials for agricultural, chemical, metallurgical, and clinical uses. The centres, he said, should preferably be based on a university, with laboratories for the production of radioactive materials in the form required for these purposes. With what was known as the Harwell pile, consisting of rods of uranium arranged in lattice form, the spaces between the rods being filled with a substance like graphite, it was possible to generate the equivalent of 30 curies or more a day. Nuclear physics, he said, had now developed until it was ready to become a source of radioactive materials in almost unlimited quantities. Sources of neutrons were available which, because of the peculiarity of the ionization they produced in the tissues, were worthy of full investigation as alternatives to x rays and radium. It was possible to make a very good substitute for radium, and to produce it in immense quantities far beyond the world's radiotherapeutic needs. Prof. Oliphant concluded his lecture with the remark, "I think the indications are that the price of radium is going to fall."

We regret to announce the death in New York at the age of 83 of Dr. Simon Flexner, the distinguished bacteriologist and Director Emeritus of the Rockefeller Institute for Medical Research. He was a Foreign Corresponding Member of the British Medical Association.

The next session of the General Medical Council will open on Tuesday, May 28, at 2 p.m., when the President, Sir Herbert Eason, will take the chair and deliver an address.

¹ *Bulletin of the Health Organisation of the League of Nations*, vol. XII, Extract No. 4, 1945-6.

THE PUBLIC AND THE BILL

DR. HILL'S ADDRESS AT GOLDERS GREEN

A largely attended public meeting, arranged by the Hendon Division of the B.M.A., was held at Golders Green Hippodrome on Sunday, May 5, when an address on the National Health Service Bill was given by Dr. Charles Hill, Secretary of the Association. The chair was taken by Sir Alfred Webb-Johnson, P.R.C.S., who was accompanied on the platform by the officers and other prominent members of the Division. Some 1,500 people were present.

The chairman said that the profession as a whole was behind the objective of this and previous Governments in seeking a comprehensive health service, but felt that objection must be taken to some of the proposals. The general practitioner, so long as there was free choice of doctor, built up goodwill in his practice, but one of the proposals was that he should be entitled no longer to regard that goodwill as his own. The tribunals to be set up might deprive a practitioner of the right to accept public patients, although the General Medical Council retained his name on the *Register*. The practitioner, if not already established in an area, was required to obtain permission to practise in it, yet ever since Magna Carta it had been the right of the citizen to follow his employment how, when, and where he wished. The proposals amounted to this, that the Minister had power to create an absolute State monopoly of practice. (A voice: "About time, too.")

Surrender of the Hospitals

Dr. Hill dealt first with the hospital proposals. The Minister of Health, in his opening speech on the Second Reading—a speech which in large part was statesmanlike and conciliatory—had surveyed the hospital position, and with much in his diagnosis all would agree. There was need for the marriage of voluntary and council hospitals into one service which would represent the best features of both. It was desirable to have groupings of hospitals in natural hospital areas, and to make available to all hospitals the resources, financial and other, which they needed. With social security provisions it was inevitable that the bulk of hospital income should be derived from central and State sources. They agreed with Mr. Bevan that hospital development must no longer be at the caprice of charity, and that it was a State responsibility that a complete and efficient hospital service should be available to every member of the community. The Bill proposed to set up a regional organization covering natural hospital areas, and including council and voluntary hospitals alike. That was something for which the medical profession had been pressing for years—that hospitals should be organized over wide areas, unrelated to the antiquated boundaries of local government. By virtue of the power of the purse, of being the source of the great bulk of hospital income in the future, the Government would be possessed of an enormous influence—of all it needed—in the planning and development of the hospital service. But the Minister proposed also to become the owner of every hospital in the country.

"Is it necessary and desirable, that position having been reached, that the State should become the physical owner of every hospital? A hospital is something more than a place in which expert work is done. It is a living entity, a centre of local loyalty and affection. The essence of a good hospital service is that there should be local interest in it and responsibility for it. Will that continue if the State becomes the physical owner of the hospital? That is an issue for us all to ponder. Will the conversion of every institution into a State establishment improve the quality of the hospital service? Will the L.C.C. hospitals—a brilliant example of local authority development—be better hospitals if the responsibility for them is transferred across the river to Whitehall? Is there sufficient evidence of the wisdom, humanity, and capacity of the State to justify the abolition of the local character and ownership of hospitals? Is this gamble one which in the public interest we are justified in taking? The endowments of voluntary hospitals other than teaching hospitals will pass, via the Minister, to the region. Local hospitals, other than the teaching hospitals, will not be permitted to accept or hold endowments. It will be no longer more blessed to give than to receive."

Further, the Minister will have power compulsorily to acquire any non-State hospitals or nursing homes that exist or may be established. This will mean a State monopoly of hospitals, free

from comparison with non-State hospitals. These things are neither necessary nor desirable.

General Practitioner Proposals

Turning to the general practitioner proposals, Dr. Hill asked what should be the basic principles of a family doctor service. Was it essential to a good service that the individual citizen should have the right to choose and change his doctor? The view of the medical profession generally, and, he believed, the public, was that this was essential. There were those who pointed out that free choice of doctor was not always available, and some who said that the public was incompetent to evaluate the individual doctor, judging a doctor by the number rather than the meaning of the letters after his name, or by social and sartorial considerations. But the individual citizen was better able to judge the value of the individual doctor in an essentially human relationship than an official or committee in a town or county hall. It was necessary with this personal service that the obligation of the doctor should be to his patient, and not divided between the patient and some employing body.

After outlining the proposals of the Bill concerning appointment to areas, payment in part by salary, and creation of health centres, Dr. Hill took up the statement of Mr. Greenwood, in the Second Reading debate, concerning a housing estate for 34,000 people near Bristol, with no doctor—a situation which Mr. Greenwood had compared with Taunton, a town of 40,000 people, with 56 doctors. It was always necessary to look into the facts of a situation before accepting a statement at its face value. Doctors had endeavoured to find houses on that housing estate, and had been told by the Bristol authorities that no houses large enough for conducting medical practice were available. There were actually nine doctors within a mile of the estate, four of them with branch surgeries within the estate itself. As for Taunton, its doctors went far and wide into the rural parts of Somerset and other counties. So much for that illustration of "maldistribution."

Under the new arrangements would have to obtain special permission to follow their fathers in practice. Where there was more than one applicant for a vacancy the central committee would decide which should go. It would decide, for example, whether to a particular area a man or a woman practitioner should be sent. It would decide who should join a group or partnership. The contention of the profession was that such errors of distribution as existed would, with a 100% service and payment in respect of every member of the community, be largely evened out. In areas of particular difficulty, including rural areas, the terms and conditions of service could be so adjusted as to attract doctors. The Minister had the power in an area which remained persistently under-doctored to select, appoint, and pay a doctor.

"We want to avoid the situation that a man or woman, after years of arduous study, and after being recognized as a fit and proper person to practise medicine, finds himself or herself debarred from the area of choice. Mr. Bevan has described the procedure as 'negative control,' which does not seem very different to some of us from direction; by closing certain areas to doctors they will be forced into other areas."

The Finance of it All

It had been said that the sale and purchase of practices was equivalent to the sale and purchase of patients. That was not true. Even though a practice changed hands as between two practitioners there was nothing to compel the individual patient to transfer to the incoming doctor. The Government argument was that in order to secure a better distribution of doctors the abolition of the capital value of practices was necessary. There was no need for this change. If goodwill was abolished, clearly compensation should be paid. But why should £66,000,000 of public money be spent to destroy this form of ownership, unless, indeed, it was felt that this was what stood between the independent doctor and his conversion into a branch of Government service? As for salary, the Minister told the Negotiating Committee in writing that a substantial proportion of the doctor's remuneration would be by basic salary; in the House he said a small proportion. It was to be hoped that the Minister was in process of modifying his view on this important issue. The profession believed that the general practitioner's success should depend on the number of

persons who chose him, and that according to that number he should be rewarded.

It was a pity that the health centre had become the focus of so much controversy. The idea was first put forward by the medical profession. It was an interesting and useful notion, worth trying out in the circumstances of different areas. But it was foolish to pretend that by the use of the mystic words "health centre" an effective contribution had been made to the country's health services. The health centre had disadvantages as well as advantages, including loss of privacy. There was always danger that the organization would submerge the individual, that there would be such efficiency in administration as to plan out of existence the human and personal factor in the doctor-patient relationship. The health centre might degenerate into the bad out-patient department at its worst. But let there be widespread experiment. The health centres now proposed were in essence aggregations of doctors' surgeries, not special diagnostic centres to bring to the elbow of the family doctor the facilities of which he stood in need.

Sum Total

What did these proposals in the field of general practice add up to? The conversion of the medical profession sooner or later into a whole-time salaried service under the State? In the public interest the great majority of the profession were opposed to conversion into a technical branch of the Civil Service. (Applause.) Did these proposals point in such a direction? What is the evidence? The Minister, in the Second Reading debate, said that the profession was not ripe for a whole-time salaried service. "There is all the difference in the world between plucking fruit when it is ripe and plucking it when it is green," he said. The remark reminded one of *As You Like It*:

"And so, from hour to hour, we ripe and ripe,
And then, from hour to hour, we rot and rot;
And thereby hangs a tale."

It was the "tale" they were anxious to discover. Mr Greenwood, in reply to an Opposition question, said that he adhered to the Labour Party policy (a whole-time State salaried service) put forward in 1943. What was the Government's policy? The country was entitled to know. The Parliamentary Secretary of the Ministry of Health has placed beyond all doubt what the policy of the Labour Party meant by free choice of doctor. He had said in the debate that "a full-salaried service is inconsistent with free choice of doctor." But the Government seemed "to be committed to both."

Finally a reference should be made to the wide powers given to the Minister under this Bill. Out of 74 clauses 29 empowered the Minister to make the regulations which were the flesh of the scheme, the Act being no more than its skeleton, and most of the regulations became law from the moment they were laid on the table of the House, needing Parliamentary action to annul them.

Dr Hill said in conclusion

"The medical profession approves the objective of this Bill. It is entitled to be heard, considered, and consulted in the working out of the scheme, for without its co-operation no effective scheme can be framed. It is itself committed to the extension and improvement of health services. It has been pressing for these for many years, long before politicians of any party thought that the health service was a subject to be tackled. It welcomes, too, the conciliatory way in which Mr Bevan put forward his proposals, especially remembering the temptation he must have been under to use that ironic and invective of which he is a master. We hope that in the Committee stage he will make such changes as will secure, within the general objective, the essential freedoms—for the patient, for the doctor, for the local hospital—for which we ask, and so gain support of the medical profession."

"The resources and organization of the State are necessary for medicine. There must be no economic barriers between the people and the medical services. But are we, in such planning, to evolve a form of service which will convert the independent doctor into a servant of the State, replacing his responsibility to the patient by responsibility to some superior body? The dilemma is whether within State organization there can be maintained not only the freedom of the public, but freedom, intellectual and other, for the doctor, freedom for his professional capacity and experience to develop. Does our experience lead us to believe that the State as we know it to-day is so wise, so omniscient, so providential a

depository of human wisdom as to justify the handing over to it in their entirety the hospital and personal health services of this country?

"My experience of our Civil Service is that it is headed by men of great ability and incorruptible integrity, but with sometimes just a slight lack of elasticity. (Laughter.) Is there not a real danger of a service so personal being submerged by administrative regulation and control? There is enough to make us hesitate whether the public interest of a better health service will be served if an independent profession is converted into a technical branch of government. That is the issue which confronts us at present."

The Turn of the Audience

The opportunity for questions was eagerly taken and sometimes, owing to the peculiarity of the auditorium, two or three questions were being asked at once. The first question was "What are the plans of the B.M.A. for the better direction of practitioners?" Dr Hill replied that the Association had no plans for direction, but only for a better distribution. Where there was inequality of distribution it was largely due to the poverty of areas or to thinness of population. In unattractive areas, urban or rural, the Minister by adapting the terms of service could attract into such localities the needed practitioners. If there still remained undoctored areas he could directly appoint practitioners. Indeed, the right to make such appointments had existed for thirty years under N.H.I., and had only once been exercised. What we do not believe to be right is that in every case of a practitioner seeking to settle in an area he should be required to obtain permission of a Whitehall committee."

Asked whether the results of the General Election did not show that the people wanted this measure, Dr Hill said that it was for the people to determine whether in voting for this Government they explicitly committed themselves to these proposals. In the election manifesto of the Labour Party *Let Us Face the Future* no reference was made to a whole-time salaried service under the State for general practitioners, nor to the conversion of hospitals into State establishments, though to be quite fair the statement of Labour Party policy issued in 1943 was clear-cut on this issue. But even if they voted Labour at the election they had as citizens every right critically to examine these proposals.

"If we agree with Dr Hill how are we ordinary people to do anything about it?" Dr Hill replied that, clearly, the Parliamentary situation was a commanding one. At the same time there were indications that Mr. Bevan did not desire or intend the extreme courses which some of his supporters would have him pursue. The individual citizen should study the proposals, make up his mind for himself, talk about them to his friends, and write to his member of Parliament expressing his considered view.

In reply to another question Dr. Hill pointed out the curious reference to research in these proposals. The money spent by the State on medical research at present was one tenth of 1% of the cost of human disease. Another questioner asked whether Dr. Hill or the President of the B.M.A. was speaking the Association's mind, as, according to a press report, the President had expressed himself as welcoming the Bill. Dr. Hill said that he presumed the questioner was referring to a report in the *Daily Express*—a brief report of 10 or 12 lines of a statement said to have been made by the President. It was an abbreviated report, inevitable in the small newspapers of to-day. "A similarly abbreviated press report of what I have said to-day might put me in the same position. I am an officer of the British Medical Association," Dr. Hill continued, "a democratic body, which of aims and represents the views of the great majority of the medical profession, and my job, which I gladly undertake, is to express the views of that body."

On a final question about the hospital position Dr. Hill said that he thought their aim should be, not to try to save the voluntary hospitals as such by a crusade, but to see to it that the State exercised its powers of co-ordination in such a way that the individual character of these hospitals was maintained. "Do not by one sweeping blow convert them into State hospitals without making it certain in your own mind that it will be for the public good." There was a danger that under a State system people of original mind—those temperamental, untidy, unpunctual people—who had contributed so much to medical know-

edge and so to human welfare would find it too difficult, of would be judged by others as too difficult, to remain in the service. Yet it was important to keep these people, and not just to have in the future a profession of people who might think it better to lie low, to pass the buck, to think of superannuation.

Sir Alfred Webb-Johnson, in thanking Dr. Hill for a magnificent speech, referred to the great achievements of Anglo-Saxon medicine—the development of anaesthesia and the working out of antiseptics in an earlier generation, the discovery of insulin nearer our own time, and of penicillin to-day—and asked whether it was likely that the medical profession would come to the people of this country with cheap and tawdry considerations or considerations of self-interest. What they were anxious to ensure was the continuance of that atmosphere of freedom which had produced these and innumerable other achievements. Although he was the son of a general practitioner, he had been divorced from general practice for nearly fifty years, but he had never been more proud of his colleagues engaged in general practice than he was to-day. They had before them the lure of the £66,000,000 for compensation, they had the assurance of State employment with good remuneration and the promise of pension on retirement; yet they had turned from all these things, rejecting the temptation, and valuing their freedom before them all. That made him proud of the men in general practice, and he thought the British public should be proud of them too.

On the following day, May 6, Dr. Hill addressed his twelfth public meeting since the publication of the Bill, attended by more than 2,000 people in the City Hall, Newcastle. He is speaking at Colchester on Thursday, May 9, and later in the month at Hastings, Chester, and Glasgow.

Correspondence

The Health Service Bill

SIR.—In the important leading article entitled "The Press, the Minister, and the Bill" (April 20, p. 612) two points appear to be open to criticism.

1. "The advances of medicine . . . are not in the clinical field but in the laboratory." This may be generally true, but what of the clinical researches of Jenner, Budd, James Mackenzie, and others like them? Further, when the advance has been made in the laboratory its value has to be tested by the clinician to ensure that apparent success is really consequential, not merely accidental. Here is opportunity for the general practitioner and his colleagues, either in the consulting-room, the patient's home, or the hospital associated with the health centre.

2. "The general practitioner does not so much want consultation with another practitioner . . . as with the . . . expert . . ." Though this statement is correct it disregards the value of consultation with fellow general practitioners, a practice probably restricted by the apprehension of a competition that would not exist in a health centre. Many doctors must at times have found these consultations quite as helpful as, if not more so than, the formal meeting with a specialist, and for the benefit of the patient and the convenience of the doctor.

None will dispute that "the incentive to excel professionally needs an atmosphere of freedom." Does not the vocation of medicine not only demand but help to produce its own freedom? This, of course, is only made possible if there is enough time available for deliberation, for discussion, for observation of facts and events, for always in every case and every treatment to ask why. Twenty-five years ago the national medical service proposed conveyed no suggestion of any want of freedom, but need for financial reform forced medical reform into cold storage, until a few years ago these two reforms changed places. Unfortunately there is now a fear that the freedom needed for the useful development of medical reform may have been frozen so long that its life is in danger.—I am, etc.,

Westbury, Wills

CHARLES E. S. FLEMMING.

SIR.—The quality of work of the able doctor of probity will not vary whether payment be by patient, by public authority, or not at all. In raising this issue in your pages Dr.

Winifred Coppard (April 20, p. 622) has perpetuated much of the confusion of thought and false distinctions that are all too commonly displayed in the lay press. The only disadvantage of a State service for this kind of doctor will be the added difficulties and frustrations that arise from regulations designed for the less able and the less incorruptible doctor. Less able but still incorruptible doctors also will present no problem; they will automatically recognize their difficulties and, free from rancour and envy, will engage in more technical branches of the profession, or perhaps take up some other work.

Doctors are not, however, confined to these two categories. Able ones, as well as the less able, exist both of whom may be corruptible. Of these, the able ones will be few. On the face of it, medicine provides, for the able, freedom from financial stringency but very considerable difficulties in the way of achieving wealth. That able minds, in significant numbers, should choose the medical profession for the purpose of making money easily and quickly is inconceivable. By definition they are not so stupid. Once in it, perhaps through the choice of a parent, it is, of course, always possible that money may become the major concern. In private practice the temptation is then to indulge patients who make frivolous demands or to conceal unpalatable truths that might, if revealed, lead to the loss of a lucrative patient. Such men will not be saved by a salaried service where the patient's good will has no cash value. On the contrary, the patients will loose their one hold on the doctor's attention, while the doctor's main stream of energies will be diverted to obtaining the favour of superiors, whence rapid promotion and the higher salary rates may be expected. In general practice this good but corruptible doctor may be flashy, urbane, and hypocritical, but at present he does no great harm and sooner or later he is left with what he desires—the wealthy and comfortable patients. When, however, this same man becomes the clever but corruptible official, he is a menace to the service of which he is a member and to all who work under him.

Lastly there are the bad and corruptible doctors. By implication the enthusiasts for a State service seem to believe that a salary will make them good in both respects. No one, I imagine, would defend this contention seriously. At present in private practice the bad and corruptible doctor is continually having his harmfulness limited by patients who go to other practitioners. But once in a public authority service, there is no known means, other than by promotion, of depriving a man of his position unless he commits some serious offence. A policy of safety first and a diligent study of rules and regulations may save him from doing much positive harm, but the public will suffer from his incompetence, his colleagues will suffer from his jealousy and spleen, and the service will suffer from his inadequacy. Nothing can make him any better, but the security of his job and the knowledge of his deficiencies will discourage him from entering alternative employment. A State salaried service cannot make a bad doctor into a good doctor, or a corruptible man into an incorruptible one. It can substitute money-plus-power for money as an incentive for the corruptible; it may hinder and frustrate the good and incorruptible. It can never transform the bad and corruptible, but it can cherish and protect these from the consequences of unpopularity with their patients.

For persons of good will, especially when they are expressing indignation, it is fatally easy to attribute to those who disagree with them the basest of motives, not seeing in that very tendency the disguised (emotional) thinking of popular oratory and the popular press. Dr. Coppard, with the best of intentions, has not, I believe, realized the artifices of her own technique. It is urgently needed at this time that we should see through such artifices and cease fruitless maligning of each other. The truth is, there are good and bad doctors, good and bad men and women, inside and outside the salaried services. But while there are already salaried services open to all who prefer them, those who find such conditions inimical to their work are not for that reason greedy or corrupt. The basic question is whether the abolition of a system by which the patient himself is the final arbiter of his health problem is likely to favour either the health and welfare of the patient or the efficiency of the doctor.—I am, etc.,

London, W.1.

H. C. SCOTT.

SIR,—I would beg a brief space to make a few remarks about the Bill. First, since we are certain of a State medical service let it be all, whether we like the idea or not, throw in our lot for the advancement of medicine and the betterment of the health of the nation.

Secondly, it is fitting that practitioners should be free to remain outside the new service and continue private practice for that small number of patients who wish to refuse the services offered to them. But for those doctors who elect to participate in the scheme there should, I feel, be no private practice at all provided the salary, whether fixed or on a capitation basis, is sufficient to meet the reasonable expectations of practitioners. From my limited experience of general practice I have been led to believe that people think that panel are not treated so well as private patients, though the same doctor is consulted in each instance. Whether it is a definite policy of doctors to slight the panel or not I cannot say, but the fact remains that many patients believe that the panel treatment and medicines are much inferior to those given by the doctor in a private capacity. Consequently, if under the National Health Service doctors are allowed to practise in a dual capacity many people will, I fear, be misguided enough to consult their doctor, or another doctor, "privately" when they think their illness is serious, fully believing that they cannot be treated efficiently under the National Health Service.

Thirdly, I fully agree with Dr. Cobban (April 27, p. 659) that a full-time salaried service will not destroy initiative. On the contrary, if the financial aspect is taken out of general practice, especially if my previous suggestion is adopted, one would have more time to devote to one's patients. This latter happy state will be reached only when sufficient doctors will have been trained to cope with the additional work of the expanded health services.—I am, etc.,

Medical School, King's College,
Newcastle-upon-Tyne.

J. STANLEY ELWOOD.

SIR,—In considering the National Health Service Bill several salient points must be borne in mind. Firstly, that the measure is as totalitarian as any ever conceived in Nazi Germany; and, secondly, that any policy of "appeasement" or procrastination will inevitably fail as it has done in the past when dealing with dictatorship, whether in Germany, Russia, or England.

The issue is clearly before each one of us in the medical profession. We must be united and make our stand now, before the Bill becomes law. We must use all our strength and our resources not to modify the Bill but to kill it.—I am, etc.,

London, N.W.10

R. M. AYTON-ORMSTON.

The Bill and the Way Out

SIR,—On a solution of the deadlock created by the Bill now before us rest the health of the nation and the hopes of our profession. The "way out" for both the parties concerned is to acknowledge their errors—the Minister his sin of commission and the profession its sin of omission.

The first mistake is that the Bill is born of party parentage—the Minister of Health and a party medical clique—whereas disease is common to all and health is coveted by all, regardless of political complexion. The Minister, being but a layman, has fatally ignored the fact that the brains and good will of the whole profession are essential in organizing our services. It is not remedied by the compensatory device of permitting private practice. This perpetuates the present evil of two types of practice and damns the Bill. People don't pay extra unless they are getting something better in return. Again, the Bill is doomed because the Minister, lacking "the goods" to give in exchange, proffers first-class service in return for the citizen's cash. The situation is ripe for a major social disaster—dispute for his party and the degradation of a noble profession.

But what has the profession done? Hard work, yes; but no reorganization to meet the need of our time. We tried to plan before, and again early in the war, but, to our shame, the effort ended like a dismal six-months' abortion. Our fault lies in offering nothing constructive in place of the Bill. Whereas the Minister's part is to provide the public with the medical service, the organization of our profession needs the technical knowledge of a highly complex science and subtle art and is

outside the province of a layman. "The man who pays the piper calls the tune," but the patron of music does not presume to dictate the composition and disposition of the orchestra.

How can Mr. Bevan redeem the situation? By pronouncing the present premature proposals an interim measure. Let him allow free discussion and amend the Bill so that the few fine features, generally acceptable, remain—e.g., regional organization of co-ordinated hospital services and extension of N.H.I. to the whole family; while letting slide *pro tem.* revolutionary ventures like transfer of hospital ownership and prohibition of sale of practices. Now, when we can scarcely keep the engine turning over, even working 12 to 14 hours a day, is not the time to expose the medical machine to all sorts of new efforts and experiments. To plaster the hoardings with "Stop death on the roads" and raise the death rate from wrecking civilian medical service is glaring inconsistency. Let money be spent where we are sure of profit—on personnel and hospitals. Highly questionable ventures like health centres and cancer clinics might be given a five-years' trial in one or two places. Having thus allayed the fears of both public and profession, let him then turn to the doctors—the technicians—and ask them to thrash out a first-class service and submit it to him and his party medical advisers for scrutiny. On that document and with the profession behind him, he would found and present a final Bill which would earn the undying gratitude of the public and bring unfading renown on him and his party.—I am, etc.,

Bristol.

A. WILFRID ADAMS.

Approved Societies and the Bill

SIR,—There has been much correspondence from medical and lay citizens in the daily and medical press, both for and against the Health Service, but comment, favourable or otherwise, from the approved societies has been conspicuous by its absence. As they have had large control of medical benefit under National Health Insurance, one cannot help wondering what their reaction to the proposed Bill can be.—I am, etc.,

East Kilbride.

J. McLAREN.

The G.P. in Consultation

SIR,—There is one paragraph in your admirable leader entitled "The Press, the Minister and the Bill" (April 20), with which I cannot agree. This paragraph states that the general practitioner does not so much want consultation with another practitioner in a health centre as with the man who has expert knowledge he does not possess himself.

Now that the old-time general consultant has been gradually eliminated from professional life, it is left to the general practitioner to hold the last remaining stronghold of clinical medicine and surgery. In the view you express, and to which I refer, this last stronghold would soon fall. The whole trend of modern medicine is to pass the complaints of each and every patient through a series of water-tight compartments of mechanical and laboratory investigation, the while diagnoses and treatment are postponed for an assessment of the findings. These of themselves are seldom convincing or satisfying, least of all to a general practitioner. And I would submit that there is to-day a plea for the preservation of pure clinical status in medicine which is as strong as any plea for so-called professional liberty.

In war, in spite of all modern devices and aids to destruction, it is on man-power alone that final victory and ultimate peace depend. So, too, in disease it is on man-power expressed in terms of clinical knowledge and experience that the patient's progress and ultimate physical and mental state largely if not entirely depend.

As I see it one of the greatest advantages in the proposed scheme for a new health service is the opportunity it affords for general practitioners to collaborate closely not only with experts and their attendant facilities, but also—equally if not more important—with their fellow practitioners. Would you segregate individual members of the profession still further?

While I am on the subject of a National Health Service, might I suggest that the public be asked to consider the implications arising for them out of the following fact: There are some

patients a doctor would rather attend for nothing than others at a guinea a time.—I am, etc.,

New Buckenham, Norfolk.

R. G. BLAIR.

**** We would certainly not advocate further segregation. On the contrary, we suggest that the general practitioner needs easier and quicker access to laboratory and hospital, and much closer contact with men having knowledge and experience in technical and special subjects —ED., B.M.J.**

Resistant Anaemia

SIR,—In reply to Squad. Ldr. A. G. Rickards's criticisms (April 27, p. 662) of our recent article:

1. The word "resistant" was used as a heading only, and not as a term of classification as he suggests. The subheading and first paragraph made it quite clear that the word was chosen to draw attention of readers to a common confusion of diagnosis, with consequent failure of liver therapy.

2. We are still of opinion that ulcers of the legs, such as we described, in association with anaemia, place the diagnosis of familial acholuric jaundice beyond doubt. The absence of any other local disease, such as venous varicosity, is, of course, assumed. If Squad. Ldr. Rickards can publish details of the one exception to this rule he has seen we hope he will do so, for the case would be of general interest.

3. He is under the "impression" that the colour index in acholuric jaundice is usually about or below unity. We stated that "the colour index is around unity or even above it. Less commonly . . . well above unity." In point of fact, in one case it was 0.9, in four it was 1, and in four it was above unity. Our emphasis was laid on the association of a relatively, or absolutely, high colour index with a small mean cell diameter.

4. We agree that the use of initials in place of names of diseases is, in normal circumstances, undesirable. We must point out, however, that in an article embodying repeated comparison between two diseases the frequent reiteration of the full names in each paragraph is wearisome to the reader. This fact weighed less with us than our deference to the demand of medical editors for the utmost brevity consistent with clarity. For this the squadron leader must blame the severe paper shortage, of which he will become aware on return to civilian life.—We are, etc.,

A. H. DOUTHWAITE.
R. L. WATERFIELD.

London, W. 1.

Iritis in the Rheumatic Affections

SIR,—I have read with interest the contribution by Prof. Arnold Sorsby and Dr. A. Gormaz entitled "Iritis in the Rheumatic Affections" (April 20, p. 597).

The problem of the aetiology and treatment of uveitis faces us in approximately one out of every hundred cases attending an out-patient department of an eye hospital. An elder colleague and teacher said to me recently that he thought he knew as much about uveitis to-day as he did forty years ago. From one whose published work always has the hall-mark of careful excellence, and whose name is now rich in honour, that was an understatement, of course. Nevertheless, our progress has been little. The clinical approach seems to be insufficient. Uveitis occurs in association with a multitude of diseases. The only common factor seems to be that there is an infection going on somewhere, and that the iris and ciliary body suffer from the effects at a distance, as it were. To say that it is a manifestation of bacterial allergy does not take us much further forward, but the evidence does increase to show that the tissues of the uvea, kidney, and joint membranes are specially sensitive to bacterial products. But Bright's disease and acute rheumatism are not commonly found together so far as I know, and certainly iritis is very uncommon in acute articular rheumatism, as the authors have shown from the literature. On the other hand, there is copious experimental evidence and some clinical evidence that the eye can be sensitized to foreign protein.

If we fail then, as we often do, to find a source of infection, what can we do to desensitize the patient? We use tuberculin in certain types of chronic iridocyclitis, often empirically if the truth be told. The results are impossible to assess in terms of anything like a controlled experiment. I find that my colleagues in general medicine use tuberculin very little. Can we

do nothing to desensitize the body to the ordinary coccal infections? The fashion of vaccines seems to have died. This is not a plea to resuscitate them, but a plea for the bacteriologist and serologists to help us to make some real advance in the study of uveitis. Doerr has an attractive hypothesis for the mechanism of immunity and allergy. He suggests that the difference between the normally immune person and the immune and hypersensitive person might simply be that in the former there is plenty of circulating antibody, while in the latter, in a hypersensitive person, circulating antibody is deficient and antibody is being engaged in the tissues themselves. Is immunity as specific as sometimes it has been thought to be?

These are some of the speculations that arise on thinking of iritis, and they are quite frankly beyond the clinician to anything about. It is a long-term job for a team. It is interesting that the salicylates so long used in this disease and rheumatism seem to reduce hypersensitivity experimentally.

In the terms of their paper the authors say, "In an attempt to assess the frequency of iritis in the rheumatic infection 815 patients suffering from various forms of rheumatism were examined for evidence of active, or past, iritis. As 11 patients were seen at clinics for the treatment of rheumatic infections, or in the wards of general hospitals, slit-lamp examinations could not be carried out, and only exceptionally a mydriatic used. The eyes were inspected through a lens under focal illumination: posterior synechiae or inflammatory pigment deposit were taken as evidence of past iritis."

Prof. Sorsby says no mydriatic was used in examining 815 patients for evidence of past iritis. Is he convinced he has not missed some cases of old iritis by omitting the use of a harmless mydriatic? The most accurate statistical analysis and the most rigid application of tests of significance would vitiate if this were so.—I am, etc.,

Glasgow Royal Infirmary.

IAN S. MCGREG

Ocular Decompensation

SIR,—An article in the *British Journal of Ophthalmology* (April, p. 232) by Major E. M. G. Galton, R.A.M.C., draws attention to the change of attitude which has taken place in recent years towards the significance of refractive anomalies of accommodation, and abnormalities of balance. These conditions should no longer be regarded as errors which need necessarily be corrected for the sake of Ocular function being dynamic in nature, Major Galton suggests that we should adopt the language of the cardiologist. A patient with a refractive error develops from it a symptom which he did not have before, we should say that he has become "decompensated," thus implying that he may again become "compensated," or symptom-free; and he points out that in these cases can be treated without glasses.

Unfortunately, though the attitude of ophthalmologists to small errors may have changed, their practice towards patients has not. (By "patients with small errors" I am referring to all those whose unaided vision is adequate but who complain of headaches, tired eyes, or other symptoms brought on by particular use of the eyes.) Generally speaking, such patients are still ordered glasses if they are civilians, or are told firmly that they do not require glasses if they are in the Army. They are not offered any other form of treatment. Seeing that alternative treatment for the relief of symptoms does exist, this means that many people are still ordered glasses unnecessarily. It is not only the optician who shows an inability to refuse glasses to any patient who comes for them.

Stutterheim showed that most of these patients have a deficiency of convergence, and described an excellent technique for convergence training. Also, I personally have found that the principles of relaxation and proper use of the eyes described by the late much-maligned Dr. Bates are definitely helpful in treating these cases. By a combination of these methods, it is my experience that there are very few such patients who cannot be "compensated" for their errors (that is, made comfortable) without the use of glasses. In the *British Journal of Ophthalmology* for December, 1937, the reviewer of Stutterheim's book, *Eyestrain and Convergence*, wrote: "There is no doubt that Stutterheim has blazed a new trail in ophthalmology." It is a trail which few have followed, presumably because the treatment requires time and patience. The refraction has got to be done in any case, and, having done it, it is so much easier

order glasses than to embark on unfamiliar treatment (which old, of course, be carried out by the orthoptists)
; it not time that an enterprising eye hospital expanded its
int department for the treatment and critical study of these
es of "decompensation," to enable us to avoid the unneces-
sary and unphysiological prescribing of glasses for small
ors, by having a better alternative for the relief of symp-
ms?—I am, etc.,
London N.W. 6

RONALD KERR.

Physical Therapy in Mental Disorder

SIR,—This correspondence dealing as it does with matters of
highly controversial nature, has followed the usual course of
ch discussions but the amount of ill informed comment has
ceeded that usually found in a scientific journal. Most of the
iters have used the words "physical" and "psychological"
antitheses, and those who have dared to suggest that the two
ethods may be combined have been more or less ignored.
Dr. D. Waterfield's letter (April 27, p. 664) prompts me to
ter the controversy even at this late stage. His statement con-
rning "these fellow creatures because of the very nature of
eir malady, are the only members of the community who are
capable of voicing their grievances" is not only misleading
it is completely inaccurate. The reference can only apply
certified psychotic patients, who, in most of the modern
ental hospitals, form a very small proportion of those sub-
ected to E.C.T. In this hospital we have, for the past five
ars, been using E.C.T. on a large scale in both psychotics and
ychoneurotics and, contrary to the experience of Dr. Ian
ottowe (April 6, p. 548) we have been very impressed with
e results, which, incidentally, are not assessed with reference
the admission/discharge rate. I am sure that Dr. Waterfield
ould not seriously suggest that a chronic hypochondriac (many
f whom we have treated successfully) was incapable of voicing
is or her grievances!

It would seem, also, that Dr. C. G. Learoyd (March 30 p. 505)
labouring under a misapprehension regarding the Board of
ontrol, which, contrary to his underlying suggestions is very
ell informed concerning the use of this form of therapy in
e many hospitals under its jurisdiction. Neither Dr. Water-
eld nor Dr. Learoyd is a psychiatrist, but it is, to say the least
it, disconcerting to note the statement of Dr. I. Atkin (March
p. 328) that "anyone can quickly learn the technique of
C.T." If he means that it is easy to acquire a knowledge of
erating the machine, I am in complete agreement, but, then,
is also easy to inject epivan or pentothal into the vein of a
atient. It does not follow, however, that the technique of
arco-analysis can be quickly mastered, merely because the
anipulation of the spring calls for no great experience.

I would submit, Sir, that the technique of E.C.T. (as opposed
merely "pressing the button") requires extensive experience
uniformly good results are to be obtained. The dosage used
each case should be assessed in the light of the original
nical findings and modified according to the response pro-
uced. The correct degree of confusion required is a matter
of fine judgment, and this can be attained only after long
amiliarity with the method. Dr. Atkin's reference to the
aining of psychotherapists, taken in conjunction with his re-
marks on E.C.T., would suggest that he does not entertain the
lea of combining the two methods. I would go so far as to
ay that this is essential, for, during the recovery period, the
atient does require psychotherapy if lasting results are to be
btained.

Many correspondents have raised the spectre of fear in refer-
ence to E.C.T., and it is high time that this was laid, once and
or all. Fear is not a normal concomitant of the treatment
less this is carried out by an inexperienced person who may
ot realize all the implications, although he may be quite capable
f handling the machine with a certain degree of dexterity. It
is true to say that the more imaginative patient may suffer from
ome degree of apprehension, but, in the same individual, this
ar would undoubtedly precede almost any form of medical
reatment. The apprehension engendered by the thought of
E.C.T. is nothing compared with that found among patients in
he waiting room of a dental surgeon, but it would be ludicrous
o suggest that, because of this fear—amounting, in some cases,
o panic—dental operations should be abandoned altogether.

Such an attitude would be classed as ridiculous, yet many well-
meaning correspondents express a precisely similar sentiment
with regard to E.C.T.

In my opinion the introduction of E.C.T. is one of the greatest
advances that has been made in psychiatry during this century.
Its employment is, unfortunately, open to abuse, and this treat-
ment should not be relegated entirely to junior medical officers,
as is the case in some hospitals, but should be carried out with
discrimination by, or under the direct supervision of, those
experienced in its use—I am, etc.,

Poolemouth

W. LIDDELL MILLIGAN

SIR,—Quite a number of your correspondents do not seem
to realize that the unpleasantness of E.C.T. can be reduced to
a minimum. Premedication with scopolamine compound
abolishes apprehension and promotes sleeping off the fit, thus
obviating recollection of the actual treatment.—I am, etc.,

Truro

H. PULLAR STRECKER.

Air Disinfection by Iodine Vapour

SIR,—Your annotation on air disinfection (April 20, p. 614)
dealt with a subject of very great importance. I was particu-
larly interested in the work of Drs. Stone and Burnet, who
found that iodine vapour in weak concentration (0.1 part in
1,000,000) inactivated the virus of influenza. I made the same
discovery in a practical way thirteen years ago.

In December, 1932, I iodized the air in all the Chesterfield
Corporation buses by my method. A month later a very severe
epidemic of influenza spread over the country. About the
middle of January half the police force were off duty in this
town, about 60 hospital nurses were in bed with the complaint,
and the industrial life of the community could be carried on
only with great difficulty. But the bus employees were prac-
tically immune—only 6 away through illness out of 300.

The transport manager was so impressed by the result of this
iodine experiment that he decided to adopt the method perma-
nently. That was done and each year the iodine diffusers are
renewed. The cost, which is small, he regards as an economic
proposition. He tells me that never once in all these years
has any bus service had to be curtailed from the absence of
the necessary staff through illness. I wonder if any other bus
undertaking in the country can say that—I am, etc.,

Kenwood, Chesterfield

JAMES A. GOODFELLOW.

Prevention of Transfusion Reactions due to Rh Factors

SIR,—In his valuable article on the prevention of transfusion
reactions due to the Rh factor Dr. F. W. Gunz (April 20,
p. 601) states that there are formidable difficulties in the way
of the ideal—i.e., the Rh grouping of every potential blood recip-
ient. He states that special laboratories are necessary for such a
service as would undertake Rh grouping and the supply of Rh-
negative blood for suitable cases. I can assure him that an
ordinary laboratory such as this hospital boasts can and does
undertake such work and supplies suitable blood to a number
of hospitals and maternity homes in the area. This work is
done at a trivial expense and with but a small addition to the
work of our laboratory staff.

During the past two years nearly 4,000 Rh groupings have
been made and many Rh negative transfusions have been given,
including three to erythroblastotic babies. Our routine is as
follows:

Our transfusion service takes blood each week. ABO and Rh
tests are done of each specimen. Rh-negatives are further tested
for R'. All antenatal cases attending the hospital and those from
the municipal antenatal clinics are ABO and Rh grouped and an
entry made on the antenatal card, the blood taken for W.R.s
providing specimens. This means about 60 or 70 such groupings
weekly, but it is a simple procedure, and it takes no longer to
put up the Rh test together with the routine ABO tests using the
tube method described by Race and Taylor. Non-maternity cases
which may require transfusion can be fully grouped on admission
to the hospital and the appropriate notation made on the ward
record card. Both "O" and "A" blood is stored, and should
transfusion be required for any Rh negative patient, suitable blood is
almost always at hand and no time need be lost in emergency.

In the series investigated in this hospital no fewer than four high-
titre anti Rh₀ (D) sera have been found: the first in a soldier
transfused in France prior to admission to a local hospital; the
remainder in obstetric cases, mothers of the above mentioned

erythroblastotic babies. Each mother willingly donated 500 ml. of blood, and from this the serum, suitably diluted and absorbed with the appropriate saliva, has enabled us to continue Rh groupings and to increase our stocks of anti-Rh serum far beyond our own requirements.

The main objection to this routine Rh testing has been said to be the small amount of high-titre serum available. I cannot help feeling that this is wrong. We have in our refrigerators enough Rh serum to group many scores of antenatal and blood donor panels, and any hospital or clinic wishing to start such tests will willingly be supplied with two active sera. Routine testing can be done with either serum and the negatives checked with the other. In this way the sera can be used economically and with greater confidence.

There can be no doubt that large-scale grouping will lead to the discovery of further samples of potent serum and existing stocks will be replenished from time to time. More importantly, the sensitization of Rh-negative mothers by Rh-positive blood transfusion will be avoided and the appropriate blood for the erythroblastotic baby and the Rh-negative obstetric haemorrhage case will always be available and ready for immediate use.—I am, etc.,

R. A. ZEFLIN,
Medical Superintendent.

St. Mary's Hospital, Portsmouth.

The Incision for Appendicectomy

SIR,—May I be permitted to express my concurrence with the views of Mr. R. H. Franklin (April 13 p. 585) on the subject of the incision for appendicectomy, with one important exception. This is in regard to his hard-and-fast distinction between McBurney's and Rutherford Morison's incisions. I have found advantage in making my skin incision for a gridiron nearer to the external superior iliac spine than is conventional, and also in a direction parallel to Poupart's ligament. This incision can be readily and rapidly extended upwards and laterally by splitting the external oblique and cutting through internal oblique and transversus abdominis muscles—i.e., converted into a Rutherford Morison. In my experience this expedient is seldom necessary. Hence a patient with acute appendicitis can be given the benefits of short convalescence and minimal peritoneal scar in the majority of cases.

Thus in a series of 100 cases of acute appendicitis operated on in 1944 and 1945 I used the paramedian incision on 31 occasions and the gridiron incision on 69. In only 5 of the 69 cases did I find it necessary to extend the incision as a Rutherford Morison. It is perhaps pertinent to add that in order to avoid expanding the incision, in 2 cases the appendix was removed by retrograde dissection.—I am, etc.,

Windsor

BRIAN WEBBER.

Operation for Varicose Veins

SIR,—In pursuance of the policy of pooling information about the operation of simultaneous ligation and injection of varicose veins I beg to report three items.

First, almost every patient under my care after this procedure has a temperature of 98 and 100° F. (36.7 and 37.8° C.) for two to four days afterwards. This in spite of a technique such as I would use for a cartilage, a hernia, or thyroid. I think it must be due to the extensive chemical phlebitis that follows. I regard it as a point in support of the policy of keeping patients under observation for three to four days after the operation, although they are got up for toilet purposes from the evening of the day of operation.

In the use of saturated common salt solution for injection I have had four patients who have had small areas of skin necrosis, two at the apex of Scarpa's triangle, one at the junction of the lower and middle thirds of the thigh. Another patient had an area of dead skin the size of a florin at the back of the calf after ligation and injection of the external saphenous vein. In three cases separation and healing followed uneventfully; in the fourth case the skin necrosis was noted at the end of the operation, so the skin was immediately excised and sutured with primary healing. The practical lesson from this is to spread the injection evenly throughout the length of the varicose vein traversed by the special olive-headed needle (Down Bros.), which I introduce into the vein. It is a rare complication, but it may be advisable to discontinue the use of this

fluid. I am watching the results carefully. It has always followed the retrograde injection and never when the insertion has been from the ankle upwards.

Lastly, I have to report a death in my clinic. A spinal analgesic, which was carefully given, did not work. This was supplemented by a general anaesthetic; collapse occurred during the operation, and the patient, a young man in his twenties, died in the ward half an hour later. The post-mortem showed a well-developed thymus gland. I would make two observations on this: first, that a local or general anaesthetic is the most suitable for this procedure—I do not think a spinal analgesic advisable. Secondly, the operation is a major one and will probably always carry a small mortality. Therefore we must evaluate it correctly to the profession and to the public.

I have recently heard of the report in the daily press of the inquest on a patient who died during an operation for varicose veins, due to the injection of methylated spirit instead of saturated common salt. In future I am using this solution coloured sea blue with indigo carmine to avoid such an error, while concentrated glucose is being tinted with congo red.—I am, etc.,

London, W.1.

HAROLD DODD.

Hospitals for the Aged and Infirm

SIR,—Dr. Mungo Park's letter (April 6, p. 549) is a welcome plea for hospitals for the aged and sick, a subject which is so often treated as a stepchild. During the wartime years the mental hospitals have admitted a very large number of patients with senile dementia, many of them of the simple dementing type who have no real need for special psychiatric treatment. The shortage of suitable accommodation elsewhere has resulted in their being transferred to the mental hospitals, which have provided the only portal of entry through their ever-open doors, even though the overcrowding is deplorable, often being as much as 25% over the already inadequate peacetime accommodation. Much more could be done for senile cases if a constructive policy was followed in which there was a proper means of sorting, initial observation, and specialized care in institutions meant for the purpose. Most of the cases could well be nursed in converted Army camps, such as Dr. Mungo Park has suggested. There is, however, the opportunity for the use of far larger units than those of fifty beds he mentions, as this would not give adequate classification, which is just as essential among the senile states as in other kinds of hospitals.

Making an analysis of 411 fairly recently admitted elderly cases which we are at present investigating, we were able to divide them into four diagnostic groups: (1) the simple dementing, (2) the confusional, (3) affective, and (4) paranoid. We found that the affective group, which was often accessible to conclusive treatment, offered the greatest recovery and discharge rate—namely, 49%—and the death rate recruited mainly from the senile confusional states, roughly 78% of this type dying within one year of admission. Further investigation into our case material revealed that of the 411 patients 135 have been discharged, 155 died in our hospital, and the rest remained with us as chronic material. Out of these latter cases approximately 28% need psychiatric environment; the rest do not.

These figures are suggestive of two needs: (1) that there is an increased need for special psychiatric hospitals for the aged where, with proper treatment, in a number of cases rehabilitation can be achieved; (2) that there is a need, as Dr. Park suggested, for infirmaries where the simple dementing type of seniles who are in no need of special psychiatric treatment could be looked after. The consideration of these two suggestions may offer better opportunities for the treatment of the elderly patients.—We are, etc.,

E. CUNNINGHAM DAX.
F. REITMAN.

Netherne Hospital, Coulsdon.

Spontaneous Hypoglycaemia

SIR,—The communication by Dr. N. G. Hulbert and Mr. R. J. McNeil Love describing a case of epilepsy complicated by hypoglycaemia in the *Journal* of April 20 (p. 603) invites comment and criticism. In this communication we are not given sufficient details with regard to the "attacks," including the one which was witnessed in hospital on Sept. 7, 1942, to be

certain that these "attacks" were in fact due to hypoglycaemic crises. The descriptions of the attacks given by the patient, himself a known epileptic, were not sufficiently clear-cut to establish a diagnosis of hypoglycaemic crises, and without definite additional evidence no other diagnosis except idiopathic epilepsy and habitual hypoglycaemia could have been made. We were told in this communication that the blood sugar on the occasion of the witnessed attack was slightly higher than the basic level found on previous estimations when the patient was free from attacks, whereas it is a known fact that hypoglycaemic crises usually arise due to a sudden fall of the blood sugar below the normal basic level for the patient concerned. Thus in diabetes a sudden fall of blood sugar from a previously high level to even 110 mg. may precipitate a hypoglycaemic crisis, and occasionally normal people have been found with blood sugars fairly steady at the level of 40 to 50 mg. %, without developing unpleasant symptoms. Other clinical evidence in this case was not presented. We are not told whether intravenous glucose actually cut short an attack or whether adrenalin was ever tried for the purpose. The improvement of the patient in his twenty-four hours of post-operative life may seem to most of us problematical, and it would be a strange thing if the blood sugar of any patient failed to rise after a subtotal pancreatectomy. It is noteworthy, as the authors themselves record that the pancreas in this case was normal.

The publication of this case is useful in that it demonstrates that there are other causes of hypoglycaemia besides pancreatic adenomata, and we think that it has another value. There are fashions in medical diagnosis as well as in treatment. Spontaneous hypoglycaemia is a favourite at the moment, and it is our devout wish that, before it runs its course, there will not be too widespread an epidemic of pancreatectomy-cum-splenectomy among the general population.—We are, etc.,

NORA NAISH
J. NAISH

Bristol Royal Infirmary

Tuberculin Therapy

SIR,—Many years ago I published in the *Journal* (Feb. 1, 1913, p. 214) experiments to show that human and bovine tuberculin produce similar effects in the human system to what they do in a culture medium—i.e., human tuberculin produces an increase in the organic acids excreted in the urine, and the bovine produces a reduction of the organic acids excreted in twenty-four hours in the urine. The patient with tuberculous adenitis upon whom the experiments were performed improved with injections of one kind and relapsed with injections of the other kind. It therefore seems to me that a great advance would be made if we could determine easily which kind of tuberculin is required in any individual case.

Whilst I am writing, may I suggest to Dr. H. C. Manning (April 20, p. 627) that "P.T.O." is *Perlsucht Tuberculin Oberstand* and "P.T.R." is *Perlsucht Tuberculin Rückstand*—the one the supernatant fluid and the other the deposit after centrifugalizing a suspension of the bovine bacilli.—I am, etc.,

Blackburn

ARTHUR H. GREGSON.

Stethoscope versus X Rays

SIR,—I should be grateful for space for a few words of explanation in reply to Dr. R. A. S. Cory (April 20, p. 628).

The purpose of my letter (Feb. 2, p. 182) was in no sense a condemnation of radiography as an aid to the diagnosis of pulmonary tuberculosis. It was really in the nature of a protest against the recent tendency to suggest its infallibility either positively or negatively. It is evident that Dr. Cory himself admits that absolute dependence upon radiography would be fallacious. My description of this particular case was prompted by the correspondence which had been carried on between the radiologist and the clinician as to the relative merits of their diagnostic methods. It was evident from this correspondence that radiology claimed a practical infallibility in its ability to give a positive or negative diagnosis. The point of interest in this case was that radiography failed to demonstrate a well-marked pulmonary tuberculosis. It seemed, therefore, worth calling attention to as evidence that too much reliance should not be placed upon x-ray findings, particularly if negative.

Dr. Cory's concluding sentence is not a fair summing up of my views in regard to the value of radiography in tuberculosis. I do not "ask too much" of it since I do not expect anything more of it than an item of evidence one way or the other which might assist in arriving at an accurate diagnosis. Dr. Cory states that he has "no hesitation in saying that the skiagram will reveal many more early lesions than the stethoscope will bring to light." The point of interest is that in this case it failed to do so. So, in all fairness, did the stethoscope, though it had at least aroused the gravest suspicions. It was the microscope that established the diagnosis—I am, etc.,

Oxford

J. FRANKLAND WEST

* This correspondence is now closed—ED. B.M.J.

Deafness from Rubella in Pregnancy

SIR.—In relation to Miss Sylvia M. Martin's letter (April 13, p. 588), the following case may be of interest. A child aged 4 was submitted for psychiatric opinion, suspected of being mentally defective. She was born on Jan. 17, 1942, at full term, with cataracts on both eyes and a congenital heart lesion, and has been totally deaf from birth. Her mother suffered a sharp attack of German measles, for which she received medical attention six weeks before the child was conceived. There is no family history of deafness. There are no gross signs of mental deficiency in the child. Evidence is accumulating which indicates that there is a direct association between rubella during the early months of pregnancy and deafness and other congenital defects in the child. Is there any evidence to suggest that the virus of rubella may damage the unfertilized germ plasma?—I am, etc.

Liverpool

MUIEL BARTON HALL

Obituary

Prof. GEORGE RITCHIE THOMSON, who died in the Edinburgh Royal Infirmary, on March 14, aged 80, was consulting surgeon to the Johannesburg Hospital and formerly professor of surgery in the Witwatersrand University. He graduated M.B., Ch.B. in 1887 and then went to Glasgow, where for several years he was house surgeon and then assistant to Sir William MacEwen. He left this country to serve as a civil surgeon in the South African War, and after its conclusion remained to practise surgery in Johannesburg. During the 1914-18 war he was officer in charge of No. 1 South African General Hospital in France with the rank of lieutenant-colonel, S.A.M.C. He was attached to the South African Division and worked for some considerable time at Abbeville and was awarded the C.M.G. for his war service. He returned to South Africa in 1919 and was the first holder of the chair of surgery at the Witwatersrand University. He retired from active practice about fifteen years ago and made his home in this country in the New Forest. His elder son, Capt. K. Thomson, M.C., is a doctor in the Colonial Service in Northern Rhodesia; his younger son, Commander R. Thomson, D.S.O., R.N., was killed in the war of 1939-45. Prof. Thomson joined the B.M.A. in 1907 and was elected a member of the Witwatersrand Branch Council in 1920.

On April 19 JOHN MORELL WILLIAMS was involved in a motor-cycle accident a few miles from his parents' home. He sustained a severe head injury, from which he died some twenty-four hours later. This Easter was to have been his last holiday before settling in practice at Banbury. He was 32 years of age. The younger son of Dr. and Mrs. Morgan W. Williams, of Morriston, Swansea, he entered St. Thomas's Hospital from Cheltenham College, and qualified M.R.C.S., L.R.C.P. in 1940. After a house appointment at Doncaster Royal Infirmary he joined the R.N.V.R. He saw much service in destroyers, including hazardous convoy work on the northern route to Russia, and numerous trips through "E Boat Alley," in the no less dangerous East Coast waters. He was only recently demobilized. A correspondent writes: John was a charming, kindly, and generous boy whom everyone liked and many loved. He seemed always to extract from life the greatest measure of fun and happiness; his good nature shone around him. All that he did he did well. In his work he had balance and sympathy, and his keen sense of humour enabled him to get full value from the passing scene.

Medical Notes in Parliament

HEALTH SERVICE BILL

SECOND READING DEBATE

Mr. ANEURIN BEVAN moved the Second Reading of the National Health Service Bill in the House of Commons on April 30. The Minister's speech was fully reported in the *Journal* of May 4 (p. 690).

Mr. RICHARD LAW said the Minister had the chance of presenting proposals which would have been welcomed by every party and by every section of opinion, lay or medical. He had preferred to bring to the House proposals which were feared and distrusted by the great majority of those who would be called upon to make them effective. It was a most extraordinary thing that the Minister, who had absolutely no administrative experience of a great Government Department, and who had no great knowledge, either practical or theoretical, of the very important subject-matter with which this Bill was dealing, should have set his own intuition and judgment against all those best informed in the medical profession and in the hospital services. The British Hospital Association and the British Medical Association were opposed to the Bill, so was the British Dental Association, and the three Royal Colleges had criticized it with varying emphasis. The President of the Royal College of Physicians was quite unable to bring the Royal College to endorse his view that the Minister, in taking the hospitals into his own control and ownership, was doing a good thing. Every body of informed and expert opinion outside the House was against the Minister on one part of the Bill or another. The Minister started by talking of sectional and vested interests. It was a monstrous perversion of the ordinary usage of words to describe great, responsible professional bodies such as had been mentioned as vested or sectional interests. He was willing to support any practicable means that would produce a comprehensive and efficient health service. But the Minister could have established a better co-ordinated and far more efficient health service if he had not been determined to sweep away the voluntary hospitals; to weaken the whole structure by removing from the field of local government one of the most important and vital responsibilities of local authorities; and to impose upon the medical profession a form of discipline which was totally unsuited to the practice of medicine, which depended above all else upon individual responsibility, individual devotion, and individual sympathy.

Ownership of Hospitals

The Minister had not given any solid justification for taking over the hospitals. The present hospital service was inadequate from the point of view of a comprehensive service, was badly distributed, and some of its buildings and equipment were completely out of date. But the main reason for this was that the finance had not been available. A hospital had a life and a purpose and an identity of its own; it was not just part of an administrative machine. The regional board should be not a controlling and directing board but a planning board. Then the voluntary hospitals could continue as individual institutions with their own identity.

The Minister had not explained how the regional boards were to be manned. According to the Bill, whatever powers the Minister gave to a board or a committee, he held in reserve authority to withdraw it and concentrate the whole service on himself. It was hardly surprising that most people felt nervous of the tendencies implicit in the Bill.

General Practitioner Service

On this subject Mr. Law said that there were two important principles. The first was that the doctor's only loyalty and only responsibility should be to his patients. The second principle was that, so far as his judgment was concerned, the doctor should be responsible to nobody else but himself, and certainly he should not be responsible to the State. Running through Part IV of the Bill there was a wholesale denial of both these principles. The doctor was to be paid, in part, by the State. He was to work in premises which were owned,

staffed, and managed, if not technically by the State, by the State as represented by the local authority; and his field of work was to be defined for him by the State. Those three things added up to the beginnings of a whole-time State medical service. It was incomplete at the moment, but it was the first step, and the step that counted, towards a full-time medical service. "Will the doctor be a better doctor because he is paid a salary? I say he will be a worse doctor, because all his prospects of material advancement will depend, not on the service that he can render to his patients, but on the impression which he is able to make on his administrative superiors."

The Minister had said that the sale of practices was the sale and purchase of patients. That was humbug. When a doctor bought a practice he was not buying patients. When a doctor sold a practice he was not selling patients, he was not selling bodies; he was selling the goodwill he had earned with his patients. By forbidding the buying and selling of practices the Minister was removing one more material inducement which a doctor had to give the best service he could to his patients. The doctor, like the miner or the operative, was bound to be interested in his material conditions, in the welfare of his family, the future of his children. To deprive him, in his practice, of the inducement to improve his material position, to improve the prospects of his children, was to do harm, not to him but to his patients. It would reinforce the tendency already begun, with the payment of the decreasing capitation fee and so forth, to look for a future and remuneration, not to an increase in the value of his practice, not to the impression he made on his patient, but to his administrative superiors. This would have a very harmful effect upon the practice of medicine.

If, by a combination of threats and bribes, the Minister persuaded all the medical profession to work under him in making this Bill effective, the doctors of the future would not be as good as the doctors of to-day. The bad effects of this Bill might not be seen now or in six months' or a year's time, but they would make themselves evident in ten, fifteen, or twenty years' time. Finally, Mr. Law urged the Minister to consider very carefully the points that had been put to him by those who were interested in the hospital services and in the practitioner services.

Two Standards of Treatment

Dr. COMYNS, in a maiden speech, welcomed the Bill. His impression was that, for the most part, the adverse criticism of the medical profession was based on lack of information, or on wrong information. The leaders of the profession had failed to keep abreast of public opinion. The average doctor wanted to do first-class work himself, and not to be just a clerk filling out certificates, or acting as a sorting office for different diseases and illnesses, and having to dispatch his patients to one hospital or another for treatment. He required a decent income and a reasonable amount of leisure. He wanted to work with his colleagues, without the fear at the back of his mind that some part of his practice might be filched from him. Not only the doctor but the public at large would benefit enormously from the Bill. Many doctors were working under the most unsatisfactory conditions both in rural and in urban areas. If health centres were equipped and staffed as they should be, they would offer a tremendous incentive and encouragement to all who worked in them to give of their best.

Dr. Comyns deprecated the fact that it would still be possible for a particular doctor to give two standards of treatment, one within and the other outside the service. When everyone was entitled to free service, it was difficult to see why anyone should want to go to a doctor outside the public service unless he expected a better standard of service than that which the doctor usually gave to his public service patients.

Viscountess DAVIDSON said that doctors were deeply apprehensive, viewing the Bill not from any selfish motive but in the light of how it would affect their individual patients. Many younger men coming into the profession would welcome the Bill because it offered a certain degree of security. They did not know what freedom of action they might be losing, because they were inexperienced. The brilliant men would go abroad to find freedom from interference and scope for their abilities. The family doctor would be replaced by the clinic doctor, and there would be no freedom of choice. The personal and the individual touch would be lost. The Minister seemed

to be determined to prevent doctors from rising to great heights in their profession. He was levelling down standards, and not lifting them up. British medicine had always been in advance of medicine in other countries, but the result of this "most backward plan" would be that it would lose its position and its prestige in the eyes of the world. In her view the Bill was another link in the chain binding us all to the machine of State. It deprived the individual of yet more of his long-fought-for freedom.

Maternity Services

Dr CLITHEROW said that the Bill would give the doctor the opportunity of realizing his ideals while he still had them. Salaries were wanted by many doctors, more especially the younger ones who, quite often, had no connexion with the British Medical Association. The possibility of everyday consultations between general practitioners depended upon the removal of the competition for patients. With salaries as the main basis of remuneration this could easily be achieved.

He asked the Minister if it was his intention to continue with the existing Central Panel Conference, or with any other similar body? Would the Minister consider making such a body a statutory one and specify its constitution, so preventing it from being manipulated by its present parent body, the British Medical Association and presenting the views of the dominant specialist opinion in that body?

The Bill ensured that hospital-booked cases would have antenatal treatment by the obstetrical team responsible for the confinement. Co-ordination of the full maternity service was in the best interests of mother and child. This kind of teamwork kept down maternal and infantile rates. The growing practice of having clinics associated with hospitals was likely to be disrupted if the emphasis was to be on health centre and domiciliary treatment for midwifery under the control of the local authority. The best service for the mother and child was at the hospital level with a co-ordination not possible under the dual system. For maternity purposes the whole service should be continued by a single body. Some means must be found to co-ordinate and not separate the maternity services.

Dr. Clitherow then went on to discuss Clause 32 of the Bill.

"In Clause 32, covering the various practitioners' committees, the Bill states that the Minister 'may recognize' these committees. Could we have an assurance that, where these committees are formed according to the requirements of the Bill, the Minister 'shall' recognize them, and thus do away with the feeling of ambiguity that these apparently permissive words cause in the mind of the layman? I am sure that the medical profession as a whole views with the greatest distaste the making of a special crime, with special and extremely heavy penalties, for the medical man who sells his practice. It is recognized that some steps must be taken to prevent such an offence, but I think that if it is left to the courts to decide whether there has in fact been any attempt to sell a practice, it will be better received by the profession than if it is left to a certificate of the Minister, even though the Bill provides that no prosecution will be undertaken without the consent of the Attorney-General."

Finally he asked for an assurance about Clause 47, which stated that any dispute under the Bill or regulations would be decided by the Minister or a person appointed by him. Was there any right of appeal to the courts, should any person find himself aggrieved by such a decision? Would the Minister give an assurance that the courts would always be available as a last appeal?

Commander MATLAND brought forward a petition signed by over 10,000 people.

"We, the signatories of this petition, having learned that the Government have tabled a Bill which involves the transfer to the State of the buildings, equipment, and invested funds of the several cottage hospitals, urge you to oppose such a measure by every means in your power. We desire that our hospitals shall be allowed to play their part in any scheme for a national health service which does not entirely deprive the hospitals of their local management and local interests."

He suggested that hospital management committees should have individual representation of the various hospitals in their group.

Mr. SARGOOD, in a maiden speech, said that London had twelve medical schools, and he asked the Minister, before finally deciding on the form of a regional board applicable to London, to give it very careful consideration and take into consultation

representatives of the London municipalities. He deplored the continuance of private mental institutions run for private profit. He asked the Minister to consider the setting up of some organization for the bulk purchasing of supplies for the hospital services. The Minister should also try to find a better way of dealing with the safeguarding of the liberty of the subject than by continuing the Board of Control.

Rheumatism

Mr YORK said the Bill did not contain one word about rheumatism, a disease which had a more devastating effect on the industrial and home life of this country than any other. One-seventh of the industrial incapacity in this country was caused by rheumatism. In the spa towns and their doctors were concentrated all the best equipment, knowledge, and facilities for the treatment of rheumatism. The Minister of Health should press on with the work of the advisory committee which his predecessor set up to advise him on rheumatic diseases and their treatment, and should see that the local interest in the spa towns was not wasted and dissipated in his centralizing scheme.

Miss BACON said her experience among ordinary men and women showed that the Minister had overwhelming support for the Bill. The defects were matters of detail. The Bill gave to thousands of people freedom which they had never before enjoyed—to consult a doctor or specialist without thinking of the cost. Most local authorities agreed that it was impossible to organize efficiently a local authority hospital service, which would require joint boards. It was ridiculous for voluntary hospitals to say that since the cost of the hospital services would be defrayed by the Exchequer their extent and quality would be determined by consideration of cost instead of need. Voluntary hospitals in the past had not had money for the improvements they wanted. She hoped we should now see the end of the very long wards, and the provision of small wards with only four to six beds.

There was a limit to the number of patients a doctor might have on his list under the public service, but there was no limit to the number of his private patients. This was open to abuse. If a doctor took on more patients than he could cope with it would not be the fee-paying patients who would suffer. Not only must people get the best, they must also believe they were getting the best.

Students and Teachers

SIR JOHN GRAHAM KERR, speaking of the quality of the recruits to the medical faculties, said some were attracted by the high ideal of administering to the sick, but the ordinary young student was practical, and not swayed entirely by sentiment. The great attraction was the glamour of the prizes—what seemed to them comparative wealth, and dignity, and the possibility of high honour. They were not attracted by safety first, and salaries and promotion by age, but by the great possibilities of their future. If this Bill went through in its present form a large proportion of these brilliant young men would go in for some other line—industry, for example—or, if they were keen on medicine, go over-seas.

These young men had as their teachers the leaders in surgery, medicine, and obstetrics. That was where they got their inspiration. No doubt these teachers in many cases were moved by high ideals, but they knew the practical advantage that came to them from giving their unpaid services in the wards of voluntary hospitals. They knew that these students would tend to come back to their old teachers for consultations or operations. Lister, Pasteur, Jenner were such teachers. If a Government voted into power in a period of post-war unrest and disgruntlement were to force the Bill through Parliament as it stood at present, it would be guilty of treachery to great socialists, the real socialists, who had given of their means for the succour of the poor and needy, and whose memorials were to be seen in the voluntary hospitals of the country.

Mr. A. W. J. GREENWOOD thought the Bill bore evidence of compromise between the interests of the public, local authorities, voluntary hospitals, and the medical profession, but it concentrated not on the prevention but on the cure of disease. Periodic health overhauls at Peckham Health Centre showed that only 1 man in 10 was really fit, 6 people out

of 10 had some disorder of which they were not aware, and 3 people out of 10 were definitely sick. That was a burden we could not afford to carry. The proposed health centres were to be places where the public came only when illness was fairly far advanced. The health centre should be a place to which the public would go for intellectual and physical relaxation and for the active promotion of health.

The anxieties of the voluntary hospitals were completely groundless. The human atmosphere of the voluntary hospital depended entirely upon the personality of the medical and nursing profession and was not dependent upon ownership of the hospital. Men did not go into the profession to make money but, like scientists, teachers, and lawyers, in order to serve their country and their fellow men.

The Government was given a mandate to plan the economic and social affairs of this country. We were embarking upon a period when State control would be extended to a number of spheres of social activity which some would no doubt prefer should remain sacrosanct. The Bill provided an opportunity to give practical demonstration of the beliefs his party had held for so long.

Sir RALPH GLYN deprecated any remarks that indicated that doctors thought only of cash. Doctors had a call to serve their fellow men, and there were few who put their service to their fellows second to their financial position.

He regretted that industrial medicine and care had not been brought into the Bill, and the question of mental care was long overdue. Hospitals for the incurable should be extended, such as those of religious organizations, which should be allowed to contract out of this scheme or be in a position to continue to look after these people.

Nursing was dismissed almost in a paragraph in the Bill. The shortage of nurses was due to lack of recognition. It was important that we should go on recruiting the right type of man into the medical profession. The standard in the past had been high.

More Medical Opinions

Dr. MORGAN did not consider this was his ideal Health Bill, but he liked it. It was the finest Health Bill that could possibly be introduced as a compromise under present conditions. Having heard the discussions in the B.M.A., the T.U.C., and the Socialist Medical Association he realized that the Minister had done as fine a piece of compromise health work as was possible.

He saw nothing in this Bill which would disturb the great relationship between the profession and the public and the profession and the individual patient about which some of his colleagues talked a lot. Many of the things the profession had asked for were in it—national co-ordination and control of research—everything in the Bill would depend on the Minister's regulations, which should be elastic, fluid, and workable. There had not been opportunity for the staff of some institutions to join their own trade union. The regulations should provide on both the professional and the workers' side for joint consultation and negotiating committees at all levels. There were certain hospitals—e.g., the Quakers' Hospital at York—which had special claims and should be allowed to carry on the special form of treatment which they gave. The laboratory, blood transfusion, and research services should not be entirely in the hands of the Ministry, but should include the local hospitals and the research which was done by G.P.s. Ambulance services should be run, if possible, on regional rather than on local authority lines.

Although up to the present there had been no Governmental medical service which had been a success, we could, with democratic regulations, with consultative committees, a good Minister, good administration and department, build a fine health service which would be an example to the world.

The Human Element

Mr. MESSER said that there were two types of social services. The first were mechanistic and affected people in the mass, not so much as individuals. It did not matter very much who administered those services. The second type was the human social service which affected the individual. In that type of social service education and health were important. The atmosphere of the hospital was as important as the cleverness

of the doctor. The patients themselves should be in close individual contact with those who administered. Hospitals, like schools, had individuality.

It was necessary in work of this description that the human aspect should be considered. The Minister said in effect: "I am the final arbitrator in deciding who shall man every stage of administration." The National Health Service Council would be the advisory and planning body. For the Minister to choose the people who were to advise him was right, but when we got to the lower level of the regional board, surely there was something to be said for its being a representative body. Mr. Messer asked, Why this loss of faith in the elective principle? Why should the regional body be a purely appointed body? How was the Minister to decide, from the names submitted to him, who were the best persons for the job? On the elective principle, the patient had some check on administration, whereas accountability, under the Bill, was only to the Minister and Parliament through the Minister.

The Doctor's Responsibility

Sir HENRY MORRIS-JONES said that to those who believed in nationalization this was a good Bill: nationalization of the health service at one short remove. No industry, and certainly no profession, could be improved by nationalization. The Minister had no consultation with any body interested in the measure. The House had never objected to consultations that established a fair measure of agreement.

This was not a National Health Bill at all, but might not inappropriately be called "national ill health" or "national disease service" Bill. The emphasis was on disease. This country had a very great record with regard to the prevention of illness. The death rate had been reduced from 22.7 per 1,000 in 1875 to 11.9 in 1944, the infant mortality rate from 150 per 1,000 50 years ago to 45 per 1,000 to-day, and deaths from typhus fever from 5,000 a year to 54. A large number of health services had not come under the Bill at all—the school medical service, services under the Ministry of Labour, the Home Office, the Ministry of Education, the Ministry of Pensions, and the Board of Trade. There were medical services in practically every Department of the State. Legislation could not create a good medical service. It had to be done by individuals. The Willink plan had the merit that it did satisfy the people who were to undertake the work. It was very unfortunate that the terms of service of general practitioners were not incorporated in the Bill. But what medical men were more afraid of was the loss of their freedom. The art and practice of medicine could only survive in an atmosphere of freedom. Initiative and enterprise in medicine had made a great contribution to the world. The doctor's responsibility was to his patient and not to the State. Some of the members seemed to think that the doctor had no right of his own at all. The doctor had three rights or duties: first, he must bow to the majority of this House; secondly, he had the right as an expert to give technical advice on all matters on which he was in a position to be consulted; thirdly, he had the same right as the miner, the docker, the agricultural labourer, and everyone else in the country to practise his livelihood and to protect the livelihood of his family. It was a very great mistake to think that all medical men had gone into the profession as a pure vocation like clergymen. Large numbers had gone into the profession for economic reasons. They had every right to be consulted at every stage of this Bill and not to have reflections passed on their patriotism. The Minister could have done as much for the health of this country by providing houses as by introducing this Bill. There were not the doctors to work the Bill, nor had we the hospitals.

Resuming the adjourned Debate on the Wednesday, Sir Henry Morris-Jones went on to regret that the Spens report was not available. He asked the Minister to drop the salary altogether from the terms of service, because the whole medical profession regarded the salary as placing them immediately in the position of State servants. The same basic salary would be paid to the inefficient and to the efficient, which was why the medical profession preferred the capitation system. The profession would also prefer to retain their goodwill and the right to sell their practices, rather than be given compensation. The distribution of doctors on the whole in this country was a fair one. There was direction under the Bill, both nega-

tive and positive. It was the first time that direction had been imposed under a statute of this country on any body of its people as a permanent measure. The negative direction was that no medical man or woman would be allowed, except by the consent of the committee—which would be the Minister—to remove from the place where he or she happened to be when the Act came into force.

He was afraid of the dull uniformity that ran through the whole scheme. It might very possibly become a utility scheme with a utility service under which doctors would sign and certify more and more, and be treating less and less and curing less and less. If the Minister would amend his Bill so as to do away with direction, to bring about a greater share in the administration of the Bill by the people who would have to work it, to encourage more interest in the voluntary and local hospitals, by allowing them a greater measure of control over their finances, with less central direction, and to create a general medical practitioner service, comprising a body of people who would work happily and with enthusiasm then he might be able to make this Bill workable. If he was unable or unwilling to make concessions the Bill would be unworkable.

Professional Self-government

Mr KEY, the Parliamentary Secretary to the Ministry of Health, said that the only argument advanced against the Bill seemed to be that it was right to conscript the labour and lives of men in a war against evil abroad, but it was wrong to conscript buildings and institutions in a war against disease at home. Every hospital or hospital unit was to have its own committee of management, and the members of that committee would not be black-hearted, black-hatted bureaucrats from Whitehall. They were to be appointed not by the Minister but by the regional board of the area concerned, after consultation with the local health authority, the local executive committee in charge of the practitioner service, the existing voluntary hospitals, and the senior professional staff in the hospitals themselves. The regional boards with their local management committees would enjoy a high degree of independence and autonomy within their own field. Each of the regional boards would have at its disposal an appropriate share of the present endowments of the voluntary hospitals, which were to be transferred into a central hospital endowments fund and redistributed according to the need of each region. The regional boards would be able to spend this money, or hand it over to local management committees to spend as they thought best, without any kind of detailed instruction or restrictive regulations from the centre. People appointed to the regional hospitals boards would not be there merely as representatives of local authority interests, but would be selected for their knowledge of hospital needs and hospital problems and be interested in hospital development, and not retarded all the time by considerations of a local character, particularly the incidence of local taxation. This hospital service was to be a national service available to all, and it was not going to be crippled by being made to conform to the present restricted areas of local administration, nor could its evolution wait on some as yet undetermined, reorganization of local government.

Mr KEY went on to describe the composition of the medical practices committee.

"It is to consist of a chairman, who must be a medical practitioner, and eight members, six of whom must be medical practitioners. Of those six, five or a majority of the committee must be actually actively engaged in medical practice. That is called direction. What then, in the name of conscience, would be the definition of professional self-government? Where, may I ask, is there any other service paid out of local funds or out of national funds where any thing approaching that amount of self-government exists?"

Obviously, some control of the distribution of doctors must be established. The B.M.A.'s view that "every registered medical practitioner should be entitled as a right to participate in the public service" was an impossible, impertinent claim. Neither town clerks, city engineers, school-teachers, postmen, dustmen, nor any class of public servants had such a right. The interests of the community demanded that the distribution of medical services should be organized with the claims and needs of patients and not the whims and fancies of practitioners as the guiding factor. The fundamental relationship between doctor and patient would remain what it was now. The *Lancet* had

said that the doctor-patient relationship in modern form needed improvement rather than preservation, it could never be wholly satisfactory while the doctor was not only a friend in need but also a friend in need of his patient's money.

Salary and Capitation Fee

The establishment of the new service would destroy a considerable part, if not the whole, of the value of existing practices. Difficulties of no mean dimensions will, therefore, be created for those whose participation, whose willing co-operative participation, is essential to the success of our service. We therefore think it wise, in the interests of that service, that they should be compensated for the loss they will suffer."

On the question of a salaried service Mr KEY said:

"The medical profession is not yet ripe for such a service, and some check of payment, in proportion to output, is still needed if we are to get from it the efficiency and the effectiveness which the community has a right to expect. That is not my statement. It is the statement of the Secretary of the British Medical Association who said in a letter to the *Times* on April 17 that a salaried medical service 'might tend to replace competition for patients by competition to avoid them.' Second, and more important, a full salaried service is inconsistent with the free choice of doctor to which we have agreed. A large salary cannot be paid irrespective of the work done, and the basis of fairness cannot be introduced into a wholly salaried service under existing conditions without compulsory allocation of the work—that is, distribution of patients among doctors. We regard the free choice by the patients as being the more important principle, and, therefore, we put forward a compromise. We propose the general practitioners' remuneration shall be partly basic salary and partly capitation fee. What the general range of remuneration shall be, what the proportion of salary to fee shall be, what the fee per head shall be are problems which remain to be determined. As has been said, we appointed the Spens Committee, consisting of half doctors and half laymen, to examine what the range of doctors' remuneration should be under the new conditions, and just as we agreed the composition of that committee with the profession, so, when we have their full report, we feel we shall be able to settle with the profession the range of remuneration and the component parts of that remuneration."

The responsibilities of local authorities were being strengthened and not weakened by the Bill. It would be welcomed by the poorer housewives who, in many cases, had seen the health of members of their family sacrificed and their own health undermined by care and worry because of the inability through poverty to seek the early help and advice of doctor and of nurse. The Bill would prevent much of that illness and disease which was found among the poorer people to-day and for them the day on which it became law would be a red-letter day indeed. The Bill was part of that great social programme which the people had so positively approved.

Proposed Amendment

Mr WILLINK moved to leave out from the word "That" to the end of the Question, and to add instead thereof:

"This House, while wishing to establish a comprehensive health service, declines to give a Second Reading to a Bill which prejudges the patient's right to an independent family doctor, which regards the development of the hospital services by destroying local ownership, and gravely menaces all charitable foundations by diverting to purposes other than those intended by the donors the true funds of the voluntary hospitals, and which weakens the responsibility of local authorities without planning the health services as a whole."

Mr WILLINK said that he was in total disagreement with the declared view of the Labour Party that "it is necessary that the medical profession should be organized as a national full-time salaried pensionable service." In view of the observations made by the Parliamentary Secretary on the consequences of the application of that doctrine, in destruction of freedom of choice, was it still the policy of the Labour Party? The Parliamentary Secretary to the Ministry of Food said on April 26, 1945, that her idea of the general practitioner service was that it should be clinically supervised by the local authority. The Socialist Ministers in the Coalition Government had, in the words of the White Paper, declared their adherence to this principle. "The sense of personal association which is at the heart of family doctoring must be preserved." Why had the baleful influence of the Minister of Health overthrown the judgment of those far more experienced? There was not a hint in the Labour Party's programme that they proposed to confiscate hospital endowments and destroy the voluntary

hospitals. If that was their intention, it was most dishonestly concealed; as dishonestly as the hospital policy of the London County Council was put forward at a time when they knew they had agreed to give up their hospitals altogether.

He asked, was it not a fact that when the Minister sent for the representatives of the voluntary hospitals he immediately said to them: "I am not prepared to discuss the question of the extinction of the voluntary hospital system"? If so—and the statement was made by their representatives in a letter to him and not contradicted in his private secretary's answer—it seemed a monstrous way of treating bodies which had been promised that they should continue to survive in undiminished vigour. The same attitude was adopted with the representatives of the profession and of the local authorities. Integration was essential, but had been abandoned because the Minister wanted to nationalize hospitals and dared not nationalize the local authority clinics. The Minister was therefore regionalizing what was essentially personal, and it was a bad form of regionalizing. It established a non-elective body subject to the directions of the Minister whenever he chose to give them and covering an area so large that there would have to be two further sub-delegations from it—three bodies, each of which would be able to say: "This is not my responsibility." The public would find themselves forced to submit to the administration of junior civil servants, unable to take the necessary decisions themselves and unable to get meetings of these distinguished regional boards gathered from these huge areas.

It was ridiculous to suggest, as the Minister did, that the planning of this service would be prejudiced by leaving endowments where their donors meant them to be. It was not the regional board but the hospital management committee that should be the real unit in the hospital service; it should be called a "board of governors" and not a mere "managing committee," and should be endowed with legal personality, with its own staff, both medical and nursing, with its own income, and a right to attract gifts and legacies.

Municipal Hospitals

In connexion with municipal hospitals Prof. Henry Cohen had said:

"The more progressive local authorities availed themselves of their opportunity and made such strides in the 10 years preceding the war, since when building has ceased, that there were, in many areas, public hospital services which equalled, if indeed they did not occasionally surpass, the voluntary hospitals of the area."

He also quoted Lord Moran as saying: "It is perfectly true that doctors are working perfectly happily under municipal administration under the Middlesex and Surrey County Councils, and I think that proves that there is nothing inherent in the municipal system which would make doctors discontented." There was nothing exceptional about the citizens of Middlesex or Surrey, and what was done there could be emulated elsewhere. It was only that many of the counties and county boroughs had had insufficient means. The major authorities were just as capable of running a hospital once they were told what sort of hospital it was necessary for them to run, as the regional hospital boards the Ministry was setting up.

"I turn to the proposals in Part IV of the Bill. Do these proposals give us any feeling that there will be an improvement, an enrichment, in the field of general practice? We on this side of the House are bound to remember at all times the view, not yet called back or revoked, of the Party opposite, that general practice should be a full-time salaried pensionable national service." The Parliamentary Secretary had admitted that a full-time salaried service was inconsistent with free choice of doctor, because it would be necessary in such a service to see that the same amount of work was done by doctors whether patients wanted to see them or not. With this Bill regulations could be made under which full-time salaried service could be introduced and free choice of doctor destroyed. The instrument had not been invented which could measure with any reasonable accuracy the extent of over-doctoring or under-doctoring. With the prospect of 100% service the doctors would in fact be most evenly distributed over the country. The risk of their not being evenly distributed was not sufficiently great to justify setting up this most unsatisfactory machinery with a large and most unsatisfactory addition to the criminal law and an expenditure of £66 million.

The Minister had introduced a Bill in which he could turn the general practitioners of this country into what his party still wished them to be—a full whole-time salaried pensionable service. There was no reason why the profession should become part-salaried at the moment except as a concession to Socialist doctrine.

Highway Robbery

Mr. CLEMENT DAVIES said that a great deal of nonsense had been talked about the freedom of choice of doctor and about direction. Doctors had never had as much freedom as they had now, and patients would have an even wider choice when the Bill was functioning fully and properly, and when there was a better distribution of the medical services.

Mr. UNGOED-THOMAS was concerned about the dual system whereby some would be fee-paying patients and others would come in under the general system. Freedom of choice of doctor was almost entirely an illusion—an illusion which had been fostered by the B.M.A. bureaucracy, which so largely misrepresented the interests and the views of doctors. Although it was an illusion, they could afford to pander to it, but not to the extent of bringing into this Bill the pernicious dual system.

Mr. SIDNEY MARSHALL congratulated the Minister on the very smooth manner in which he proposed what was obviously a very carefully prepared measure of highway robbery. If the Minister had considered the system which was adopted in the Education Act, in deciding the position of voluntary hospitals, he might have shown a little more mercy. He thought that the larger voluntary hospitals might have been allowed to carry on with State assistance by means of deficiency grants. He could not see that it was an advance in government to appoint selective regional boards directly under the control of the Minister, and not under the control of the elected representatives of the people.

Beginning of the End

Sir HAROLD WEBBE said that the Bill, the purpose of which was generally accepted, contained in its provisions many deplorable, reactionary, and destructive proposals. The transfer of the hospitals represented an encroachment of the first magnitude on local government, and was the most serious loss it had been called upon to sustain. Those were the words of the great Socialist London County Council, which promptly declared their complete, ready, and cheerful acceptance of the proposals. This was exactly what would happen in any dictatorship country. The local gauleiters had had their orders, and in fact the leader of the London County Council was in such a hurry to carry out his orders that he actually announced in the public press the decision of his party to support unconditionally the Minister's proposals before it was conceivably possible that any one of its members could have had even the White Paper in his possession. That was a fine example of intelligent foresight.

The Bill tore the very heart out of the whole of the local authorities' health services, and it left them emasculated, truncated, deformed, and completely open to future attacks on the autonomy of local authorities. It marked the beginning of the end, even of the major authorities. The hospitals, the whole control of medical services within the local authorities, were to be transferred to regional boards, consisting of men nominated by the Minister—his creatures—serving on sufferance and subject at any moment to direction and regulation by him. If the Bill in its present form reached the Statute Book, at that very moment the Minister would have signed the death warrant of local government as we knew it and would have made a laughing-stock of our claim to be a democratic country.

Voluntary Inbreeding

Mr. SOMERVILLE HASTINGS said that anything that would limit the far-sighted planning of the regional hospital committees, or would limit the influence of the universities and teaching schools, one of which it was proposed should be, so far as possible, situated in each region, would be a disaster. If the hospital management committees had power to appoint doctors and senior staff they were very liable to follow the voluntary hospitals into that inbreeding which had been the curse of the system. There was no reason why local interest, local patriotism, and local pride in a hospital should not be

developed and continued under a municipal or national system as much as under the present voluntary system. About pay-beds, he said that a very strong case could be made for permitting those who wish to buy privacy to pay for a single bedded ward, provided, of course, that it was not needed for a case that required it for medical reasons. If the Minister or the Parliamentary Secretary should need hospital treatment, they would be quite justified in making use of one of these pay-wards because in them they could discuss matters with their officers without the B.M.A. learning of everything that was said. Patients who paid for their treatment would believe they were getting something better, and it would be in the interests of the surgeons and physicians concerned to keep up that delusion, if indeed it was one. This was most undesirable. There should not be two sorts of wards and two sorts of treatment in the same hospital. It might be a convenience to the doctors to have all their patients, private and public, under the same roof, but surely the patients in the hospital were even more important than the doctors.

Lieut.-Col. GAGE said that the proposal to remunerate practitioners by part-salary and a tapering capitation payment was bound to produce a general levelling in the standard of remuneration paid to the general practitioner, and it was not really suitable to any profession, and least of all to the medical profession. The capitation fee alone was a fair method of rewarding the practitioner. He would have preferred to see the global sum of £56,000,000, which was to be spent on compensation of elderly practitioners, used for providing security for the young man at a time when he needed it, which was before he qualified—not after he qualified. If some of that money could have been devoted to the provision of scholarships and other aids for getting the young man through his years of study, then indeed a great deal would have been achieved. He hoped that health centres would not have the effect of removing the queues from the surgeries to the health centres and making them longer queues, because more people would be attending. He hoped, too, that the doctors would be encouraged to go into the homes of the people and would not simply use the health centres as glorified surgeries where they expected everyone to go and wait in rows.

Mr. BOARDMAN thought that Mr. Bevan had paid too high a price by the concession that a doctor who participated in the service could also take fees. A miner would not be convinced that he had the same treatment as the mineowner who could pay for it.

Lord WILLOUGHBY DE ERESBY asked whether it was the intention of the Minister to nationalize war memorials, as Rutland's hospital was also the county war memorial. He (Lord Willoughby) had spent most of last year in a Ministry of Health or a State hospital, in a voluntary hospital, and also in a Canadian Red Cross hospital. Despite much kindness in all three, he had to admit that, given a free choice, the Ministry of Health hospital would be his last choice for further treatment. The system was wrong which did not enable doctors or staff to give just that extra bit of treatment, that extra bit of comfort which were so important when one was ill for months.

Evidence of the Hospital Surveys

Dr. HADEN GUEST hoped the Minister would adhere very closely to the Bill in its present form with its two main provisions of a complete hospital service and a personal medical service for all persons of all ages, insured or uninsured, without exception. If the national health service did nothing more than provide these two things it would be of the very greatest benefit to the health of this country. Poor people who were not in the scope of the panel service would now come into the service and get treatment. Uninsured women would no longer be afraid to consult the doctor because of the bill their husbands would have to pay. And mothers would more readily take their children to the doctor for so-called minor infectious diseases like measles and whooping-cough, the complications of which were considerable.

The necessity for a hospital scheme on a national basis arose from the facts as shown in a recent series of hospital surveys. The voluntary teaching hospitals would retain their independence and their leading position—in fact, an improved position to that in which they were at present, because they would be freer from any financial anxiety.

Mr. WILLINK: "The teaching hospitals will be subject to any direction the Minister may give, the limit to this direction being in no way defined in the Bill."

Dr. GUEST replied that he had not the least fear of any domination by the Minister of Health. Things done by agreement among equals were not the subject of unnecessary fears. The survey for the London area revealed a deficiency of beds for acute medical and surgical cases, for tuberculosis, and for maternity; and very poor provision indeed for the chronic sick. The distribution of hospitals over this area was haphazard. The problem was not one of buildings but primarily of expert medical and nursing staff. During the war, in spite of inadequate numbers of specialists and doctors, we managed, by co-ordinating the work of the voluntary and municipal hospitals, to create an Emergency Medical Service which did most valuable work. It saved thousands of lives and many hundreds of doctors. There was not the slightest reason why we should not do the same kind of thing in peacetime.

Mr. WILSON HARRIS believed that the anxiety which existed centred around two main questions—the future of the family doctor and the treatment of the voluntary hospitals. But if this measure was passed the lot of the ordinary general practitioner in many respects would be easier, and in only a few respects more difficult, than it was to-day. No health centre existed as yet, and it might be some time before any appeared. But when they did there would be nothing to require any doctor to go near one. He could still see patients in his own surgery. If, however, a doctor was wise enough to use the centre he would have his own hours for consultation, his surgery hours, just as to-day. Skill was not the only quality required in a medical man. In no profession was personality rated higher or did it play a greater part. Could not individual hospitals keep their endowments, particularly as the Minister was paying the basic necessary costs of management and operation? It would be the wise and statesmanlike course to leave the endowments to the individual hospitals, and merely take their buildings and fit them into the general scheme. He (Mr. Harris) could not see why local support should not continue. It was a pity that this great measure would not have, on its Second Reading, the support of a united House.

Freedom of Certification

When the debate was resumed on May 2 Colonel STODDART-SCOTT pointed out that the Bill did not provide a comprehensive health service. There was no attempt to co-ordinate the services of seventeen Government Departments. Nor was it a health Bill. It was purely a hospital or a medical service Bill. Only in Clause 16, in six brief lines, was there any positive health provision. They had a Bill which coerced the medical profession and coerced hospitals and local authorities. He thought the Bill contravened one of the promises of the Labour Party at the Election, that if they were returned to power they would set up a Ministry of Housing to deal with housing alone. Instead, there was the Minister giving five minutes only each day to considering the health of the people and spending the rest of his time stopping people building houses. There was anxiety among the people when they found that doctors were to be employed by the State and to be responsible to some statutory body set up by the State, which took its orders from the Minister. Under the National Insurance Bill a man with two children would receive £3 2s. 6d. for an unlimited number of weeks on the certificate from a doctor, and he did not think there should be anything in this Bill which would make his doctor less independent and fearless about certification.

There was nothing immoral in buying and selling medical practices. The present Prime Minister and the present Lord Privy Seal both put their signatures to the Coalition White Paper, which intended to carry on this "immorality." The buying of practices had never been that financial burden round the neck of a young man that it had been described. A medical man, from the day he qualified, could go into a decent-sized practice, and, by paying off the purchase price over a period of 12 years, secure for himself, during the whole of that time, no less than £700 per year. The drawback to men going into medicine was the medical education. £66,000,000 of the taxpayers' money was going to be thrown away so that this bit of party politics could be introduced. It would be better used if it were spent on providing cheaper medical education.

evidence to support the claim; it ought to have asked whether there was any evidence to negative it, and the learned judge found none.

On the other hand, in considering a claim by the widow of a Capt. Bourne, the Minister had sent his reasons to the medical services division of the Ministry to ask whether it agreed, and the division sent the paper back with an endorsement "Medically agreed" signed by one of its doctors. This constituted authentication by a medical man, and therefore made the Minister's reasons evidence. The tribunal, considering it with the claimant's evidence and being advised by its medical member, decided against the claimant. The learned judge found that the tribunal had sufficient evidence for its conclusion.

ACCIDENT IN A DOCTOR'S HOUSE

A Glasgow radiologist, having advised a patient, asked him to let himself out. Some time later the patient was found lying on the basement stairs with a broken spine; he died two weeks later, and his widow and eight children were awarded £1,641 damages by the Court of Session in Edinburgh. Their Lordships found that the passage through which the patient had had to go was dark or badly lit, and that the nearness of the unlighted basement stairs constituted a danger to a person not acquainted with the house; they therefore held that the doctor had been negligent. The law of England and Scotland alike makes the owner of premises liable to take all reasonable steps to protect a person who comes on to the premises by invitation, and a patient visiting a doctor would fall into this category. The Court's judgment was, however, upset on appeal. Lord Cooper, the Lord Justice-Clerk, found on the evidence that the stair light had been lit and the door open. It could not have been foreseen that any normal person seeking to go out would turn away from the lighted portion of the premises in order to explore, unaided, the unlit portions of a strange house. The doctor had no duty to foresee the unaccountable conduct of the deceased, who was himself the author of his fatal misfortune.

The Services

Surg Vice-Adml. H. St. C. Colson, C.B.E., has been appointed an Honorary Physician to the King in succession to Surg. Vice-Adml. Sir Sheldon Dudley, K.C.B., F.R.S., who has been placed on the retired list; and Surg. Rear-Admls. F. J. D. Twigg and H. R. B. Hull have been appointed Honorary Surgeons to the King in succession to Surg. Rear-Admls. C. V. Griffiths, D.S.O., and W. H. Edgar, C.B., O.B.E., respectively, who have been placed on the retired list.

The King of Norway has conferred the Norwegian War Medal upon Temp Surg Lieut. H. H. Kennedy, R.N.V.R. for assistance given to personnel of Norwegian corvettes in difficult circumstances.

The King of the Hellenes has conferred the Greek Distinguished Service Medal upon Temp Surg Lieut.-Cmdr. V. O. B. Gartside, R.N.V.R., for services as medical officer in the Greek destroyer *Adrias*.

Major (Acting) P. A. M. Van De Linde and Capt. R. H. S. Lee, M.B.E., R.A.M.C., and Capt. S. P. Jain and Lieut. Natarajan, I.M.S., have been mentioned in dispatches in recognition of gallant and distinguished services in the field.

The following appointments and mentions in dispatches have been announced in recognition of gallant and distinguished services while prisoners of war:

O.B.E. (Military Division)—Lieut.-Cols. (Temp.) P. C. Dutta and W. J. L. Neal, I.M.S.

M.B.E. (Military Division)—Capt. J. A. Sutherland, R.A.M.C. Majors H. S. Manni, and B. L. Kapur; Major (Acting) L. W. Ashton-Rose; Capt. T. C. Bose, P. V. Ramaniiah, and B. D. P. Rao, I.M.S. Subadar C. Dev and Jemadar S. Singh, and Conductors G. E. McDonald and P. Wolfe, I.A.M.C.

Mentioned in Dispatches—Lieut.-Col. G. D. Malhoutra, O.B.E., Lieut.-Col. (Temp.) B. Chaudhuri, O.B.E., Lieut.-Col. (Acting) K. F. Alford, Majors L. Feinholz and J. O'Neill, Majors (Temp.) A. C. Glendinning, G. A. Graham, M. N. Sardana, and S. A. Hasan, Capt. B. I. Evans, A. M. Best, N. K. Mehra, N. S. Pillay, A. Strachan, B. N. Sudan, and A. K. Thomas, I.M.S. Subadar A. A. Bakhar, Jemadar (now Subadar) A. K. Chanda, Jemadars D. N. Malik, and K. Singh, Cdr. G. McG. Hartley, Sub-Cdrs. R. R. Braganza, M. V. Game, C. H. James, D. A. Plomer, J. J. G. Towers, and T. A. J. Wickham, I.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Died—Surg Lieut. John Morell Williams, R.N.V.R.

¹ *Scotsman*, Feb. 23, 1946.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The E. G. Fearnside Scholarship for clinical research on organic diseases of the nervous system is open to members of the University or of Girton College or Newnham College who are graduates or titular graduates in Medicine, or to graduates or titular graduates in Arts who have passed Part II of the Natural Sciences Tripos. Applications must be sent to the Registry before June 24.

UNIVERSITY OF EDINBURGH

Prof. J. R. Learmonth, C.B.E., has been appointed regius professor of clinical surgery. This chair was formerly held by Sir John Fraser and has been vacant since he became Principal of Edinburgh University. Prof. Learmonth will hold the post together with his present chair of systematic surgery. It is the first occasion on which two posts have been combined in this way at Edinburgh. Prof. Learmonth graduated with honours at Glasgow University in 1921, gaining the Brunton Memorial Prize for the most distinguished graduate of medicine for the year. Following the award in 1924 of a Rockefeller Medical Fellowship he spent a year at the Mayo Clinic in the United States, and in 1928 returned to join the surgical staff of the clinic as a neurological surgeon. From 1922 to 1928 he worked as assistant to Prof. Archibald Young, first in the Anderson College of Medicine, Glasgow, and later in Glasgow University. In 1932 he succeeded Sir John Marnoch as regius professor of surgery in the University of Aberdeen, and in 1939 was appointed to the chair in Edinburgh.

SOCIETY OF APOTHECARIES OF LONDON

At a meeting of the Court of Assistants, with the Master, Dr. Hugh F. Powell, in the chair, Drs. N. S. Finzi and Macdonald Critchley were elected to the Court and took their seats. Dr. J. P. Hedley was reappointed as the Society's representative on the Central Midwives Board.

On March 12, Lord Moran, President of the Royal College of Physicians of London, delivered a lecture entitled "Into Battle" to an audience of about 150 guests. The lecture was followed by the first post-war entertainment to the Members of the Society.

A special meeting of the Court was held, under the chairmanship of the Master, in connexion with the National Health Service Bill.

The Diploma in Industrial Health, *honoris causa*, was granted to: Dr. A. J. Amor, Dr. John C. Bridge, Prof. F. A. E. Crew, F.R.S., Dr. M. Margaret Dobbie-Bateman, Dr. M. W. Goldblatt, and Dr. E. R. A. Merewether.

The Diploma of the Society was granted upon examination to the following candidates: E. T. De Mel, J. S. E. Gilbert, J. J. Maskell, M. Lakner, P. F. Osborne, A. M. Benson, R. Hodgkinson, K. R. Brookes, R. A. Armstrong, E. H. Osborn-Smith.

CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the final examinations, have been granted the diploma of L.R.C.P.Ed., L.R.C.S.Ed., L.R.F.P.&S. Glas.:

Y. Anwar, H. Biggins, M. Bleicher, W. A. Brown, I. S. Bruce, A. M. Buchanan, J. Caldwell, W. Campbell, R. E. Dwork, F. Fleming, N. Katz, S. O. Krause, L. W. Kyrollos, A. McDonald, Catherine McGuigan, R. D. G. MacLennan, I. H. Mathieson, N. Meleca, Edith M. Muggoch, L. R. Orens, G. L. Park, F. R. Roberts, Caroline Y. B. Robertson, D. N. Rosenberg, J. Rusius, Agnes E. Russell, J. Singh, J. W. Tandatnick, T. G. Thomas.

Medical News

The annual general meeting of the British Association of Physical Medicine will be held at the Royal College of Surgeons, Lincoln's Inn Fields, W.C.2, on May 15, 1946, at 5.30 p.m., and will be followed by a dinner in the College.

A meeting of the Tuberculosis Association will be held at 26, Portland Place, W., on Friday, May 17, at 5 p.m., when a paper on "Primary Pleurisy with Effusion—Clinical and Epidemiological Features and After-history of 190 Cases" will be read by Dr. Brian Thompson. At 8 p.m. a discussion on "The Morbidity of Tuberculosis" will be opened by Dr. W. T. Russell and Dr. Norman England.

Dr. Philip Inwald, Dr. Horace Joules, and Dr. Stephen Taylor, M.P., will be the speakers at a meeting arranged by the Socialist Medical Association to be held at Denison House, 296, Vauxhall Bridge Road, S.W., to-day (Saturday, May 11) at 3 p.m. Mr. Somerville Hastings will preside, and the subject will be "The New National Health Service—The Profession and the Public."

In connexion with the bicentenary celebrations of the Middlesex Hospital there will be three lectures at 4.30 p.m. on May 20, 22, and 23: Sir Robert Robinson, P.R.S., on 'Chemistry and Medicine'; Sir Edward Mellanby, F.R.S., on 'The Future of the Medical Sciences'; and Sir Lionel Whitby on 'The Middlesex and Medicine'.

The first post-war reunion of the Edinburgh University Club of London will take place at the May Fair Hotel, Berkeley Street, W., on Wednesday, May 29, at 6.10 p.m., when members may meet the President-elect, the Right Hon. Sir John Anderson, and Lady Anderson. Any member not having received his invitation by May 18 should communicate with the hon. secretary, Dr Bruce Williamson, 12, Wimpole Street, London W.1.

An exhibition of British chemical research organized by Imperial Chemical Industries, will open in London in June. Its purpose is to demonstrate how, under the stimulus of war, British chemists made discoveries of permanent importance to mankind. The exhibition will be held at the Tea Centre, Lower Regent Street (corner of Jermyn Street), London, S.W.1.

The Illuminating Engineering Society has arranged a lighting exhibition on Wednesday and Thursday, May 15 and 16, as part of its session at which papers will be read on wartime applications of light and future development after the war. The programme includes an address on Wednesday at 11.15 a.m. by Prof. H. Hartbridge on light and vision. The exhibition is at the Lighting Service Bureau which adjoins the Institution of Electrical Engineers, 2, Savoy Hill, Victoria Embankment, W.C., where the sessions will be held. The office of the Illuminating Engineering Society is at 32, Victoria Street, S.W.1.

The National Association for the Prevention of Tuberculosis announces refresher courses as follows: Course for medical practitioners and tuberculosis officers at Papworth Village Settlement, June 18-20, fee two guineas for lectures and demonstrations, and two guineas for three nights' accommodation at Girtton College. A course on treatment of tuberculosis will be held at the London School of Hygiene and Tropical Medicine, Keppel Street, Sept. 23-28, fee four guineas. A Newcas-le-upon-Tyne course will be held from Nov. 4 to 8, fee four guineas. Early application should be made to Dr. Harley Williams, Tavistock House North, Tavistock Square, London, W.C.1.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales there was a sharp drop in the incidence of whooping-cough 327, scarlet fever 315, acute pneumonia 219, measles 160, dysentery 81, and diphtheria 48.

The returns for scarlet fever and diphtheria were the lowest for 32 weeks. The fall in scarlet fever was general throughout the country, but the decline in diphtheria was confined to three counties: Durham 17, Northumberland 15, London 14. Whooping-cough was generally less prevalent, except in London and the adjacent counties, where there was no appreciable change. Cases of measles decreased slightly in most areas, Lancashire was the only exception, with an increase of 20.

The notifications of dysentery were the lowest for the past 22 weeks. The chief returns were Lancashire 28, London 22, Surrey 16, Middlesex 15, Warwickshire 13.

In Scotland decreases were recorded in the notifications of measles 351, acute primary pneumonia 90, diphtheria 38, and whooping-cough 29. In contrast there was a rise in dysentery from 32 to 60, due to a small general increase, the only fresh outbreak was in Renfrew County and involved 10 persons.

In Eire there was a decline in the incidence of diarrhoea and enteritis 24, diphtheria 15, and scarlet fever 13.

In Northern Ireland the only change of note was an increase of 13 in the cases of scarlet fever.

Quarterly Returns for Northern Ireland

During the December quarter of 1945 a birth rate of 21.1 per 1,000 was recorded; this was 0.4 more than the average of the five preceding fourth quarters. Infant mortality was only 55 per 1,000 registered births, as against 74 for the five-years average. Maternal mortality was 2.1 per 1,000 births and was 0.9 below the average. The general death rate was 11.2, being 1.6 below the average rate for the five preceding fourth quarters. Deaths from infectious diseases included 66 from diarrhoea and enteritis under 2 years, 13 from whooping-cough, and 5 from diphtheria. Deaths from pulmonary tuberculosis were 166 and from other forms of tuberculosis 51, which totals were 38 and 14, respectively below the five-years average.

Week Ending April 27

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,054, whooping-cough 1,669, diphtheria 389, measles 2,793, acute pneumonia 654, cerebrospinal fever 48, dysentery 163, paratyphoid 5, typhoid 4.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended April 20.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (incl. d. g. London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases, a blank space denotes disease not notifiable or no return available.

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	64	11	29	2	1	73	2	22	4	4
Diphtheria Deaths	415	27	80	39	10	568	19	108	11	14
Dysentery Deaths	189	22	60	—	—	523	77	197	—	—
Encephalitis lethargica acute Deaths	1	—	1	—	—	—	—	—	—	—
Erysipelas Deaths	—	2	35	6	1	—	27	7	3	—
Infective enteritis or diarrhoea under 2 years Deaths	45	6	5	22	3	4*	5	9	2	1
Measles* Deaths	2,392	935	459	39	1	15,901	1312	437	52	24
Orchitis neonatorum Deaths	60	7	10	—	—	6*	6	15	—	—
Paratyphoid fever Deaths	9	—	—	1(B)	—	—	—	—	—	—
Pneumonia influenza Deaths (from influenza)	652	50	4	6	4	573	23	5	2	3
Pneumonia primary Deaths	28	4	—	—	1	11	1	—	1	—
Poliomyelitis acute Deaths	—	25	137	11	1*	—	29	191	12	9
Poliomyelitis acute Deaths	—	—	—	—	—	—	—	—	—	—
Poliomyelitis acute Deaths	5	1	3	1	1	8	1	1	—	1
Puerperal fever Deaths	—	3	5	—	—	—	4	19	—	—
Puerperal pyrexia† Deaths	107	8	5	—	—	167	8	11	3	4
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths	1,051	84	128	12	40	1,356	51	192	22	35
Smallpox Deaths	63	31	—	—	—	—	—	—	—	—
Typhoid fever Deaths	—	3	—	—	1	—	5	1	—	8
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* Deaths	1,607	176	91	25	12	1,212	66	151	56	24
Deaths (0-1 year) Infant mortality rate (per 1,000 live births)	382	51	47	39	14	342	46	56	45	13
Deaths (excluding still births) Annual death rate (per 1,000 persons living)	4,588	652	570	199	136	4,466	600	621	228	115
Live births Annual rate per 1,000 persons living	7,056	997	917	413	271	6,432	674	849	394	292
Stillbirths Rate per 1,000 total births (including stillbirths)	247	34	28	—	—	196	14	26	—	—

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county) and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Imported cases.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: Altholery Westcent, London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Toxicity of Mercurial Diuretics

Q.—A patient aged 50, with weakness of the right heart, developed marked oedema of both legs. An increased dose of digitalis and an injection of 1 ml. of "neptal" were given. Several hours later he became confused, collapsed, and cyanosed, with Cheyne-Stokes respiration and a pulse rate over 100. He was in a state of semi-coma for about twenty-four hours. Treatment by digitalin, oxygen, etc., resulted in improvement. At the end of a week it was decided to administer another 1 ml. of "neptal" as it was considered improbable that it would have caused this reaction. The administration, however, was followed after a short interval by a collapse similar to that previously observed. His condition continued to deteriorate, and he died the following morning. Is such a reaction common?

A.—"Neptal" is the hydroxy-mercury-propanolamide of *o*-carboxyphenoxycetic acid. Acute toxic reactions and sudden death following the injection of mercurial diuretics are well known, though they are very infrequent in relation to the large quantities of these drugs which are now used in cardiac therapeutics. Up to 1942 there had been reported a total of 26 deaths from mercurial diuretics over a period of sixteen years. Death has more commonly followed administration intravenously than intramuscularly or per rectum, but of course the intravenous route is the commonest method of administration and there is no real evidence that reactions can be avoided by giving the drug intramuscularly.

Fatal accidents are probably relatively more common in patients with nephritis than in those with heart disease. Often, in the present case, there have been reactions of some type after a previous injection of the mercurial diuretic, and these reactions should be regarded as warning signals and, as a general rule, should contraindicate further use of the drug. If mercurial diuretics must be given, then a change to another preparation is indicated. Death may nevertheless occur with the first injection, and from this it would appear that the reactions are not allergic or due to sensitization. They are the result of intolerance, or abnormal susceptibility, to the pharmacological effects of the drug.

The exact mechanism of death is probably toxic action of the mercurial diuretic on the cardiac muscle, with terminal ventricular fibrillation and syncope. In most cases death occurs within a few minutes of the injection. Where death is protracted, as in the present case, additional factors, such as digitalis-poisoning due to mobilization of the drug in the blood stream during diuresis, chloride depletion, renal impairment, and faulty excretion of the mercurial, can probably be invoked.

Eye-to-eye Ophthalmoscope

Q.—Can you give me any information about direct-vision eye-to-eye ophthalmoscopes?

A.—I remember seeing and using one of the direct eye-to-eye ophthalmoscopes in 1927. It was a flat, box-like structure and there was a rubber eye-cup at each end—one for the surgeon and the other for the patient. These cups were applied closely to the eyes to exclude light. The artificial illumination inside the box lit up the patient's fundus and a green cross inside the

box. The patient was asked to fix the green cross. The fundus was quite well seen, but the patient found it difficult to keep the fixation steady, and so the view of the fundus was constantly changing. The same difficulty was reported by other observers. I have not seen the instrument in use since, and I believe that it is now difficult to obtain.

Male and Female Homosexuality

Q.—Can you explain the apparent discrepancy in the legal attitude towards female as distinct from male homosexuality? The law seems to treat the latter with great severity, while completely ignoring the former. Is this actually correct, and, if so, why?

A.—The law imposes very heavy penalties on a male who commits sodomy, and lesser but severe penalties on males who together commit grossly indecent conduct not amounting to sodomy. It is, however, not an offence for two women to indulge in homosexual behaviour together in private (if both consent and are over 16), nor is such behaviour a matrimonial offence serving as a ground for dissolution of marriage or judicial separation, as is sodomy (but not gross indecency) in a husband. An attempt was made in the House of Lords to insert a provision in Herbert's Bill (now the Matrimonial Causes Act, 1937) making homosexual conduct by a wife a ground for divorce, but the feeling of the House was so obviously against the amendment that it was withdrawn after very little discussion.

The reason for the discrepancy in the attitude of the law towards the two sexes is a matter of speculation. Sodomy is strongly prohibited by Holy Scripture and has always been a very serious offence in the eyes of the Church and the canon law. Doubtless its connexion with ordure is one reason for this emphatic condemnation, but another reason must be that it tends to diminish the reproduction of the race. The legal prohibition of grossly indecent conduct is designed for cases where the evidence of actual sodomy is not sufficient. Homosexual relations between women are not prohibited by scripture. Another possible reason for the difference is that law has been chiefly made by men, who, though conscious of the evil of male aberrations, have not felt themselves called upon to consider similar practices in women, nor even to admit their existence. (The attitude of the House of Lords to the proposed amendment of Herbert's Bill was a queerly negative one, as though the amendment dealt with a subject that had no real existence and certainly no importance.) Again, homosexual conduct between women does not offend the sense of decency so grossly as does sodomy, and leaves no physical trace. None of these suggested reasons, however, has any traditional authority.

Electrotherapy of Cerebral Thrombosis

Q.—I recently read that hemiplegia due to cerebral thrombosis may be treated by applying a constant galvanic current to the skull over the affected side and to the cervical sympathetic on the same side, the rationale being that the constant current causes vasodilatation of the cerebral vessels. Surely stimulation of the cervical sympathetic causes vasoconstriction and section vasodilatation (JOURNAL, 1938, 2, 667). Has this treatment been tested by others?

A.—I do not know of any literature dealing with this point. The rationale of the "treatment" is far from convincing. Even if dilatation of the intracranial arteries were produced there is no certainty that the area of cerebral softening would be reduced by such a process.

Failure to Menstruate

Q.—A girl aged 16 has so far failed to menstruate. She is apparently healthy, and her breasts and external genitalia are well formed. There is no evidence of haematocolpos or haematometra. Her mother is neurotic, and the girl shows similar tendencies. Is any treatment required?

A.—Since the girl's general health is good, and particularly as the development of secondary sex characters is proceeding normally, no treatment is required to bring on menstruation. The premature application of hormone therapy in these cases is to be deprecated. No harm can result from waiting for at any rate another year.

Antenatal Care of Pauper Patients

Q.—Is a pauper doctor entitled to charge a pauper patient for antenatal examinations?

A.—No. An insurance practitioner's terms of service require him to give "all proper and necessary medical services" of a general practitioner character, excluding attendance at a confinement or attendance within fourteen days after labour for any condition resulting from the confinement. Antenatal treatment of a non-specialist character is regarded as being within an insurance practitioner's contract.

Smokers' Headache

Q.—What effects and what symptoms may be produced by the sudden withdrawal of tobacco in a man aged 37, who has been smoking an average of 30 cigarettes a day for at least twenty years? This patient consulted me for abnormal nervousness with cardiac irregularity. The radial arteries showed slight thickening with tortuosity but were soft and relaxed. The blood pressure was 104/60 mm Hg. There was no cardiac enlargement and the sounds were clear but there were frequent extrasystoles. On giving up smoking at first he felt much better and the nervousness and extrasystoles disappeared, but within a week or two he began to complain of headaches chiefly unilateral (left side) and giddiness on getting up in the morning. The blood pressure now varies between 130 and 140/80 mm Hg. He attributes the headaches to the withdrawal of tobacco since he finds relief within five minutes of smoking a cigarette though this is associated with a return of the cardiac irregularity. Is this view correct or not?

A.—There is fairly general agreement that tobacco raises the systolic and diastolic blood pressure and the pulse rate in most normal and diseased subjects. The blood vessels of the skin are constricted while those of the muscles are little if at all affected. These effects occur during smoking and persist for some little time after this. Occasional cases in which smoking has produced irregularity of the heart, disappearing after giving up the habit, have been reported. It is very unlikely that the phenomena described in this patient are due to the absence of tobacco. It seems unlikely that the rise in blood pressure has been caused by the cessation of smoking but in any case it is still well within the normal range. The occurrence of left-sided headache relieved by smoking is interesting because of the recent suggestion that migraine headache is due to dilatation of the temporal arteries, and that ergotamine tartrate relieves it by constricting these vessels. Is it possible that the headache in this instance is due to a similar mechanism? If so digital obliteration of the temporal artery as it crosses the zygoma on the affected side should relieve the pain. One wonders how many of the phenomena occurring in this patient may be due to the psychological disturbance produced by the attempt to discard an addiction of such long standing.

Powers of M.O.H. in Notifiable Cases

Q.—The answer to the question "What is a carrier?" (March 30, p. 512) states: "The medical officer of health has no power to coerce a carrier as he can a patient suffering from a notifiable disease." What authority has a medical officer of health to coerce such a patient? The Public Health Act 1936 (Section 169) gives a justice of the peace power to make an order to remove a patient suffering from a notifiable disease to a hospital or institution on the application of a local authority (not of the M.O.H. nor of the clerk or the chairman of the local authority) subject to all of the following conditions: (a) circumstances are such that proper precautions can not be taken or are not being taken, (b) that serious risk of infection is involved, (c) that accommodation is available in a suitable hospital, (d) that the consent of the superintending body of the hospital has been obtained.

A.—The above statement is correct but incomplete. Persons arriving by sea (Port Sanitary Regulations, 1933, Art. 31) or by air (Public Health (Aircraft) Regulations, 1938, Art. 16) who are suffering from an infectious disease may be removed to hospital by the M.O.H. on his own initiative. On the other hand, in the case of notifiable disease occurring in a common lodging house the patient may be removed to hospital by the

local authority without the intervention of a J.P. if the conditions stated in the question exist.

In practice, if the state of affairs is so serious under ordinary domiciliary conditions, the removal of a case is too urgent to await the decision of a local authority, which must take days and may take weeks. Every local authority should therefore give a general authorization to their town clerk and/or medical officer of health to act for the authority in an emergency of this kind, subject to a report being made on any such action taken.

Rheumatic Virus

Q.—Are streptococci the main aetiological agents of rheumatic fever and rheumatoid arthritis? Schlesinger and Sign (Lancet 1935 1 1145) reported on a virus associated with rheumatism but van Rooyen, Green and Slater (communication to the Association of Physicians, 1932) were unable to find any evidence for the existence of a rheumatic virus. What is the accepted view on this problem?

A.—The observations quoted consisted of demonstrating particles believed to be elementary bodies or virus particles, in the deposit obtained by high-speed centrifugation of rheumatic effusions (pericardial, etc.). These were said to be agglutinated by the serum of cases of rheumatic fever. Eagles and Bradley (Quart. J. Med., 1939, 8, 173), while confirming the existence of these bodies, found that they were agglutinated by serum from cases of other forms of arthritis, even including gout. The usually accepted present view is that these bodies are of some other nature altogether, they have never been proved—by demonstrating their infectivity—to consist of living virus. There is much evidence of several kinds that rheumatic fever is a peculiar response to infection by haemolytic streptococci and none pointing clearly to any other factor. The aetiology of 'rheumatoid arthritis' is more obscure, and these remarks do not apply to it.

Flitches, Fleas, and D.D.T.

Q.—I want to use D.D.T. on a dog. Can it be mixed in a powder with say zinc oxide, calamine, or starch and, if so in what proportions? I also want to use D.D.T. to protect bacon and hams. Is there an odourless, tasteless solvent? In what strength should it be used, and would it be dangerous to spray it direct on the flitches?

A.—For fleas or other vermin on dogs and other animals D.D.T. can be used in the form of a 10% powder in any inert diluent (talc, kaolin, starch, etc.). There are several preparations of this type on the market with a declared D.D.T. content on the bottle.

The problem of protecting bacon and hams from the cheese skipper (*Platylabus casellus*) which commonly attacks them is more difficult. Since D.D.T. is to some degree poisonous when in solution in oils or fats it should certainly not be sprayed direct on to the hams. In this connexion it may be noted that the Minister of Health said recently in Parliament that, according to present knowledge, there was little risk attaching to the use of D.D.T. in the form in which it is commonly applied—namely, as a powder or a watery suspension. Further investigations were proceeding into the toxicity of D.D.T. in oily solution. In any form D.D.T. should be kept away from food since taken internally it was harmful.

Skin Reactions to Mepacrine

Q.—Can you tell me anything of the aetiology, signs, and treatment of a lichen-planus like eruption associated with the taking of mepacrine?

A.—It has been recognized for some years that the taking of mepacrine provokes a variety of skin reactions in certain individuals who have an idiosyncrasy to the drug. These reactions may take the form of erythematous or eczematous—often weeping and sometimes infective—eruption, but the most distinctive reaction is that resembling lichen planus and commonly assuming a hypertrophic form. The condition may be extraordinarily widespread, involving head and face as well as any or all other parts of the body, including mucous membranes. The head and face are rarely involved in ordinary lichen planus. The condition may be of an extreme hypertrophic and warty type so that the patient looks like a tree-

trunk, but the colour and infiltration and buccal lesions suggest the diagnosis of lichen. All the hair may fall, as I have observed in some cases, and it is stated that scarring may result. Ulceration may also occur, especially about the lower legs, and itching may be marked.

While the condition is of great severity and the appearance of the patient is alarming, there is not, in those cases I have seen, any serious constitutional disturbance. The affection runs a prolonged course of several months and recovery seems to be complete, apart from the possibility of scarring previously mentioned. No specific remedies are recommended as yet, treatment being along the lines of that employed in lichen planus. I have found fractional doses of x rays of value in the later stages.

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Lancet, 1945, 2, 711.

Office of the Secretary-General, Washington; News Notes No. 29, Sept. 30, 1945.

Protein Synthesis

Q.—What is the site of, and what controls, protein synthesis in the body? Is the mechanism known whereby preferential synthesis of predominantly acidic or basic proteins can be influenced?

A.—The cells of the body synthesize the proteins peculiar to their structure and function provided there is a suitable substrate from which to build. Caseinogen is produced nowhere in Nature but in the cells of the mammary gland. The main site for the synthesis of the proteins of the blood plasma is the liver, and Whipple and his colleagues believe that most of the protein synthesis within the body goes on in this organ. The liver may produce those fundamental protein units for body nutrition and use, which are then elaborated by the cells of the body to suit their particular requirements.

The rate of synthesis of protein by the cells is dependent on their special role and on their natural response to growth and to the other requirements of the body—for example, those concerned with reproduction—and on the supply in optimal amount of those amino-acids which the body cannot synthesize. The work of Whipple and his colleagues shows that there is a dynamic equilibrium between plasma protein and cell protein, the protein flow from cell to plasma or from plasma to cell depending on prevailing conditions. Reserve stores of protein out of which the body can produce haemoglobin in anaemia to removal of blood, or plasma protein in hypoproteinaemia, be demonstrated in the dog. Fibrinogen is among the most plentiful of the plasma proteins; liver injury may reduce it and acute infection or tissue injury may raise it. Diet may also modify its level. Protein production in the anaemic and plasma-depleted dog occurs from almost any protein or mixture of essential amino-acids. Whipple and his colleagues consider that it may be found possible to influence the ratio of plasma protein to haemoglobin. They found in dogs that the amino-acids necessary for growth supply the material out of which abundant plasma protein and haemoglobin can be produced, and that the presence of methionine in the mixture tended to favour haemoglobin production, and cystine plasma protein formation.

Haemoglobin cannot apparently contribute to the body protein pool except when the red cell is broken up. Haemoglobin is then saved, supplemented, and recast into new protein, depending on the body's needs. Whipple *et al.* have shown that much of this rescued haemoglobin or globin may contribute to the building of plasma proteins. In their view, then, the circulating plasma protein is the medium of exchange between the protein pool and the haemoglobin, new plasma, or cell protein.

It is difficult to determine what the questioner has in mind with regard to the latter part of the question. The acidic and basic properties of amino-acids are dependent on the relative proportions of carboxyl groups to amino groups. Thus the basicity of proteins is conditioned by the proportion of the diamino-acids—lysine, histidine, and arginine. Lysine must be provided in the proteins of the diet, and there is evidence to suggest that the same is also probably true of histidine and arginine. The basic proteins are the protamines and histones. The nucleoproteins are formed of a phosphorylated organic acid, nucleic acid with a basic protein which is usually a histone or protamine. As a whole the nucleoproteins have acidic charac-

ters although their protein component is essentially basic. Proteins of an acidic character are the phosphoproteins, which have a high content of dicarboxylic groupings.

Protamines form the bulk of the protein of the nucleoproteins of ripe sperm cells and ova. Histones are not so strongly basic as the protamines. They occur in unripe germ cells, in lymphoid tissue, and as globin, the histone of haemoglobin. The most important phosphoproteins are the caseinogen of milk and the vitellin of egg yolk. Their biological function is to provide food material for the developing embryo or the growing young. The acidic character of caseinogen is due to its content of glutamic acid. The synthesis of protamines and phosphoproteins is thus mainly located in those organs which are concerned with reproduction. The questioner will find much of interest in the following articles or books: Whipple, G. H., and Madden, S. C., *Medicine*, 1944, 23, 215; Miller, L. L., *et al.*, *J. exp. Med.*, 1945, 81, 405; Kay, H. D., *Nature*, 1945, 156, 159; *Chemistry of the Proteins*, 1938, by Jordan Lloyd and A. Shore (Churchill); *Biochemistry and Morphogenesis*, 1942, by J. Needham (Cambridge University Press); *Advances in Protein Chemistry*, 1944, edited by M. L. Anson and J. T. Edsall (Academic Press, New York, vols. 1 and 2); Robschey-Robbins, F. S., Miller, L. L., and Whipple, G. H., *J. exp. Med.*, 1943, 77, 375; and Berg, C. P., *Ann. Rev. Biochem.*, 1944, 13, 239.

LETTERS, NOTES, ETC.

Causation of Schizophrenia

Dr. W. LEES TEMPLETON (Highgate) writes: With reference to the conclusion arrived at by your correspondent (March 16, p. 419) that, since the incidence of schizophrenia does not go up in wartime, hardship and stress are *not* the factors which have a causative effect in this condition. One would like to know how the figures for the 1914-18 war were calculated, as one's own experience of such cases some years after the conclusion of the war led one to think otherwise. In a series of well-developed cases investigated in 1923 the conclusion one came to in practically all was that, had there been no stress (and in 90% of the cases this stress was directly due to the war), it was doubtful if, in spite of the hereditary "make-up" present in all but one, any of them would have broken down at all. In other words, left in their own environment their powers of adaptation to the average stresses of normal life would have been adequate. Beyond this average it was not. It will be interesting to learn in later years if the weeding-out of the so-called psychological misfits by the psychiatrists of this war has, in fact, reduced the incidence of psychosis. Industrial psychologists with a long pre-war experience have cast some doubt on the value of many of the tests of the Army "trick cyclists." One hopes that there will be a thorough check up on the cases of psychoses of the next few years with their Army medical history, so that the value of a psychological pre-enlistment investigation may be calculated. After all we are likely to have a large peacetime Army, apart from the value of the findings in the sphere of industrial psychology.

Acute Pancreatitis

Dr. EVA McCALL writes: Mr. Norman Godfrey's article (Feb. 9, p. 203) recalls a case which was under my care in a military hospital during the first world war. The patient was sent to us from an auxiliary hospital in the neighbourhood with the diagnosis "gastritis." When I saw him he was apparently quite comfortable and I could detect nothing abnormal in the abdomen. After a week in bed on light diet and gastric sedatives he was allowed up on ordinary diet, and as the hospital was a clearing station it was decided to transfer him to another hospital in a neighbouring county where beds were less urgently needed. He was passed fit to travel by the orderly officer, but by the irony of fate he was seized with acute pain en route and died before reaching his destination. The necropsy revealed haemorrhagic pancreatitis. At this distance of time it is difficult to recall all the circumstances of the case in detail, but I always blame myself for having failed to make the correct diagnosis and for allowing an abdominal patient to undertake a railway journey.

Proctalgia

"A MEDICAL WOMAN" writes: I have read with interest the various letters which have recently appeared in the *Journal* describing attacks of pain in reference to the rectal area. It was stated by the writers, who are all men, that they had never come across a case in a female. It may therefore be of interest to state that I myself am a victim and frequently suffer from attacks which correspond in every point with those described. My mother also had similar attacks, and so does a female cousin on my mother's side of the family.

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SOME RESULTS OF TRANSFUSION OF BLOOD TO RECIPIENTS WITH
"COLD" AGGLUTININS

BY

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Report to Medical Research Council from the South-West London Blood Supply Depot

Landsteiner and Witt (1926), and later Landsteiner and Levine (1926, 1929), drew attention to the existence of anti-A, agglutinins in the sera of some bloods of subgroups A₁ and A₂B. Landsteiner and Levine (1926) also noted that the sera of some bloods of subgroups A₁, A₂, A₃, A₄, B contained an agglutinin which reacted with bloods of subgroup A₁. This latter agglutinin was designated as a₁, and later by Thomsen (1932) as anti-O. As well as these specific cold agglutinins, Landsteiner and Levine (1926) described non-specific cold agglutinins, or auto-agglutinins, existing in the sera of bloods of all groups. All these agglutinins were generally weak, and reacted best in the cold or at low room temperature.

Such agglutinins under certain circumstances may become active at body temperature (37° C.). The instances described in the literature are as follows:

Anti-A.—Wiener (1941) and Young (1945) have each described a case of acquired haemolytic anaemia in which anti-A, agglutinins active at 37° C. developed after transfusion and were therefore presumed to be immune agglutinins. Race *et al.* (1943) also noted an immune anti-A, agglutinin active at 37° C. in a woman post partum. Young (1945) described in addition a case—a man of group A₁—who received a massive transfusion of group O blood and plasma. Some days later his serum was found to contain an anti-A, agglutinin active at 37° C., presumably derived passively from the natural anti-A, agglutinin of the plasma and the group O blood transfused.

Anti-O.—Davidsohn (1942) has reported a case in which such agglutinins active at 37° C. developed in the serum of a person of subgroup A, after repeated transfusions.

Auto-agglutinins.—Reisner and Kalkstein (1942) described auto-agglutinins active at 37° C. in a case of acquired haemolytic anaemia. Wiener (1942) described another such auto-agglutinin in a child with *Staph. aureus* septicaemia with anaemia, presumably haemolytic. Baar (1945a, 1945b) has noted three cases with acute or subacute liver necrosis and haemolytic anaemia whose serum contained auto-agglutinins active at 37° C. He describes these agglutinins as anti-O, but as they acted in each case also on the subject's own red cells they are, in the present state of knowledge of red cell antigens, probably better termed auto-agglutinins.

Apart from Young's case, in which the anti-A, agglutinin was derived presumably from the transfused group O blood and plasma, all these cold agglutinins active at body temperature can be explained as being the result of a process of immunization or auto-immunization, and naturally occurring atypical cold agglutinins active at 37° C. do not seem to have been described.

The possibility that cold agglutinins played a part in transfusion reactions was in the past a cause of great controversy (see Kilduffe and DeBakey, 1942). In the last five years it has been shown that the cause of most of the severe and hitherto unexplained haemolytic transfusion reactions is the Rh group of antibodies, which are usually warm agglutinins. The problem, therefore, of the cold agglutinins was left largely unsolved, though no well-documented case of a haemolytic transfusion reaction due to a cold agglutinin has been recorded (Wiener *et al.*, 1941). In the present paper some observations are presented which confirm the view that atypical cold agglutinins in-

active at 37° C. do not cause destruction of transfused erythrocytes. The observations also show that such agglutinins may undergo an immune response following the transfusion of blood containing the homologous agglutinogens and become active at 37° C.; they then may cause blood destruction, and must be taken into account in the selection of blood donors.

Case I

This patient, who had a mild hypochromic anaemia as a result of menorrhagia, was of group A₁M. Her serum contained an anti-A, agglutinin with a titre of 16 at 5° C., 2 at 18° C., and 0 at 37° C. After hysterectomy she was transfused with 380 ml. of A₁N blood, carefully warmed, and with 1,000 ml. of group OM blood which was not warmed. A slight increase of titre of the anti-A, agglutinin was noted on the eleventh day after transfusion; the titre was then 64 at 5° C. and 4 at 18° C., but the agglutinin still could not be detected at 37° C. Both the group O and the group A, cells survived normally; about 25% of the cells of each group were present 80 days after transfusion.

Comment.—A patient with anaemia from haemorrhage who has atypical "cold" anti-A, agglutinins in the serum was transfused with A₁ blood. The A₁ blood survived normally. There was a slight increase of titre of the anti-A, agglutinins; the thermal amplitude did not reach 37° C.

Case II

A man aged 58 had over a period of months a series of haemorrhages of increasing severity from a gastric ulcer. He was of group A, Rh-positive, and his serum contained an anti-A, agglutinin whose titre was 4 at room temperature and 0 at 37° C. He was first transfused with group O blood and then, after a biological test (Wiener *et al.*, 1942) had given a negative result, with 430 ml. of A, Rh-negative blood, refrigerator-cold, in half an hour. There was neither clinical reaction nor rise in plasma bilirubin. An attempt to follow the survival of this blood was frustrated by repeated haemorrhages. Within five days, although the anti-A, titre had not altered, no A₁ blood could be detected in his circulation. 500 ml. of group A concentrated red cells was given, also without reaction. For ten days A₁ cells could be detected in his blood, but repeated haemorrhages were occurring. Multiple group O and two further group A transfusions were given without reaction, and A₁ cells were again detectable in his blood. Three weeks after the last group A transfusion the anti-A, titre had risen to 32 at room temperature, but was still 0 at 37° C. The haemorrhage ceased and a successful partial gastrectomy was performed.

Comment.—This case of anaemia from haemorrhage had an atypical "cold" anti-A, agglutinin in the serum. Four transfusions of group A₁ blood were given without incident. There was an increase of the anti-A, agglutinin titre, but a thermal amplitude to 37° C. was not attained. It was not possible to follow the survival of the A₁ blood quantitatively because of repeated massive haemorrhages.

Case III

A woman aged 44, group AB, with menorrhagia due to fibroids, was found to have an auto-agglutinin active at room temperature. A transfusion of 500 ml. of a group B concentrated red cell suspension

was given in 50 minutes. The temperature of the cell suspension was 5–10° C. At the cross-matching test before transfusion the donor's erythrocytes were completely agglutinated by the recipient's serum at room temperature, though not at all at 37° C. There was no rise in the recipient's serum bilirubin immediately after or five hours after transfusion, and 24 hours after transfusion a differential agglutination test carried out on a blood sample from the recipient showed the presence of the expected number of donor's erythrocytes.

Comment.—A case of anaemia from haemorrhage with atypical "cold" auto-agglutinins in the serum was transfused with blood as cold as possible. No haemolysis could be detected, and the transfused blood survived normally.

Case IV

This woman, aged 22, was first seen by us in April, 1942, when she had extensive tuberculosis and a haemolytic anaemia. She complained of cough, pains in the chest, and lassitude. On examination she was pale and slightly jaundiced. There were signs of bilateral pulmonary tuberculosis and enlarged glands in both sides of the neck (with scars of previous excisions) and in both axillae. The spleen was just palpable. In hospital she had a remittent fever to 102° F. (38.9° C.) and a pulse rate of 90 to 120. A blood count on March 17, 1942, had shown: red cells, 1.2 millions per c.mm.; haemoglobin, 26% (Haldane); leucocytes, 4,600, of which 81% were neutrophil polymorphs. Marked anisocytosis and polychromasia of the red cells had been reported.

At the end of March she had been given two transfusions each of 500 ml. of group O concentrated red cells without any appreciable rise in haemoglobin.

On April 23, when seen by us, her haemoglobin was 34% and the plasma bilirubin 2 mg. per 100 ml. Her red cells showed marked auto-agglutination; her blood group was A (later diagnosed as subgroup A₂). A course of transfusions, each of 1,000 ml. of concentrated red cells, was given—on April 24 group O, on April 28 group A, and on May 1 group A. Of the eight group A donors who contributed, seven were traced and found to belong to subgroup A₁. On each occasion cross-matching tests at 37° C. had shown the donor cells to be compatible, and there was no reaction to any of the transfusions.

On May 13, as it was desired to give the patient a further transfusion, her serum was cross-matched with several group A bloods at 37° C. Only one of these was compatible, the others being strongly agglutinated. This compatible blood and the patient herself were then tested, and were both found to belong to subgroup A₁. On account of this it was suspected that she possessed an atypical anti-A₁ iso-agglutinin. Her serum was then put up with a larger series of group A bloods at 37° C. The results confirmed that the iso-agglutinin was specific for A₁ cells.

Fig. 1, showing the anti-A₁ iso-agglutinin titre of the patient's serum at 37° C., demonstrates that there was an immune response to the injection of the group A₁ blood. The magnitude of this immune response makes it seem most probable that an anti-A₁ iso-agglutinin was present before transfusion, active at a temperature below 37° C. The graph gives no indication of an immediate immune response, but, had it been possible to titrate the anti-A₁ iso-agglutinin at lower temperatures before and during the first five days after transfusion, no doubt an increase in titre and thermal amplitude would have been detected.

It is interesting to correlate these observations with the clinical condition of the patient and the haematological findings. On May 8, one week after the last transfusion, she became deeply jaundiced and ill. The liver enlarged down to the umbilicus; the urine contained bile pigment, but the stools appeared normal. The haemoglobin fell from 70% on May 2 to 17% on May 14. On this day there were no demonstrable A₁ cells in her blood, although there were still 375,000 per c.mm. (18% of the original count) group O cells from the first transfusion. The clinical features of sudden increase in jaundice and malaise suggested either a spontaneous haemolytic crisis or a delayed blood-incompatibility reaction. The presence of bile in the urine, which is not uncommon after incompatibility reactions, favoured the latter diagnosis; the complete disappearance of A₁ cells but not of the previously transfused O cells, together with the serological findings, makes the diagnosis practically certain. The patient was at this point again transfused without reaction with 500 ml. of group A₁ blood, 1,500 ml. of group O blood, and 500 ml. of group O concentrated red cells, which raised her haemoglobin to 70% the following day. By this time the jaundice had disappeared. Within the next two weeks the haemoglobin fell steadily to 38%, and then appeared to become stable at a level of 38 to 44%.

Comment.—This case of acquired haemolytic anaemia had in the serum auto-agglutinins and an atypical anti-A₁ agglutinin. When A₁ blood was transfused there was a marked immune response of the anti-A₁ agglutinin. One week after the last group A₁ transfusion, when the thermal amplitude of the anti-

A₁ agglutinin reached 37° C., signs of delayed blood-transfusion-incompatibility reaction appeared with massive haemolysis and elimination of the blood.

Case V

This woman, aged 37, with a full-term pregnancy, had a Caesarean section on July 21, 1942, after the rupture of the membranes. Three days later the temperature rose to 103° F. (39.4° C.). Subsequently *Staph. aureus* was grown from the cervix and *Staph. aureus* and haemolytic streptococci from the abdominal wound. Massive sulphonamide therapy was instituted. As the patient was of group AB, on July 26 1,000 ml. of group AB citrated blood and on July 29 500 ml. of group O blood were given. On July 31 the haemoglobin was 54%, and the leucocytes 12,500 per c.mm., of which 85% were neutrophil polymorphs. The erythrocytes showed slight anisocytosis and poikilocytosis and moderate polychromasia. Three normoblasts and two primary erythroblasts were seen in counting 200 white cells. Fifty-eight grammes of sulphathiazole and 19½ g. of sulphapyridine had been given in the preceding seven days. On Aug. 2 a further 1,500 ml. of citrated group AB blood was given, raising the haemoglobin to 75%. The donors of the last transfusion and the patient were found subsequently to belong to subgroup A₁B. The previous donors could not be traced. By Aug. 17 the haemoglobin had fallen to 38%. A further transfusion was contemplated, but homologous-group blood (AB) was agglutinated on cross-matching at room temperature. Moderate auto-agglutination was also noted (titre 2 at room temperature). Examination of her serum revealed an atypical anti-A₁ iso-agglutinin—titre 32 at room temperature and 8 at 37° C. Two transfusions of group B citrated blood and group B concentrated red cell suspension, both compatible on cross-matching, were given on Aug. 23 and 25. The haemoglobin rose to 62%. A further 62 g. of sulphapyridine and 7 g. of sulphadiazine had by this time been given.

Blood cultures, which had previously been negative, grew *Staph. aureus* on three occasions, the last on Sept. 15. Fifty-four grammes of sulphathiazole were given over four days during this time. She was first seen by us at this point. Transfusions of group B concentrated red cell suspension, 1,000 ml. and 750 ml., were given on Sept. 21 and Oct. 15 respectively, and the haemoglobin rose to 94%. Metastatic abscesses appeared, and were not finally cleared up until January, 1943.

The titre of the anti-A₁ iso-agglutinin was followed at intervals (Fig. 2). On Oct. 11, 77 days after the first transfusion, the thermal amplitude had fallen below 37° C.

On Dec. 2 a biological test (Wiener *et al.*, 1942) with 30 ml. of fresh group A₁N blood was negative. Therefore a transfusion of 450 ml. of A₁N citrated blood plus 200 ml. of A₁N concentrated red cell suspension and 300 ml. of group O MN concentrated red cell suspension was given. It is suggestive that, at the forty-third day after transfusion, whereas 39.5% of the group O cells were still in the circulation, there were only 9% of the group A₁ cells. By the fifty-sixth day all the A₁ erythrocytes had been eliminated, although 29% of the group O were still surviving. At this point the anti-A₁ iso-agglutinin was again active at 37° C., with a titre of 1.

A final course of sulphonamide therapy, 67 g. in nine days, was given, starting Jan. 5, 1943, because of a cross-infection of an abscess cavity with haemolytic streptococci. On Jan. 20, the haemoglobin having fallen to 40%, a transfusion of 500 ml. of group B concentrated red cell suspension was given. On Jan. 29 a biological test with 65 ml. of group A₁N fresh citrated blood gave a positive reaction—the serum bilirubin being 0.24 mg. per 100 ml. before the test and 0.8 mg. one hour afterwards.

Comment.—This was a case of haemolytic anaemia in which, as a result presumably of an A₁B blood transfusion, an atypical anti-A₁ agglutinin reached a thermal amplitude of 37° C. After the thermal amplitude had subsequently fallen below 37° C. a blood transfusion with A₁ blood was given, being well tolerated. Two months later the thermal amplitude again reached 37° C. and the A₁ blood had been eliminated, and a biological test showed that more A₁ blood was incompatible.

Case VI

A woman aged 32, group A₁B Rh-negative, had had a macrocytic anaemia refractory to treatment since her only pregnancy five years previously. She also had neurological symptoms and signs not conforming to the classical syndrome of subacute combined degeneration of the cord or of disseminated sclerosis. For one year she had had attacks of jaundice associated with the passage of urine "the colour of liver extract." Nine months previously she had been in hospital and was given three blood transfusions—the first two of group O, the third of group AB—all of which were followed by the development of jaundice and the passage of bloody urine.

On examination she was slightly icteric and markedly pale; the liver and spleen were not palpable. There were pallor of the optic disks, fine nystagmus on looking to the left, slight wasting of the

hand muscles, muscular weakness more pronounced in the upper than in the lower limbs, sluggish tendon-jerks in the arms, absent ankle-jerks and sluggish knee-jerks, and a positive Babinski response. There were no sensory signs. She had an anaemia of the haemolytic type—plasma bilirubin 3 mg. per 100 ml., reticulocytosis up to 30%, with grossly excessive urobilinogen in the urine. The erythrocyte fragility was not increased. A transfusion of group O Rh-negative blood was followed by haemoglobinuria for three days.

At this stage we were able to examine her blood. Her serum contained an agglutinin, or mixture of agglutinins, which agglutinated

at room temperature the red cells of 130 random bloods but not her own red cells. Three only of the bloods were not agglutinated at 37°C. These were of groups A,N Rh,rh, A,N rhrh, and A,BMN rhrh respectively. Three others were but weakly agglutinated at 37°C., and were of groups A,M Rh,rh, A,N Rh,rh, and A,MN rhrh. With the quantities of serum available differential absorption experiments showed no clear-cut mixture of agglutinins. A bottle of concentrated red cells was made with the two A₁ bloods not agglutinated at 37°C., and approximately 120 ml. was given slowly over a period of one hour without symptoms. A sample was then taken, which showed gross haemoglobinuria and no demonstrable A₁ cells by differential agglutination with anti-B serum. The transfusion was therefore stopped. A transfusion some days later with 400 ml. of reconstituted dried serum was uneventful and gave rise to no haemoglobinuria. The antibody or antibodies responsible for the haemolysis of the transfused blood could not have been anti-Rh agglutinins or "blocking" antibodies, as both Rh-positive and Rh-negative blood were equally eliminated. The properties of the agglutinin resemble anti-O—not the weak anti-O specific for group O and group A₁ blood as originally described, but the strong anti-O as produced by Hirzfeld and Amzel (1940) in the goat by immunization with Shiga antigen which agglutinated bloods of all groups, the group O bloods most powerfully and certain of the groups A₁ and A₂ bloods only weakly. It had the properties of a cold agglutinin in being stronger at room temperature than at 37°C., but the difference in titre was not great—average titre at room temperature 8 and at 37°C. 4. It is notable that bloods apparently compatible by careful cross-matching tests at 37°C. were incompatible *in vivo*.

Comment.—This case of acquired haemolytic anaemia had in the serum an agglutinin which *in vitro* reacted at room temperature with all red cells except the patient's own and at 37°C. with the great majority of bloods; *in vivo* even bloods without reaction at 37°C. were haemolysed. This may have been an anti-O agglutinin.

Discussion

Cases I, II, and III had in their serum natural cold agglutinins. In Cases I and II the agglutinin was of the anti-A₁ variety; in Case III it was an auto-agglutinin. In none of these cases transfused with blood, the red cells of which were agglutinated at room temperature but not at 37°C., was there any suggestion of a haemolytic transfusion reaction, even though, as in Cases II and III, no attempt was made to warm the blood to body temperature; in fact, on two occasions the blood was

purposely given at as low a temperature as possible. Moreover, where estimation of the survival of the transfused red cells was possible, this showed that the transfused blood survived normally. As a result of the transfusions in Cases I and II there was a slight increase in titre of the cold agglutinin. It is possible that if the antigenic stimulus had been applied often enough the antibody response might have been such that the agglutinin would have increased in thermal amplitude to body temperature. This apparently was so in Davidsohn's (1942) case, in which an anti-O agglutinin became active at 37°C. This was a case of repeated haemorrhage treated with multiple transfusions. It is probable that certain individuals are more susceptible to the blood group antigens than others; this is certainly so with Rh-negative individuals, as determined by their antibody response to repeated pregnancy with Rh-positive foetuses or to repeated transfusion with Rh-positive blood.

Nos. IV, V, and VI, in whose sera the atypical antibodies were active at 37°C., were all cases of haemolytic anaemia of the acquired variety—in Cases IV and VI of uncertain aetiology, and in Case V probably as a result of septicaemia. The cases of Wiener (1941),

Young (1945), Reisner and Kalkstein (1942), Wiener (1942), and Baar (1945a, 1945b), noted in the introduction, also appeared to be instances of acquired haemolytic anaemia. It has long been known that cold auto-agglutinins are to be found commonly in the sera of such cases. It would appear that these agglutinins may reach a thermal amplitude of 37°C. as a result of auto-immunization, aided perhaps by transfusions of homologous blood, or that they are associated with the auto-haemolysin responsible for the haemolytic process (Dameshek and Schwartz, 1940), as iso-agglutinins are associated with iso-haemolysins. The mechanism which stimulates the formation

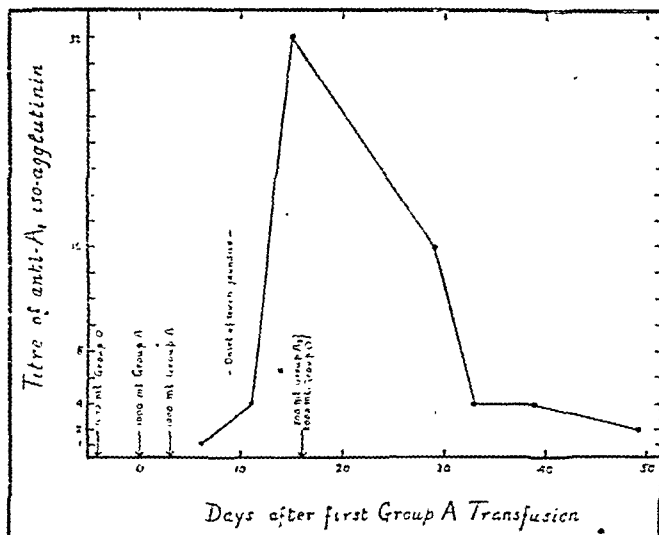


FIG. 1.—Case IV. Immune response of anti-A₁ iso-agglutinin (titrations at 37°C.).

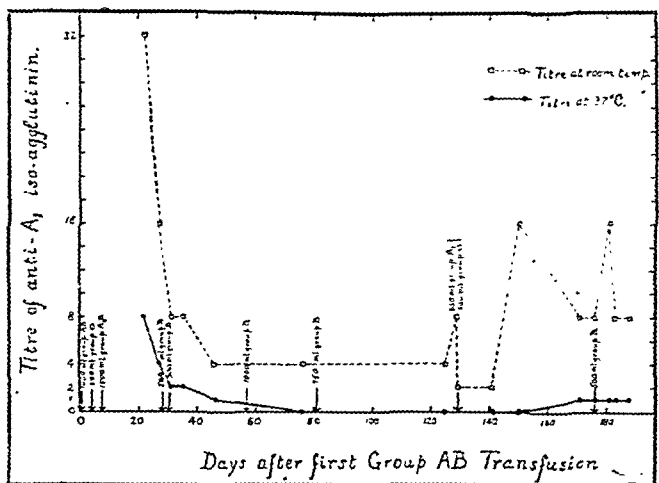


FIG. 2.—Case V. Immune response of anti-A₁ iso-agglutinin (titrations at room temperature and 37°C.).

of these non-specific cold agglutinins probably also stimulates, in the case of the appropriate blood group, the specific atypical cold agglutinins. This may account for the anti-A₁ agglutinins active at 37° C. in Cases IV and V and in the cases of Wiener (1941) and Young (1945).

In the selection of donors for cases of acquired haemolytic anaemia, and for puerperal women (especially the mothers of infants with erythroblastosis foetalis, who are known to be capable of responding to blood group antigens) of groups A and AB, one should therefore take cognizance of the subgroup of donor and recipient as well as of the major group and the Rh group.

The fact that it is possible to obtain by immunization, either by transfusion or by pregnancy, agglutinins specific and active at 37° C. for A₁ blood in recipients of subgroups A₁ and A₂B presents, as pointed out by Wiener (1941), conclusive evidence in support of the theory that there is a qualitative difference between the agglutinogens A₁ and A₂. Hitherto, however, the activity of these atypical agglutinins at 37° C. had been determined by tests *in vitro* only. Thus both Wiener and Young observed their agglutinins during cross-matching tests with A₁ blood, so that trials *in vivo* were not attempted. In Case IV, above, the specific anti-A₁ agglutinin was detected only after transfusion, and a delayed incompatible transfusion resulted, thus proving the specificity and activity *in vivo* of the anti-A₁ agglutinin. In Case V, above, the biological test of Wiener *et al.* also showed that the anti-A₁ agglutinin was active *in vivo*. Case VI illustrates that tests *in vivo* are more reliable than the routine careful cross-matching tests *in vitro*. The biological test of Wiener *et al.* would have demonstrated haemoglobin-aemia even earlier than it was detected in this case.

Summary

Six individuals whose sera contained cold agglutinins were transfused with blood.

In the first three cases, in which the atypical antibody present was a natural agglutinin active only below body temperature and in which the anaemia was due to haemorrhage, there was no clinical reaction even though the blood was transfused at refrigerator temperature; moreover, the transfused blood survived normally.

In the last three cases, in which the atypical antibody was an immune antibody active at 37° C. and the anaemia was of the acquired haemolytic type, incompatibility and rapid destruction of the transfused blood were demonstrated.

Cases of acquired haemolytic anaemia, and other cases in which immunization either by pregnancy or by repeated transfusions has occurred, need special consideration when being transfused. This applies not only to the Rh group of antigens but also to the subgroups of the A antigen.

Acute haemolysis of A₁ donor blood occurred in recipients of subgroups A₁ or A₂B, whose sera contained anti-A₁ agglutinins active at 37° C. This provides further and more conclusive evidence of a qualitative antigenic difference between the bloods of subgroups A₁ and A₂.

We should like to thank the following for permitting us to investigate cases under their care: Dr. Horace Evans, Mr. E. C. B. Butler, Mr. A. Perry, Mr. J. V. O'Sullivan, Mr. A. York Mason, Dr. H. F. Harwood, and Dr. F. Pounds.

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MIGRAINOUS, CILIARY, AND POST-TRAUMATIC DURAL HEADACHES

BY

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The object of this communication, part of which I presented before the Association of British Neurologists in June, 1945, is to stress the fact that three types of neuralgic headaches—migrainous and ciliary neuralgias and many post-traumatic headaches, either constant or recurrent—are susceptible of cure by the treatment of trigeminal block.

The migrainous and ciliary neuralgias, though fairly common, have been mostly neglected as supposedly incurable, the patients being either doped with analgesic and sedative drugs, which often fail even to give temporary relief, or else left alone to bear their recurrent painful attacks, often agonizing for hours or even days, for the long years from adolescence to late middle life, in the hope, often a vain one, that with the passing of the years they will ultimately gain their freedom. The slighter forms of migrainous neuralgia, lasting only a few hours at long irregular intervals, may well be left to carry on with or without analgesic sedatives, but it is the more violent and crippling types, which tend to become more and more frequent and longer-lasting as the years go by, that I claim deserve more drastic treatment, with the hope of permanent cure.

Post-traumatic headaches, following head injuries, also have often been diagnosed as "functional" and denied real treatment, and I wish to emphasize the fact that unilateral persistent or frequently recurring headaches after head injuries may be due to organic dural injury, and may persist for many years unless cured by trigeminal block in a similar manner to that which I describe for the migrainous neuralgias.

Since 1908, when I first began to use alcoholic injection of the main trigeminal branches for the treatment of tic douloureux, I have been able to separate at least three other main types of chronic facial neuralgias, totally different from trigeminal tic in their aetiology and yet often mistaken for it. Two of them are susceptible of cure by the same process of nerve block by destroying the whole or even the inner portion only of the Gasserian ganglion. A fourth type, which I described first in 1921 (Harris, 1921a, 1921b)—glossopharyngeal tic—is curable only by section or avulsion of the ninth nerve. In 1911 I began to use the terms "migrainous neuralgia" and "ciliary neuralgia" to describe two forms of severe unilateral neuralgia, recurrent and sometimes periodic, affecting the region around one eye and temple and upper part of the cheek, and even occasionally spreading behind the ear and down the side of the neck. In some cases the eyeball is the site of the pain, which then becomes congested and lacrimating. This variety of migrainous neuralgia I call ciliary (Harris, 1926b) neuralgia, because of the marked ocular congestion and the ring of peri-ocular reddening around the cornea. The pain differs in type from trigeminal tic in many respects, and instead of lasting only a few agonizing seconds it is sometimes continuous for hours at a time, sometimes for only ten minutes or less; but such short attacks are liable to be repeated frequently—perhaps 20 to 30 times in the 24 hours. Unlike trigeminal tic, the pain is not brought on by the movements of eating, talking, or handling the face. There is often a history of previous migraine in earlier years or in the family, and sometimes nausea is present, though vomiting is rare, and visual phenomena such as precede or accompany classical migraine are never met with. For these reasons I call this type of recurrent neuralgia migrainous rather than migraine, for I look upon it as an anterior type of migraine, and am of the opinion that its pathology is a vasomotor neurosis, sympathetic in origin, of the meningeal vessels, as compared with classical migraine, which appears to affect mainly the posterior cerebral vessels. This view I expressed in 1926 (Harris, 1926b); and again, in 1936 in two papers (Harris, 1936a, 1936b), that the afferent path of the pain was the first and second divisions of the trigeminal nerve, and therefore it was curable by partial Gasserian block of the inner two divisions.

Gasserian Block Injection

Earlier—1911 and onwards—I treated numerous cases of migrainous and ciliary neuralgia by alcoholic piqure in the temple

and of the supraorbital and infraorbital nerves, and many excellent results were obtained, with instant relief, in some cases lasting two to five years. I attributed the good results to reflex shock to the trigeminal system, though about 30% did not benefit. Since 1921 I have increasingly replaced the peripheral suture treatment for true nerve-block by injections of the Gasserian ganglion, and since 1931 I have used Gasserian injection almost exclusively for migrainous and ciliary neuralgias. By this method I have been able to achieve much more certain and longer-lasting relief, in many cases undoubtedly permanent on account of the destruction of the nerve cells in the ganglion, thus shutting off all afferent impressions from the dura by the recurrent meningeal trigeminal-branches. The following case is an example:

Case 1.—Mrs. H., aged 47, had suffered from periodic left supra-orbital neuralgia for four years before I saw her at St. Mary's Hospital in July, 1921. The pain lasted about eight hours daily from January to April in 1917, and again similarly the next year. In 1920 she had a more severe attack; and since then, from noon to 5 p.m., has never been free for a day. On Aug. 4, 1921, I injected the left Gasserian ganglion by the lateral route, causing total anaesthesia at first, which subsequently faded partially. Eighteen years later—on Sept. 28, 1939—she wrote in reply to a follow-up letter that there had never been any return of neuralgia, though the numbness was somewhat less, but she could not eat on the numb side. She was very well, and grateful.

Since that time I have published reports of many other cases of migrainous and ciliary neuralgias (Harris, 1926b) cured by Gasserian block injection (Harris, 1936a, 1940).

Usually it is unnecessary to anaesthetize the outer division or mandibular nerve with alcohol, using only a few drops of 2% novocain solution to numb the chin and lower lip as proof of the correct position of the needle point, and then, passing the needle through the foramen ovale for another $\frac{1}{2}$ in. (6 mm.), it is possible to destroy the inner two-thirds of the ganglion with alcohol alone. Before doing so it is advisable to watch the needle for a few seconds to see that there is no cerebrospinal fluid drip, which would indicate that the point is not in the substance of the ganglion but in the cave of Meckel. Should that be the case, the needle should be carefully withdrawn for about an inch (2.5 cm.), and the point depressed and then again pushed through so as to scrape through the lower margin of the foramen, when it is more likely to remain within the ganglion substance. Then inject 3–5 minims (0.18–0.3 ml.) of alcohol slowly according to the amount of permanent analgesia required. It will be noticed that little or no resistance is felt to the push of the piston—quite different from the resistance felt when injecting the third division at the foramen orifice. Should marked resistance be felt, the point is certainly not within the ganglion. Almost invariably such injection of the ganglion is followed in a very few seconds by marked conjunctival congestion and reddening, which may last for an hour or more. This is probably due to temporary paresis of the sympathetic vasoconstrictor fibres streaming over the dorsal side of the ganglion on their way to the ciliary nerves. Unless this congestion is observed, it is highly probable that the ganglion has not been properly injected, and that any analgesia produced will be temporary only. Thus it is possible sometimes to produce total trigeminal analgesia by injecting as much as 1 ml. slowly into the third division at the foramen orifice; but usually no ocular congestion occurs, and the resultant analgesia of the first and second divisions will probably disappear within an hour or two. Similarly, 3–5 minims (0.18–0.3 ml.) of alcohol into the inner portion of the ganglion is usually insufficient to produce permanent total anaesthesia, including deep pressure sense, and after a few days sensation to deep pressure and touch on the forehead will return, leaving loss of sharpness to pin-prick and loss of the corneal reflex, or even complete analgesia. This is usually sufficient to relieve the recurrent headache completely and permanently, with less danger of keratitis or trigeminal causalgia as a sequel.

Case 2.—A lady aged 43, single, had suffered for five years from attacks of pain like toothache across the right cheek in front of the ear, in the temple, over the eyebrow, side of nose, and cheek, and lately along the lower jaw, with occasional shoots in the side of the tongue. The headaches were daily, and were more or less controlled by tab. codein. co. or A.P.C. tablets. If no tablets were taken the pain would continue for two hours or more. No nausea, and never migraine. Edentulous since age of 18. Sinuses normal. Had had

a bicycle accident about the time the neuralgic headaches started. On Oct. 18, 1945, I injected the right Gasserian ganglion by the lateral route, using a 70-mm. needle, s.w.g. 20. The needle passed straight through the foramen without bone being felt, and C.S.F. dribbled, so the point was withdrawn $\frac{1}{4}$ in. (6 mm.), when the flow ceased. Four minims (0.24 ml.) of 90% alcohol were then injected without using any novocain. No pain was felt, and the face quickly became numb, with total trigeminal analgesia and slight congestion of the eye. Six hours later the third division was completely normal, but the first and second divisions were still totally analgesic, and she was complaining of headache on the left side, but had none on the operated side. Three months later, when I saw her, she was perfectly well, with no recurrence of the neuralgia.

Case 3.—A more instructive case, perhaps, is that of a public-school boy aged 14, whom I saw on Sept. 5, 1945, on account of increasingly frequent recurrent attacks of pain limited to the left eye during the past three years, he having had three attacks in the last ten days. If in a car or train when the eye pain was severe he would generally vomit. He looked very ill during the attacks, which lasted some hours. When 7 years old he was struck a heavy blow with an iron golf club over the left eyebrow, causing a deep cut and subsequent scar. Between the attacks he was quite well and active. There was no ocular congestion with the neuralgia. On Sept. 10 I injected the ganglion by the lateral route, using only 3 minims (0.18 ml.) of alcohol, so as to produce only light analgesia of the ophthalmic division and thus avoid any restriction of his activities at school. Total trigeminal anaesthesia, with no ocular congestion, lasted 24 hours; the next day sensation returned on the second and third divisions. A week later there was only light tactile anaesthesia of the first division, with partial analgesia, so I allowed him to return to school without any eye shade or paraffin eye drops. He had one headache in the first week, but practically no pain since, and when seen on Jan. 4, 1946, there was only light analgesia of V. 1 and V. 2, with diminished corneal reflex, so possibly his cure may be permanent.

Post-traumatic Headaches

It was the resemblance of many post-traumatic unilateral headaches to migrainous or ciliary neuralgia that led me to try the effect of Gasserian block in their treatment, and in the last five years I have thus treated 15 cases in which the unilateral headaches appeared to be the result of head injuries. In some cases the onset of the headaches was several years after the concussion; in others the pain dated from the time of the injury. In some the pain was constant, in others intermittent and resembling migrainous neuralgia, and in at least two the type of headache was typical of ciliary neuralgia—intermittent violent unilateral ocular pain, with congestion of the eye and lacrimation. Surgeons have been rather prone in the past to look askance at long-continuing headaches following head injury, to suggest the diagnosis of "functional," and to recommend treatment by that much-abused term "rehabilitation." Such was the general impression left by the opening addresses of Jefferson, Cairns, and Russell Brain (1941) at a meeting of the Neurological Section of the Royal Society of Medicine. Anyone who has watched the recurrent attacks of ciliary neuralgia in a case of previous head injury would surely be more tolerant in believing the pain to be real in many cases that have been diagnosed as functional on account of their long persistence. It is especially the unilateral headaches that call for active treatment when sinuses, teeth, and eyes have been examined and found normal. In support of my views on unilateral post-traumatic headaches the following six cases illustrate the result of Gasserian block, which I claim proves the organic nature of the headaches. Four of these cases I showed at the annual meeting of the Association of British Neurologists in June, 1945, when I read a paper on this subject.

Case 4.—S., when aged 33, was in the retreat on Dunkirk in May, 1940, was blown out of a lorry by a near bomb explosion, was unconscious for a few seconds, but was again got on board, and had to march the last ten miles to the beaches. He was without any food for three days until put on board a destroyer, which was at once torpedoed. When standing with his head about 6 ft. (1.8 m.) beneath her gun, the blast "seemed to take the top of my head off," starting a furious headache. Landed three days later, he was sent to Aldershot, where he had the first attack of right-sided headache that became recurrent, with pain like a bad toothache in the right eyeball, which would become bloodshot and lacrimating, the pain lasting 15 to 20 minutes. These attacks have persisted daily ever since, except for an occasional intermission of four or five days and once for five weeks. Often the attacks would recur every half-hour or so, day and night, and he might have as many as 30 in the 24 hours. He was attending a hospital in 1944, where the diagnosis of "functional" was made, when he was seen by Dr. Helen Dimsdale,

who recognized the case as one of ciliary neuralgia and sent him to me on July 20, 1944. On July 24 I gave him a small inner ganglion injection of 4 minims (0.24 ml.) alcohol, which produced temporary total analgesia of the first and second divisions; but this faded off after three or four days, yet he was free of neuralgia for three weeks. By the end of August the attacks were as frequent and severe as before, and on Sept. 4 I again injected the inner ganglion, this time using 6 minims (0.36 ml.) of alcohol. This caused instant pain in the eye and forehead, and marked congestion of the conjunctiva, with total trigeminal anaesthesia. Three days later V. 3 had recovered, but V. 1 and V. 2 were still total. Since then pressure sense and touch have returned partially, but complete analgesia persists still on V. 1 and V. 2. He has never had any return of the neuralgia, though he is subject to occasional "drawing" sensations around the right eye, with some feeling of pricking, quite different from his previous pain, and which he puts up with easily. They are probably of a causalgic nature.

Case 5.—D., aged 31, nearly ten years ago was knocked unconscious for two days in a so-called friendly boxing match. About three months later he began to suffer from intermittent headaches, sometimes weekly, or he might be free for a month. These attacks became more frequent, and lasted for several days, until I saw him on Feb. 13, 1945. The pain was always limited to the right side; there was no nausea, tenderness, or ocular congestion. On Feb. 16 I gave him a partial injection of the inner ganglion by the anterior route, injecting 5 minims (0.3 ml.) of alcohol after using novocain to the third division. This produced great ocular congestion and total trigeminal anaesthesia to all forms. By May 17 he had had no pain at all since the injection: the first division was still analgesic, but could feel pressure; the second division could not perceive pin-prick or touch, but felt hard pressure; the third division was normal. He has returned to work as a painter, and when shown at the meeting in June his condition was unaltered, and he was quite well and working.

Case 6.—Mrs. R., aged 41, had been subject to bad headaches across the forehead, and in 1943 fell unconscious for some seconds during one attack. In December, 1943, when she had influenza, she again fell unconscious and struck the right parieto-occipital part of her head. Since that fall the pain was continuous every day, sometimes seeming unbearable. The pain spread from the back of her head to the right side of the forehead and behind the ear, and the scalp was very sensitive in the region of the blow, though it had not been cut. When the pain was at its worst it would keep her awake, and the eye would lacrimate and the eyelids swell, the pain spreading under the eye; there was no vomiting. I saw her first on April 11, 1945. She had previously attended another "nerve" hospital, and had been told that her case was functional and she must attend her own doctor. On that day I injected her right Gasserian ganglion, first injecting the whole ganglion with a few drops of 2% novocain as a test. As this at once abolished the headache completely, I followed on with 5 minims (0.3 ml.) of 90% alcohol, with resultant total trigeminal anaesthesia, which was still unaltered next day; but there was no return of headache, and the tenderness of the scalp had disappeared. On May 25 there was still total anaesthesia of the first division, with slight return of sensation on the second and third divisions. She was feeling very well and experienced no pain. The condition remained unchanged when she was shown at the meeting in June.

An interesting point to note here was the very slight recovery of sensation on the second and third divisions, no doubt due to the previous infiltration of the whole ganglion with novocain, which prevented localization of the alcohol in the inner portion of the ganglion only.

Case 7.—C., aged 34, when a boy of 15 received a severe blow on the right side of the head, which was crushed by a lorry against a lamp standard, the scalp being badly torn on the right parieto-occipital region, where he bears an irregular scar 8 in. (20 cm.) in length. Headaches began on the right side a week later, four or five times a week, at first lasting as short a time as ten minutes, often four or five times a day. In December, 1940, he joined the Army, and in 1941 went through the North African campaign from Alamein, in the artillery, but the gun blasts made his headaches worse, and he was put to other work. The pains continued daily, and he was sent back to England in February, 1945. I saw him at St. Mary's on March 20, 1945. He gave a history of two attacks of migraine, one eleven years ago after falling on his face from a lorry, followed by numbness of the right lips, tongue, and face, with loss of speech for 20 minutes; and he had another similar attack in the desert during the campaign. On March 27, during an attack of headache, I gave him a Gasserian novocain test, which at once abolished the pain until sensation returned in about an hour. On April 9 I injected the ganglion with 7 minims (0.42 ml.) of alcohol, producing total trigeminal anaesthesia, which remained unaltered when the case was shown in June at the meeting; there had been no return of his headaches, and he had been doing regular work.

The following case is another good illustration of violent intermittent ciliary neuralgia developing six months after an extremely heavy blow to the head and face.

Case 8.—On Jan. 13, 1944, a man aged 36 was struck a violent blow across the occiput by a heavy iron girder when unloading a lorry, crashing his head against the asphalt road, cutting his right eyebrow, and fracturing his frontal bone, causing bleeding from the right ear, which is still partially deaf, conjunctival haemorrhages in both eyes, and bruising the whole face, which was much swollen. He was taken into an E.M.S. hospital, where he was kept for five weeks; he lost consciousness for a week after admission. He had a good deal of headache for several weeks, and then tried a light job, but six months after the accident he was attacked by a new kind of headache, which would start suddenly with pain behind the eyeball, the right eye becoming blood-red. These headaches might last from 20 minutes to four hours, occurring at first once a week or so, and latterly more often. From June, 1944, he had numerous petit mal attacks for the next six months, falling unconscious; these ceased in December, 1944. The pain would attack the back of the eye and above the eyebrow and the upper cheek on the right side, and has been so severe that he has walked the street at night in his pyjamas and dressing-gown, crazy with pain, and in April, 1945, he made an attempt at suicide by gassing himself. He was sent to me by Dr. Hinds Howell on June 30, 1945; his account of the recurrent neuralgic attacks was typical of ciliary neuralgia, and almost certainly a sequel to his head injury eighteen months previously. This case may be compared closely with Case 4, already described. I injected his inner ganglion with 5 minims (0.3 ml.) of alcohol on June 30, producing total anaesthesia of V. 1 and V. 2 which was still unchanged when he was seen on July 24, having had no more pain. In reply to a follow-up letter, he wrote on Feb. 24, 1946, that the numbness persisted on forehead and cheek, and the headaches were practically cured.

In my experience the ciliary neuralgias are more sudden in onset and more violent in character than the other form of migrainous neuralgia that I have described, though both forms show an undoubted relationship to migraine. What the cause of the ocular crises and congestion is in the ciliary form I have no suggestion to offer, beyond the inference that sympathetic disturbance is considerable. Their cure by trigeminal block seems sufficient proof that the painful stimuli are carried centrally by the recurrent meningeal trigeminal branches.

Case 9.—A girl—G., aged 21—was sent to me on Nov. 13, 1941 for almost continual right-sided headaches since the age of 14, never being free for more than a day or two. There was no vomiting with the pain. When 3 years old she fell from a height of two stories from a fire escape on to a concrete floor; profuse vomiting followed. On Nov. 20 a Gasserian novocain test dispersed the headache at once, so I then injected 4 minims (0.24 ml.) of alcohol deeply into the ganglion, producing total anaesthesia to all forms on V. 1 and V. 2. This has practically persisted unaltered, for when last seen on Aug. 31, 1944, only hard pressure was perceived on forehead and cheek, though V. 3 was completely normal. There has been no recurrence of the hemicrania. The depth of the anaesthesia persisting on V. 1 and V. 2, though only 4 minims of alcohol were used, may be compared with the similar result in Case 6, in which also a preliminary Gasserian infiltration with novocain was done.

Pathology of the Migrainous Neuralgias

What can be the mechanism of migrainous and ciliary neuralgias and post-traumatic headache? It seems inconceivable that the scalp can be the source of these afferent stimuli; there remain the skull and pericranium, the dura mater, pia-arachnoid, and the brain substance, in addition to the meningeal and cerebral blood vessels. The skull, brain substance, and pia-arachnoid are known to be insentient, and can be cut and burnt without any pain being produced. Penfield and his co-workers have shown that, though large areas of the dura are also insentient, yet in the region of the meningeal vessels and the dural sinuses stimulation or dragging and pressure on these structures may cause acute pain, which may be referred even down the side of the neck; and these stimuli are carried centrally by the afferent fibres in the recurrent meningeal branches of the trigeminal nerve, as can be proved by sectioning the posterior root of the fifth nerve or, as I have shown, by Gasserian nerve block. It is well known that intravenous injection of histamine produces no headache on the analgesic side after Gasserian injection. Penfield has insisted that it is the first division of the fifth nerve that is the most important in this connexion; I am entirely of the same opinion, as I have found that analgesia of the ophthalmic division is essential in the cure of migrainous

and ciliary neuralgia and many post traumatic headaches. Usually I prefer to obtain permanent complete loss to pinprick on the first division with light analgesia of the second division, while rarely is third-division analgesia required. Penfield and Norcross (1936) assume that in cases of severe head injury the brain slides across the face of the dura at the arachno-dural interface, and that it does not necessarily at once regain its former position. Then adhesions may form, which become stretched as the brain tends to return to its normal position and when these adhesions are attached to a sensitive area of dura, such as dural sinus or large meningeal artery, pain results. Rowbotham (1945) states that migraine headaches sometimes occur as a sequel to acute cerebral trauma or such headaches may be aggravated by head injury. He mentions visual spectra and hallucinations as occasionally accompanying the attacks, but I have never known these occur in migrainous neuralgia, nor in the post traumatic headaches that I have met with. Penfield and McNaughton (1940) have investigated the nerve supply to the dura, and they suggest that most of the dural branches even those which appear to originate from the second and third divisions of the Gasserian ganglion, really originate from the nerve cells belonging to the ophthalmic division. Penfield has found, during operations under local analgesia, that the dural sinuses and the large veins entering the sinuses are especially sensitive. The upper surface of the tentorium and the sagittal or superior longitudinal sinus, and the anterior fossa are supplied by branches from the ophthalmic division, while the middle fossa and the middle meningeal vessels are supplied from recurrent branches of the second and third divisions, but dissections and staining of the dural nerves entering the ganglion in the rhesus monkey suggest that those branches which appear to arise peripherally from the second and third divisions really arise from nerve cells in the ophthalmic division. He has found that stimulation of the anterior two thirds of the sagittal sinus may cause pain radiating downward into the neck, and I have occasionally noted that the pain in some migrainous neuralgias may be referred behind the ear and downward into the side of the neck.

Migraine

Not only migrainous and ciliary neuralgias may be thus successfully and permanently cured, but cases approximating more in type to migraine itself may also react equally well to the treatment.

Case 10—Mrs E., aged 50, had been subject to recurrent "bilious" headaches at her monthly periods since the age of 14. These were invariably on the right side and at first lasted 2 to 3 hours, but for the last four years the attacks had been more frequent and lasted longer—24 to 27 hours—though the menopause became established two years ago. The pain would be present on waking, always over the right eye and at the back of the eye, which was tender but not red, and vomiting began early. Phenobarbitone and aspirin only increased the vomiting. When I saw her on Jan 2, 1946, there were no abnormal physical signs, and the systolic blood pressure was 125 mm. There were never any visual spectra or other ocular phenomena. On Jan 7 I injected the inner Gasserian ganglion with 5 minims (0.3 ml) of alcohol while an attack was in progress, the pain ceasing instantly as soon as anaesthesia was produced. This was still complete on V 1 and V 2 next day, when she returned home. Five weeks later she wrote very gratefully, saying she had had no further trouble of any kind.

This case is unlike migrainous neuralgia on account of the profuse vomiting, and differs from most migraines in its relation to the monthly periods. I have had no opportunity of trying Gasserian injection in a case of classical migraine with visual spectra, but I think it very probable it might succeed equally well if the attacks were mainly limited to one side.

Atypical Neuralgia

A form of chronic facial neuralgia regarded in America as atypical is what I have described as chronic neuralgia of the jaws (Harris 1926a). This may affect the upper or lower jaw on one side only, or it may be bilateral. It is often described as a "drawing," "pulling," "burning" pain, constant, though varying in severity. I have known it follow massive extraction of the teeth. It is commoner in women than in men, and often a strong neurotic element is present. It closely resembles the causalgia which may follow Gasserian injection or root resection, when it affects the maxillary region, but in a few cases

it is restricted to the mandibular area. No treatment by nerve section or injection is of any benefit, and it is most important to recognize this type of neuralgia, as operation or injection often appears to make the patients worse, and the anaesthesia produced affords a further ground for complaint. The type of pain described by Sluder probably included this form as well as some migrainous neuralgias. Temporary improvement by cocainization of Meckel's ganglion or even of the Gasserian ganglion is of little value, if it relieves at all. Leucotomy might be considered in long standing depressed cases.

Summary

Unilateral headaches resembling migraine in some respects, affecting the region around the eye and temple, may be recurrent for years, and have hitherto been either classified as migraine or wrongly ascribed to ocular or sinus disorders, or else included under the term "atypical neuralgia."

A variety of migrainous neuralgia I have named "ciliary neuralgia," on account of the marked ocular congestion and lacrimation accompanying the ocular and periorbital pain in these cases. This type is often more violent and characteristic, but both these varieties of headache are curable by alcohol Gasserian injection and are no doubt due to vasomotor disorders in the meningeal vessels or dural sinuses. Since these areas probably have their sensory supply entirely from the recurrent meningeal trigeminal branches, their cure by Gasserian block is to be expected.

Post traumatic headaches may be of either of these two types of migrainous neuralgia, or they may take the form of a constant pain.

When they are unilateral and persistent for months or years it is probable that they are organic and not functional, and that they are due to dural adhesions resulting from the cerebral trauma. Gasserian nerve block by novocain injection should be tried, if possible during the headache. If this is successful in at once abolishing the pain, then 5 minims (0.3 ml) of 90% alcohol should be injected deep into the ganglion, permanent cure often results if the analgesia of the first and second divisions persists.

The same results may be obtained by surgical treatment, sometimes of the meningeal scar itself, if it can be found, or by reversed subtotal posterior rhizotomy, by cutting the inner ophthalmic fibres close behind the semilunar ganglion, in place of the usual subtotal resection of the outer portion of the root, as used in Frazier's operation for trigeminal tic. Whether Gasserian injection or surgical resection is preferred is a matter for the individual choice of the operator. Both have much the same effects, but I claim that the injection method is the more delicate, and preferable in the majority of cases; moreover, it is free of all risk to life.

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THE CATHETER AND THE PROSTATE*

BY

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If the prostate is removed with the strict asepsis of the neurosurgeon I have proved that the dangers of prostatectomy are enormously diminished†. The microbe, as ever, is our foremost enemy. In-dwelling rubber tubes, whether suprapubic or transurethral, are high roads for infection. The normal urethra is usually a mildly infected channel, and the prostate-blocked urethra almost invariably so. In over 200 cases I have shown that sudden decompression of the chronically well-distended bladder is beneficial, provided that the operation is aseptic and the prostate at the same time is removed, because in some cases the prostate may block the ureters as well as the urethra.

* Being a portion of a paper read before the Medical Society of London on March 11, 1946.

† *Brit. J. Surg.*, 1945, 33, 41.

My operation, briefly, entails a twelve-hour preparation with chemotherapy, low spinal anaesthesia, never as high as the umbilicus, a rapid emptying of the bladder even if it holds five pints (2.8 l.) of chronic residual urine, a gentle prostatectomy by the transvesical route, and the excision of the trigone extending almost to the ureters and the interureteric bar so as to make the bladder one with the prostatic cavity. Bleeding is patiently controlled by my diathermy haemostat. Ligatures are never used in the course of the whole operation. Every moribund piece of tissue is meticulously removed, thus providing conditions favourable to the continuance of asepsis. A thin-walled urethral tube is passed invariably in a retrograde fashion in order that the bladder and prostatic cavity can be drained for a few hours or a very few days. Clotting is prevented by sodium citrate and the bladder is securely closed.

This operation produces so little shock that other major operations are often performed at the same sitting. The patient gets up the next day. The blood urea descends far more rapidly than after simple suprapubic drainage, when it invariably rises for a time, frequently resulting in a higher mortality than prostatectomy itself. The patient's total stay in hospital is usually two weeks, and is often less. The mortality in 565 consecutive cases was 4.3%. This compares favourably with the pre-operative and post-operative mortality of other methods. The risks are diminishing with improvements in anti-infective technique. Perhaps, more important, a profoundly septic incident in the life of an old man has thus been avoided and he reports later with aseptic urine instead of that lifelong low-grade infection so frequently met with in the two-stage operation. This aseptic procedure permits a far higher standard of operability. Only eight out of 573 cases were refused operation, and those that were accepted included twelve cases with initial blood ureas of well over 200 mg. per 100 ml.

Exactly 75% (18) of the deaths were due to uraemia; and post-operative increase of uraemia is always due to infection. The commonest cause of infection is the catheter, usually passed by the practitioner for the relief of acute retention or, in the endeavour to avoid a prostatectomy. In my earlier cases I occasionally infected the patient by an antegrade passing of a drainage catheter at the end of the operation or by a cystoscope. By a simple technique a retrograde passage of a tube is now always possible. At least two weeks should elapse after the dilatation of a stricture or the passage of a cystoscope before a prostatectomy is done.

The following table shows the results in these 565 cases both with and without catheterization or other instrumentation.

Results of Instrumentation (Usually Catheterization)

	Without Instrumentation		With Instrumentation		Total	
	No.	%	No.	%	No.	%
Temporary suprapubic leakage	5	1	19	19.9	24	4.3
Epididymitis	3	0.6	8	8.3	11	1.9
Mortality	15	3.2	9	9.4	24	4.3
Average length of stay in hospital after operation	12.9 days		23.3 days		14.8 days	

These figures surely suggest that all cases of retention of urine, complete or incomplete, should be operated upon before a catheter is passed and that all dubious prostatic obstructions which require investigation and instrumentation should be left for some weeks to permit complete recovery. If the pre-operative catheter can increase the chance of temporary suprapubic leakage by 20 times it is a nuisance; if it increases the risk of epididymitis by 14 times it is a menace; and if it trebles the mortality it may be a lethal weapon.

The in-dwelling catheter is a minor offence compared with the suprapubic tube with its microbes clamouring for admission from above. Suprapubic drainage for any form of prostatic obstruction should be abandoned—even if it is performed for the relief of patients with blood ureas over 200 mg.; to this uraemia is added the uraemia produced by infection, and thus the patient's end is often hastened.

Summary

An earnest plea is made for the application of the principles of "absolute" asepsis in prostatectomy.

Two-stage operations and suprapubic drainage should be abandoned.

Proof is established that the catheter should never be used before prostatectomy.

Acute prostatic retention demands immediate operation. It is suggested that "aseptic prostatectomy" is at least as safe as catheterization.

FATIGUE SYNDROMES IN WEST AFRICA

BY

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Capt., R.A.M.C.

The purpose of this article is to record some observations made upon a number of British Army personnel seen in regimental M.I. rooms in West Africa Command during a tour of duty there. They showed signs of physical and mental fatigue, and were chosen for study because they seemed to illustrate the relation of climate to ill-health in the moist Tropics. In many cases climate in itself appeared to be only a contributory cause in the presence of other factors, such as toxæmia and mental disharmony. An attempt has been made to analyse the aetiology of the various fatigue states described, and to show the role of climate as a cause of such illness.

Clinical Findings

The cases, 86 in number, were classified as follows:

A. Fatigue syndrome:	Cases
(1) Presenting characteristic signs of simple physical and mental fatigue	41
(2) Presenting signs of exaggerated or abnormal psychological reactions	14
(3) Related to toxic illness	9
B. Psychoneurosis—showing signs of fatigue	16
C. Depressive state—with fatigue	3
D. Psychosis—with fatigue	1
E. Post-concussion syndrome—with fatigue	2

A. Fatigue Syndrome

Subgroup 1.—The presenting picture resembled that found in any state of fatigue following prolonged physical or mental exertion. The amount of exertion and the degree of fatigue were disproportionate, and the only additional stress factor recognized was the exhausting nature of the climate. No mental anomalies were observed, and the patients, who represented a variety of constitutional types, had all succeeded in adjusting themselves to their environment. The symptoms were tiredness, lassitude, headache, forgetfulness, slight loss of interest, impaired powers of concentration, and mild depression.

Case 1.—Warrant officer aged 30; six months' service in West Africa; good health previously. Became easily tired, with headache and difficulty in concentrating in a rather noisy workshop. Relieved by short spells of lighter duty in quieter surroundings.

Case 2.—Officer, aged 35, of strong constitution and dynamic personality; 17 months' service in West Africa. Became easily tired, with headache and difficulty in concentrating, and was unrefreshed by sleep. He adjusted his economy of energy output and remained fit for duty.

Case 3.—Officer of asthenic type; complained that soon after coming to the Tropics he became lethargic, with faulty memory and reduced power of concentration. Slight general retardation persisted, but the patient remained happily adjusted to the disability.

Subgroup 2.—Here fatigue was the dominant feature in a state resembling simple anxiety neurosis of recent origin. These cases gave no previous history of neurosis, and showed no gross psychopathic traits, although in some instances seeds of neurosis were present. They expressed no personal anxieties other than a concern about the exhaustion and nervousness which had overtaken them. Timid and emotionally immature types appeared to be particularly prone to develop this more severe manifestation of fatigue. Most of these patients improved with rest, reassurance, and in some cases mild sedation. Only one required to be admitted to hospital. A number of

them were met by chance in another station nine months later, and they all appeared to be in good health

Case 4—Aged 28, 12 months' service in West Africa; average physical constitution; rather timid. Became tired, depressed, tremulous, and worried about his condition. After adequate rest and reassurance, he recovered sufficiently to justify continuation of service in the Tropics

Case 5—Aged 22, good athlete, 12 months' service in West Africa. Became extremely tired, with "lead-like limbs," tremor of hands and voice, and mild depression. He was distressed about the symptoms, which were quite new to him. A short course of mild sedation was followed by marked improvement

Case 6—Aged 20, physically fit, with no history of previous nervousness. He became easily tired after 10 months' tropical service. Soon fatigue was pronounced, with depression, marked anxiety, profuse sweating, inability to concentrate, loss of interest, and fear of insanity which was alleviated by reassurance. This patient did not respond well to treatment, and had an anxiety neurosis when he left the Tropics shortly afterwards

Subgroup 3—Fatigue syndrome such as described above was a common sequel to fevers and toxic illnesses—e.g., malaria, amoebic dysentery, food poisoning, and furunculosis. In connexion with malaria, a number of patients suffering from chronic fatigue were found to have malaria parasites in their blood. Sometimes fatigue was accompanied by anxiety and mild depression, which usually responded to rest and reassurance. However, convalescence was slow and some degree of disability persisted for several weeks as a rule, sometimes even for months. Retarded convalescence appeared to be largely due to the influence of the climate

Case 7—An officer, after eight months in West Africa, had a severe attack of amoebic dysentery, which was followed by physical and mental fatigue so persistent that he was invalided home

Case 8—An officer suffered from fatigue and a mild anxiety state following tonsillitis. The symptoms resolved with adequate rest

Case 9—A sergeant clerk, aged 25, with 26 months' total service in West Africa, developed a mild anxiety state with depression, head ache, listlessness, and inability to concentrate. Inquiry revealed that he had been tired and depressed on several occasions in the Tropics especially after each of a series of attacks of malaria. A conscientious, rather obsessional man, he responded very well to treatment and completed his full tour of duty with a maintained improvement in health

B. Psychoneurosis

In this class the clinical picture was predominantly that of a psychoneurosis such as one finds in temperate climates. In all cases there was definite evidence that neurosis had manifested itself prior to tropical service. Here the element of fatigue was more severe than one would expect to find accompanying the same neurosis in a temperate climate. It seemed that this fatigue must be largely due to climatic stress. These patients had been accustomed to the discomfort of neurosis and affective reactions were milder than in the fatigue syndromes described in Class A, where neurotic feelings were being experienced for the first time and distress was consequently acute

Case 10—A corporal aged 22 reported sick during his second month of service in West Africa. He was suffering from fatigue, probably due largely to the heat, but he also described symptoms which revealed a clear picture of a psychoneurotic constitution, with a positive family history. Obsessional traits were marked, and sleep-walking had occurred in childhood

Case 11—A staff sergeant aged 26 complained chiefly of fatigue, but there were signs of anxiety state and mild depression, with a history of similar illness before entering the Tropics

These patients had to be reassured from time to time, but were able to carry on satisfactorily. Included in this class were a few cases with features suggestive of true psychopathic personality. Traits observed were inability to settle at a job of work, lack of a normal sense of responsibility, emotional immaturity, and cyclothymic mood swings. Fatigue was not pronounced, but there was evidence to suggest that they had become emotionally less stable since entering the Tropics

C. Depressive State

Fortunately cases of severe depression were rarely seen. In these patients, all of whom required to be invalided, there were definite causal factors at work, which ruled out climate as a

primary cause. In fact, climate and environment seemed to play a minor part as a precipitating or aggravating influence. They all showed marked evidence of general fatigue

Case 12—A soldier aged 36 was seen, a few weeks after arriving in West Africa, with rather severe endogenous depression, morbid ideas of unworthiness, and a history of previous attacks

Case 13—A sergeant, aged 25, after nine months of satisfactory service in West Africa became tired and depressed, with an obsession that he was developing sleeping sickness. Seen after attempted suicide, he was very retarded. The case history revealed latent neurotic traits of long standing, and a domestic problem which had produced mental conflict since leaving home

D. Psychosis

Only one case was encountered—that of a senior N.C.O. He appeared at first to be an obsessively conscientious type who was becoming tired out. Soon he showed psychotic features, with grandiose and paranoid ideas and complete lack of insight. Inquiry proved that he had been a "difficult maladjusted" person in home units. Probably in this case the climate, together with other environmental factors, laid an additional strain upon a constitution already abnormal

E. Post-concussion Syndrome

Two patients were classified separately. The chief complaint was of headache and tiredness. Both had been concussed some years previously, and post-concussion syndrome had been diagnosed by neurologists in the United Kingdom. In addition, both had psychoneurotic traits, and climate seemed to act only as an aggravating factor in these cases

Discussion

Observers in different theatres of activity can be quoted in support of the theory that environment is only partly to blame for the fatigue syndromes and mental illnesses which occur under stress

Rodger (1943), in discussing effort syndrome in Iceland, lays emphasis on psychological predisposition, concluding that conditions of service in Iceland were not causative factors, but only aggravating to a minor degree. Stephenson and Cameron (1943), discussing anxiety states in the Navy, stress the significance of the degree of stability of the individual patient and the number of stress factors making for continued effort. Symonds (1943) in his lectures on human response to flying stress, describes a variety of stress factors, including fatigue of vision and hearing effects of acceleration and decompression, and anoxia but he concludes that "the emotional tension resulting from the prolonged exercise of courage is the most important element of stress". Craige (1944), reporting on military psychiatry in the Middle East, classifies the aetiology of psychological breakdown into predisposing factors (heredity, constitution, morale) and precipitating factors (domestic separation, climate, fatigue, and battle stress). Minski (1945), discussing psychological reactions in the wounded, says: "The degree of severity of a wound bears little or no relation to the development of a neurosis"

Millis (1945) describes experiments with white rats, showing that these animals are reduced to a slow pace of living by tropical temperatures, that their ability to ward off and fight infection is reduced, and that their capacity for learning and remembering is impaired. Similarly, meteorological conditions are shown to have certain effects upon human beings. When the barometer is low, restlessness, exhaustion, depression, and muddled thinking are common, with consequent feelings of frustration and hopelessness in some people. This is illustrated in West Africa, where spells of oppressive weather coincide with general depression, while favourable changes in temperature, humidity, and air movement produce a dramatic increase in vitality and elevation of spirits

Stewart (1945) describes heat fatigue occurring in industrial workers in hot weather, especially with high atmospheric humidity and diminished air movement. Adequate replacement of lost fluid together with sodium chloride proved to be an effective prophylactic. This also applies in West Africa, where the ingestion of fluid and salt after strenuous exercise speeds up recovery from fatigue

McDowall (1943), discussing man's biological adaptation to environment, writes as follows: "The effect of lack of mental

adaptation is dealt with in relation to conflict, where it seems that, just as excessive heat, cold, high altitude, or necessity to work hard or to fight brings about the bodily reactions which we group under the heading of increased sympathetic activity in animals, so also in man lack of mental adaptation brings about exactly the same bodily effects which if continued will have a seriously harmful effect on the happiness and health and length of life of the individual." And again: "Various mental states have a profound effect on the activity of organs of the body and may so disturb them that pathological states may result. There is indeed no hard-and-fast distinction to be drawn between functional upset and pathological states, for one may merge into the other. By far the most important change which occurs is increased activity of the sympathetic portion of the autonomic nervous system. . . . It occurs in forms of mental activity, involving alertness, attention, concentration, but is intensified in fear and in its antithesis, anger and rage. Anxiety produces less intense but more chronic states. Essentially the changes are those which prepare the animal for physical activity and make the muscles more efficient."

Good mental adaptation to life is characterized by a fair measure of satisfaction of the natural instincts—self-realization, sexual and social. Frustration of these leads to mental conflict, with varying response. Submission to circumstance may be a happy solution or may be accompanied by depression. Escape from conflict can be achieved by alcoholic over-indulgence and hysterical reactions. While, on the other hand, conflict may be allowed to continue, resulting either in a normal struggle against difficulties or in exaggerated responses such as the development of anxiety neurosis.

These mental mechanisms are all liable to colour an illness which at first sight might be considered due to climatic stress, and this applied to some of the cases seen in West Africa.

The 64 cases of fatigue syndrome referred to in this paper (Group A) were probably alike in their mode of origin and course of development, differing only in degree of severity, this being determined by several factors (internal and external)—physical constitution, personality, toxic illness, climate, and other environmental stress. In a few of the severer cases of fatigue syndrome it was thought that the term "tropical neurosis" was justifiable, because true neurotic reactions developed without previous history of such, and these reactions were not resolved by simple rest and reassurance, thus differing from many of the cases of sympathetic overactivity.

Conclusions

It would appear that everyone living in West Africa is liable to experience some degree of tropical languor, caused by the . . . Most people adapt themselves to the limitation thus upon their activities.

However, a certain proportion develop a fatigue syndrome which may lead to considerable disability. This is sometimes accompanied by overactivity of the sympathetic nervous system, so giving a picture of anxiety state which is usually temporary if it occurs in the absence of any other predisposing or contributory cause. The enervating climate may find in a weak physical or mental constitution fertile soil for producing its ill effects. Also, resistance to illness may be undermined not only by the climate but by other factors, such as toxæmia, excessive physical exertion, alcoholic over-indulgence, and psychological disharmony.

The West African climate appears to have an aggravating effect upon pre-existing psychoneurosis. Climatic stress can precipitate and aggravate depressive states and psychoses.

A few contributory factors require special note.

Physical Exertion.—When carried beyond a certain optimum period, undue fatigue results, with a delay in recovery.

Alcohol.—In strict moderation alcohol appears to be harmless, and is often a positive preserver of mental contentment. Too much alcohol is obviously harmful, lowering general resistance to illness in proportion to the individual's tolerance and the amount consumed.

Insomnia.—This is sometimes caused simply by the restless discomfort of hot nights, producing tiredness and irritability.

African Native.—Many people find it difficult to adjust themselves with equanimity to the ways of the African native, and this causes a feeling of frustration and irritability, with consequent tiredness and depression.

Finally, it is said that, when any struggle is prolonged, moral force, and not physical, will generally decide the issue. This seems to be true of West Africa, where the total personality, with its physical, intellectual, emotional, social, and moral components, must be considered when studying reactions to climatic stress.

I would like to express my gratitude to Brig. G. M. Findlay, C.B.E., Consultant Physician to West Africa Command, for permission to publish this article, and for much helpful advice; also to Lieut.-Col. A. C. Stevenson, R.A.M.C., formerly Assistant Director of Hygiene, West Africa Command, for his interest and advice.

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IDENTICAL DEFORMITIES IN THE NASAL SEPTUM OF A PAIR OF IDENTICAL TWINS

BY

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A review of the literature on identical twins shows many records of similar abnormalities in these siblings. The following are some of the conditions described: diabetes, allergy, thromboangiitis obliterans, epilepsy, exophthalmic goitre, otosclerosis, hearing defects, squint, polydactylism, inguinal hernia, hydrocephalus, congenital dislocation of the hip, hare-lip and cleft palate, and dental defects. There are only two recent references to nasal conditions. Furniss (1938) mentions the occurrence of mesial dermoid cyst of the nose in identical twins, and Pastore and Olsen (1941) record the absence of frontal sinuses and the presence of congenital bronchiectasis in identical twin sisters.

There has been no record of nasal septal deformities, and I feel that the case described below should be added to this considerable list. Some interesting conclusions can also be drawn from discussion of the occurrence of this deformity.

These identical twins, now aged 22, are serving with the Royal Air Force in the same unit. They were both admitted to the medical unit of an Emergency Medical Service hospital in October, 1945, suffering from bronchial asthma. They were referred to the ear-nose-and-throat department for examination, on account of suspected disease of the maxillary antra, which had been revealed during routine radiological examination of the paranasal sinuses. Their medical histories are interesting in connexion with allergic states in identical twins. Briefly they are as follows:

Twin No. 1

The patient had had attacks of wheezing since childhood. These start early in the morning, last approximately 24 hours, and are most common in summer; no cough or sputum. Occasionally there is sneezing. Otherwise he is healthy. He has a history of pneumonia at 2 years of age, bronchopneumonia in 1939, and attacks of eczema until leaving school. His father, mother, younger brother, and younger sister are healthy. The twin brother has a similar history to his.

Examination showed him to be well nourished. There was marked asthmatic wheezing, but no finger-clubbing. Respiratory movements were satisfactory. There was no chest deformity or impairment to percussion. Breath sounds were vesicular. Numerous inspiratory and expiratory rhonchi were heard. Vocal fremitus and resonance were normal. No other abnormalities were found, except changes in the antra seen in a radiograph of the paranasal sinuses.

Twin No. 2

Until May, 1945, this patient had had only a few mild attacks of asthmatic wheezing of short duration in the mornings. Since he went to France in May, 1945, the attacks have become much more severe. They always begin in the mornings and are aggravated by exercise. They do not coincide with his twin's attacks. He has noticed that eggs in the diet precipitate an attack. He had influenza at 9 years of age, and eczema mildly until leaving school. It was noticed that his brother (Twin No. 1) took illness much more severely than he

did. Respiratory and other examinations gave the same findings as in the case of his brother.

A rhinological examination carried out on these twin brothers showed that each had a severe septal deformity. These deformities were identical and were so gross that, had they been traumatic, they must have been produced by an identical trauma. One could only conclude that they were the result of a congenital malformation. There is so little variation between the two septa that a description of one will cover both cases.

The nasal septum shows a marked S-shaped deformity. There is a thick bony ridge, seen from the right side, extending almost from the anterior nasal spine backwards and slightly upwards. The ridge crosses the line of the inferior turbinate at the junction of the middle and posterior thirds. It touches the inferior turbinate at this point. In their lower parts the septal cartilage and perpendicular plate of the ethmoid lie over to the left, but higher up and more posteriorly they are displaced towards the right ethmoid capsule, and prevent any deeper view of the nasal cavity beyond this point.

The cartilage of the septum anteriorly is bent to form a pronounced step to the left, as if it had been dislocated from the bony groove in the maxilla and vomer in which it usually lies.

On inspecting the septum from the left side one sees a sharp, depressed gutter corresponding to the ridge or spur seen on the right side. This is overhung by the lower edge of the displaced septal cartilage. The septal cartilage is deviated anteriorly so severely towards the left wall of the nasal cavity that it prevents a free view of the middle meatus on this side. It touches the inferior turbinate near its middle third.

There are a few minor differences in the septal curves, but these hardly detract from the almost identical appearances of both nasal septa. One would immediately describe the deformities as reproductions of one plan of development.

Study of the radiographs taken shows that there is an almost exact similarity of the frontal sinuses—a point often noted in the investigation of identical twins. When the plates are superimposed the outlines coincide almost exactly. In the plate of Twin No. 2 slightly stronger markings of incomplete septa in the frontal sinuses are visible. The antra in both cases are exactly similar, and show a thickening of their mucous membrane lining, presumably allergic. The bony septal deformity can be clearly seen in both plates.

Discussion

Zuckerkandl (1892) gives a very full description of septal deformities. He contends that the massive ridge, or crista lateralis, almost always runs from the anterior nasal spine to the rostrum of the sphenoid. He points out that, even in cases of severe nasal injury with depression of the nasal bones, the cartilage may be deviated or fractured, while the bony septum is normal. The vomer remains quite straight, there is no sign of a crista lateralis, and the bend in the perpendicular plate of the ethmoid may be negligible. This has led him to believe in the existence of a physiological form—i.e., a deviation occurring in an intact nasal framework and a normal septum in which there is no question of injury.

Among possible causes he suggests the following: (1) irregular growth of one of the bony plates of the perpendicular plate of the ethmoid or of the vomer; (2) the continued growth of the septum where the maxillae remain undeveloped (this, he considers, would account for the relative infrequency of septal deformity in non-European races); (3) inheritance of a large nasal organ from one parent and a small upper jaw from the other.

StClair Thomson (1926), reviewing the literature on nasal septal deformity, shows that it is much more common in European than in non-European skulls: 75% of the former group show some degree of deviation. In primitive races it is very uncommon. The Red Indian, with his aquiline nose, seldom shows any deformity. This does not support the theory held by many that traumatism early or late in life is the commonest cause of septal deformity. StClair Thomson holds that heredity does not seem to play an important part in the transmission of a tendency to septal deformity.

Galton (1875) has shown that the study of twins affords a means of distinguishing between the effects which result from inherited tendencies and those which are imposed by external influences during their after-life.

It is well known that monozygotic twins are alike in their whole hereditary disposition, while dizygotic twins are, from the hereditary point of view, no more alike than ordinary brothers or sisters. The dissimilarity between monozygotic twins can be likened to that between the right and left halves

of the body of one person. Practically all differences in monozygotic twins are non-hereditary (cf. Verschuër, 1939). It does not follow, however, that all similarities are necessarily hereditary, since monozygotic twins have, more often than dizygotic twins, a much more uniform foetal environment (monochorial) (Pontecorvo, personal communication, 1946).

Conclusions

The deformity in the nasal septa of the identical twins described in this paper is congenital and may well be hereditary. Study of the septa of a series of monozygotic as well as dizygotic twins, and the investigation of pedigrees, are, however, necessary before a theory can be formulated, but I hope that the recording of this case may suggest a line of inquiry which would give a definite answer to the vexed question of the causes of septal deviation.

If such a developmental abnormality can be genetically determined, then a proportion of cases of septal deformity may be the result of an inherited tendency.

I have to thank Dr. James Johnstone, O.B.E., superintendent of the Emergency Medical Service hospital, for his permission to publish these records, and Dr. G. Pontecorvo for his advice on the question of heredity.

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EXAMINATION OF THE LOWER UTERINE SEGMENT IN CASES OF SUSPECTED PLACENTA PRAEVA

BY

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It has become generally accepted practice that exploration of the lower uterine segment per vaginam in cases of suspected placenta praevia should be postponed until all preparations have been made for whatever form of treatment may be indicated by the individual case. In short, no exploration will be made until the operator is gowned, ready to perform Caesarean section.

In my earlier cases it was noted that quite a considerable loss of blood may take place in the time which elapses between the withdrawal of the examining finger and the delivery of the baby by section. In a few this loss occasioned much anxiety, and in some was the determining factor in rendering blood transfusion necessary. Happily, in no case was it fatal. The technique herein to be described will be found to prevent any serious loss at this time in cases where the cervix has not been taken up.

Technique

The method calls for the co-operation of a trained assistant. Either the operator or the assistant makes the examination while the other member of the team stands ready. The whole or half hand is introduced into the vagina; the index or middle finger is now inserted through the cervical canal and the placenta sought. I usually employ the middle finger as, owing to the situation of the cervix, the use of this finger causes much less crowding of the hand in the vagina. Should the placenta be found in the lower uterine segment, and should section be decided upon, the finger is gently withdrawn. If further placental separation has been caused by the examination haemorrhage will be at once apparent. In the event of such haemorrhage the cervix is grasped between the index and middle fingers. Very little pressure with these two fingers will be sufficient to close the cervical canal and thus check the bleeding. The cervix should be held in this manner until the operator has delivered the baby and the placenta.

A moment's consideration of the source of the haemorrhage will readily convince one that with the outlet blocked, and in the absence of active labour, bleeding must be limited to the area in which placental separation has already taken place.

Owing to the very low pressure to which the outpoured blood in the lower uterine segment is subject under such conditions, further placental separation will not be caused by the resulting haematoma. Thus a small limited haematoma will be formed similar to that found in normal third-stage placental separation.

In some of the earlier cases in which the method was employed I, in addition, pushed down the presenting part against the placenta, in the hope that by so doing the haematoma would be still further limited. This part of the technique I have now abandoned. It can be dangerous, especially in type II, III, or IV placenta praevia (Browne, 1944), in any of three ways: (1) by increasing the pressure within the artificially controlled haematoma it may cause further placental separation; (2) it may stretch the lower uterine segment, with a similar result; and (3) it may jeopardize the life of the foetus by diminishing the placental circulation: especially may this be the case if the cord gets its insertion low in the placenta—a factor of great importance in placenta praevia to which attention has been directed by Macafee (1945).

Results

The technique above described has been in use at the National Maternity Hospital, Dublin, for two years. In the accompanying table are shown the results obtained. It will be noted that in only one case was blood transfusion necessary after examination and section. All the sections were of the lower segment.

Results of Cases of Placenta Praevia treated by Caesarean Section

Year	Cases	Mothers Lived	Infants		Blood Transfusions	
			S.B.	N.N.D.	Before Examination	After Examination
1944	20	20	0	5	0	0
1945	15	15	0	1	3	1
Total	35	35	0	6	3	1

It will be noted that the method is applicable only in cases in which the cervix has not been taken up. In my experience haemorrhage is not so likely to be provoked by examination in cases in which the cervix is taken up and the canal dilated: the placenta, if present, is usually quickly and easily recognized in such cases. However, in one such case—it was a type II placenta praevia—I did experience a rather sharp haemorrhage, which I successfully controlled in the following manner. I punctured the membranes and introduced two fingers into the uterine cavity inside the membranes; with these fingers I pressed the separated portion of the placenta against the uterine wall, thus controlling the haemorrhage until the baby was delivered section.

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Medical Memoranda

Varicella Herpetiformis

Ronaldson and Kelleher (*Brit. J. Child. Dis.*, 1938, 35, 22) are of the opinion that while some cases of herpes zoster are varicellous in nature others are not. They consider that a varicellous case of herpes, being an infective condition which reproduces chickenpox in contacts, is therefore a form of chickenpox, and should not be referred to as "zoster" with or without a qualifying adjective. They suggest the term "varicella herpetiformis" for such eruptions.

Since 1894, when von Bokay first suggested a relationship between herpes zoster and varicella, there have been recorded many instances of chickenpox in one individual following herpes in another, within the ordinary incubation period of the former ailment, with no other source of infection except herpes being discovered. The "dualist" school in the herpes zoster-varicella controversy could maintain that in such instances there is no proof that the subsequent chickenpox case did not acquire the infection from an unrecognized case of chickenpox in the area. The following cases of varicella arising after contact with a case of herpes are considered worth record-

ing because they occurred on an island in Shetland where conditions make it unlikely that any undetected cases of chickenpox could have existed.

Case 1.—In January, 1945, a woman patient was seen with a well-marked herpes on the right side of her chest. Fifteen days later her baby girl developed chickenpox, and three days after this her 5-year-old daughter also developed it. Both were undoubted cases of chickenpox.

Case 2.—In September, 1945, a schoolmistress developed herpes on the right buttock and groin, extending down the thigh. Sixteen days later her 9-year-old nephew, who lived with her, had definite chickenpox. Two weeks later other children attending the school contracted chickenpox.

Most of the inhabitants live on their own crofts and there are no groups of houses which could be called a village. The inhabitants attach an unusual importance to any case of infectious disease. The origin of any outbreak is usually obvious to all, and is often correctly traced to a particular Service man home on leave or to someone who has been elsewhere in Scotland. This can be done in a way that is possible only in an island community with a dispersed population. At the times when the two instances recorded above occurred there were no known cases of chickenpox on the island. There were two other cases of herpes in different areas of the island—one in April and one in June.

Two questions arise: (1) Whence did the cases of varicella herpetiformis acquire their infection? (2) Should every case of "shingles" be individually isolated?

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Spontaneous Rupture of the Right Quadriceps Femoris and Left Rectus Femoris in the Same Patient

A railway ticket collector aged 61 made a sudden effort to run after a passenger who had given him the wrong ticket. He stumbled, felt his knees give way, fell to the ground, and was unable to rise without assistance. When seen about three-quarters of an hour after the accident the patient complained of inability to use his right knee, as well as of pain and swelling of the joint.

On examination the right knee could not be extended; the swelling was that of a haemarthrosis and there was a definite gap just above the patella. The left knee could be extended moderately, but a gap was clearly felt at the junction of the middle and lower thirds of the thigh. A distinct bulge could be felt at the proximal end of the gap. X-ray examination of both knees showed marked osteoarthritis. With these findings a provisional diagnosis of spontaneous bilateral rupture of the quadriceps femoris was made.

At operation the right quadriceps femoris was found to be completely avulsed from the anterior border of the patella and there was a marked haemarthrosis. The blood was removed and the quadriceps was sutured to the patella with strong catgut. On the left side the rectus femoris was torn at the junction of the muscle with the tendon of insertion. The ends were approximated with strong catgut, using mattress sutures. Both limbs were placed on back splints, and on his return to the ward the foot of the bed was elevated.

The patient was investigated constitutionally and neurologically, but the results were all negative. The final diagnosis was therefore spontaneous avulsion of the quadriceps femoris on the right side and the rectus femoris on the left.

I wish to thank Mr. N. Cotton, honorary surgeon to the West Kent General Hospital, for permission to publish this case, and to Mr. Alan H. Todd, honorary consultant orthopaedic surgeon to the West Kent General Hospital, for his advice in writing it up.

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Cerebral Excitement following Mepacrine Therapy

That mepacrine may produce mental changes has been appreciated for many years, and its effects have been recorded by Allen *et al.* (1937) and Gaskill and Fitz-Hugh (1945). This case is of interest, however, in that it reports three separate attacks in the same individual, and these in some detail.

CASE REPORT

In December, 1945, there was admitted to the Royal Masonic Hospital a temporary serving soldier who was suffering from a frank attack of benign tertian malaria. As a curative measure he was placed on mepacrine, the dosage being 0.7 g. a day for two days and then 0.6 g. a day for seven days. Almost immediately he was seized with a feeling of extreme exhilaration and well-being. He began almost to burst with energy, running instead of walking, and

doing everything at top speed. His mind became choked with ideas, which occurred at all times of the day and night. While many of these never reached maturity, some of them resulted in the patient writing poems and creating new designs for houses and buildings. At times, too, he was seized with an uncontrollable desire to cry, and as a result would weep copiously, although inside he felt, so he said, extremely happy. On one occasion, when asked how he was, he extended his right hand to show the fine tremor which he boasted, and said: "Look, whisky fingers." As a result of these manifestations the patient's past history was gone into in some detail, and the following facts were elicited:

(1) The patient first took mepacrine in February, 1945, while serving in Assam. The dosage was but a small one (one 0.1-g. tablet per day) as the drug was being given as a prophylactic or suppressive measure. Soon after the start of this therapy he began to feel somewhat exhilarated, and his previously lethargic nature became transformed into one of extreme activity. He rose early and drove on with his work, and the days went well. About the same time as this mental metamorphosis occurred he noticed that his skin and urine were intensely yellow, as was the mucus from his nose.

(2) In August, 1945, the patient had his first true attack of malaria, for which he was treated with quinine 10 gr. (0.65 g.) t.d.s. for five days, mepacrine 0.2 g. t.d.s. for five days, and then pamaquin 0.01 g. t.d.s. for five days. During the mepacrine portion of this treatment he experienced all the manifestations of mental stimulation previously described: flights of ideas, poems, artistic designs, window-cleaning, and tears.

(3) Past Health.—This was good, the patient never having suffered from any serious illness.

(4) Family History.—So far as could be ascertained there was no evidence of any psychological disturbance in any branch or root of the patient's family tree. While it was elicited that one of his two sisters tended for a period of her life to be easily worked up, this tendency abated immediately after she had a tumour removed from her uterus, and so there is no real stigma of a psychotic disturbance.

(5) Wassermann Reaction.—This was negative, and so the possibility of lues venerea was eliminated.

After the withdrawal of the mepacrine and receiving phenobarbitone the patient's personality began slowly to revert to its normal state.

My thanks are due to Sir William MacArthur for permission to publish this case.

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Injury to the Tonsil

The literature of the last seventy years gives, so far as I could find, only one report (Rohr, 1923) of a tonsillar injury, and therefore the following case was thought to deserve publication.

On Sept. 16, 1945, a boy aged 2½ ran indoors and said he had put a "black thing" into his mouth. His mother, noticing blood in his mouth, brought him to hospital. On examination part of his right tonsil appeared to be injured, with recent blood-clot close to it. The bleeding had stopped; the child was sent home, and the mother was asked to bring him again. When seen the next day the tonsil

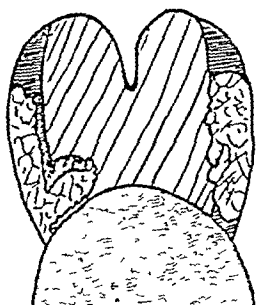


Diagram showing injury to tonsil.

had clearly been injured. Part of it was detached and was hanging loosely in his throat. It was considered that it might cause sudden obstruction to the air passages, and tonsillectomy was therefore advised.

At operation, on Sept. 21, the injury was found to be a vertical cut, dividing the right tonsil throughout its upper two-thirds. The anterior pillar of the fauces and the posterior wall showed abrasions. Both tonsils were removed, and the post-operative course was uneventful. The injury was probably caused by a piece of discoloured glass.

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Reviews

GENERAL MEDICINE IN 1945

The 1945 Year Book of General Medicine. Edited by George F. Dick, M.D., and others. (Pp. 768; illustrated. 18s.) Chicago: The Year Book Publishers; London: H. K. Lewis and Co.

The Year Book of General Medicine is nearly back to pre-war size with 768 pages; nevertheless it remains a handbook. It is clearly printed and well illustrated, the coloured plate this year being a representation of a skin test for haemochromatosis by means of the prussian-blue reaction. The edition for 1945 contains summaries of articles from the whole field of medicine, and the skill of the editors is shown not only by the conciseness of the writing but by the skilful selection and the pertinent and often critical postscripts. It is probably true to say that few articles written in English which make even the smallest contribution to medical knowledge are missed. Outstanding impressions from the 1945 yearbook are the increasing control of bacterial infections and the persistent failure of the attack on the viruses, leukaemia, and carcinoma. The plasma proteins are being separated into their various components for therapeutic purposes, and the literature of the human blood groups steadily grows in complexity. There is slow but steady progress in the analysis of the haemolytic anaemias. The study of cardiovascular disease is increasingly dominated by the problems of coronary sclerosis and peripheral vascular disease. The editors keep a tight rein on exponents of psychosomatic medicine, though allowing them a good run for their money; and it is perhaps a fair criticism of this popular subject that it does not lend itself to summarization and seems to be an attitude to experience rather than a means to acquiring knowledge. These yearbooks are essential works of reference and they have made themselves indispensable to medical "brains trusters". The index might therefore with advantage be made even fuller than it is at present.

BLOOD TRANSFUSION

Quelques Vérités Premières (ou tout-dit-telles) sur la Transfusion Sanguine. By Arnault Tzanck and Marcel Bessis. (Pp. 66. 80 francs.) Paris: Masson et Cie.

Under the title of "Vérités Premières," which may, in view of the editorial preface, be translated as "accepted facts," Masson et Cie are publishing a series of short medical textbooks written by experts in different fields. The accepted facts are presented in the form of aphorisms in the volume dealing with blood transfusion by Dr. Arnault Tzanck and Dr. Marcel Bessis. In 66 pages the authors cover the blood groups, clinical indications for transfusion, a discussion of the "physiopathology" and treatment of shock, indications for transfusion in surgical and medical conditions, and the technique of blood administration and withdrawal.

Even in a textbook intended for students and practitioners undue simplification and dogmatism are to be deplored, more particularly in fields, like blood transfusion, where research is at present so active. There is no mention of the important developments that have taken place in diluents for stored blood, enabling it to be kept in good condition for 21 days. Sodium citrate is the only diluent advised, and even for this no quantitative figures are given. The whole important problem of Rh is dismissed in 16 aphorisms, with no indication that Rh is a complex agglutinin producing a corresponding number of agglutinins requiring for recognition several different test sera. The use of the sternal route, which during the war has so often proved life-saving, is mentioned as of value in 'exceptional' cases only. The importance of the application of pressure when giving a transfusion in collapsed patients is ignored.

These "accepted facts" on blood transfusion cannot be recommended to English readers.

A HANDBOOK FOR SURGICAL DRESSES

An Introduction to Clinical Surgery. By Charles F. M. Saint, M.D., F.R.C.S., F.R.A.C.S. (Pp. 293. 25s.) Published for the Foreign Press by the African Bookman, 49, St. George's Street, Capetown, S.

One of the great surgical teachers of the last generation, Rutherford Morison of Newcastle, and his pupil Cha now professor of surgery at Capetown, has followed traditions and precepts of his old chief. In *An I*

to *Clinical Surgery*, with the subtitle "Surgical Wherefores and Therefore: A Reasoned Explanation of Surgical Note-taking," he has accumulated the substance of lectures given to students during their dressership. When confronted with a case the student, especially in his earlier days, needs guidance to tell him what to look for, and particularly what the real significance and relative importance of the symptoms and signs he elicits are. In this book he will find what he requires plainly laid out in both general and specific terms, so that if he absorbs the excellent teaching which is provided he will be well on the road to becoming a good diagnostician. The wide experience of the author as a surgeon and teacher enables him to write authoritatively, and his assessment of the relative values of various signs and symptoms displays a wise judgment and discretion. The book is not a textbook, and nothing, of course, is said about treatment, but in our view the author has very handsomely achieved his object of avoiding the "parrot type of acquiring knowledge" and replacing it by "a knowledge based upon and the result of reasoned thinking."

We are not among those who think that a book of this type should be a series of annotated pictures, but nevertheless a few more diagrammatic illustrations would enhance the value of a book which we regard very favourably. The student beginning his surgical studies would be well advised to acquire a copy.

A TEXTBOOK OF DISINFECTION

Disinfection and Sterilization. By Ernest C. McCulloch, D.V.M., Ph.D. Second edition, thoroughly revised. (Pp. 472; 68 engravings. 35s.) London: Henry Kimpton.

This textbook, now in a second edition, contains a vast amount of information which can nowhere else be found between a single pair of covers. Yet those who consult it may or may not find what they seek: the author quotes authorities freely, but by no means all that matter, and his treatment of some subjects is quite inadequate—the acridines, for instance, are dismissed in 23 lines. The author's clinical interests are in veterinary medicine, and he plainly does not understand some of the surgical questions with which he has had to deal (it is a small point, but "filiforms" and "bougies" are separate instruments on p. 270). The chapters describing various classes of chemical disinfectants remain much as they were, except that the synthetic detergents have appeared there; so also have the sulphonamides, though they scarcely qualify for inclusion (in connexion with them an odd misconception is betrayed in the statement, "So great are the specificities of the members of this group of drugs that even the pure powders are not self-sterilizing"). On the other hand, disinfection by steam gets much more thorough treatment: as a guide to the use of the autoclave and other methods of using heat these chapters are excellent. The disinfection of air is considered, as are water purification, sewage treatment, and the "sanitization" of crockery and dairy equipment. Pasteurization and food-canning are major subjects, and, apart from these practical matters, "antibiosis" in general, and the bactericidal action of such things as the digestive fluids, r rays, and supersonic vibrations, are not forgotten.

One would like to see this book expanded into at least three volumes which deal adequately with the various branches of its enormous subject, but even as it stands it will be found a useful source of information on many generally unfamiliar questions of hygiene.

TROPICAL DISEASES

Manson's Tropical Diseases. A Manual of the Diseases of Warm Climates. Edited by Philip H. Manson-Bahr, M.D., F.R.C.P. Twelfth edition. (Pp. 1,068; with 17 colour plates, 9 half-tone plates; 406 figures in the text, 6 maps, and 28 charts. 42s.) London: Cassell and Co. 1945.

A new edition of this well-known manual is an event practitioners are led to expect every five or six years. With each new edition certain improvements have been introduced, so that now the twelfth presents its readers with the greatest amount of reliable information on tropical medicine that it is possible to accommodate in a book of this size. In fact it may be stated with safety that no other book on the subject can compete with it in this respect, so that every medical man whose work lies in the field of tropical medicine can hardly consider himself equipped unless he is armed with the latest issue of *Manson's Tropical Diseases*, which has been so brilliantly edited by Sir Philip Manson-Bahr.

A number of chapters have been fully revised. This applies particularly to those on leprosy and rickettsial diseases, while

much new information has been incorporated in the chapters on malaria and vitamin deficiency diseases. A very useful innovation is the introduction of a table of drugs used in the treatment of tropical diseases, giving their names and synonyms and in many cases their chemical formulae. This will be of great help to the medical man who is continually being confused by the tendency of drug firms to introduce for their own purposes names for already well-named products. A glance at such a list as the one printed here is enough to convince any unbiased person that something should be done to check this unnecessary and bewildering synonymy. There is no need to say anything more about a book that is so well known, but it remains to congratulate the editor on the successful execution of the task which he has imposed on himself for so many years.

Notes on Books

A fourth edition of *A Textbook of Surgery*, by American authors, edited by Dr. FREDERICK CHRISTOPHER, has been published by W. B. Saunders Company at 50s. Since our laudatory notice of this work when first published in 1936 we have commented favourably on each edition as it appeared. The changes in the new edition add to the value of a now well established and widely appreciated account of the practice of surgery. There are two new sections: one on military surgery by Col. E. D. Churchill, lately a surgical consultant to the American Forces in North Africa, and one on chemotherapy by Dr. John S. Lockwood of Yale, who writes on the sulphonamides and penicillin. How up-to-date is this edition may be gauged from the fact that in the excellent article on diseases of the thyroid gland by J. de J. Pemberton and S. F. Haines a well-balanced account is given of the use of the thiourea drugs in thyrotoxicosis. Dr. Christopher is now the leader of a team of over 200 members, many of whose names are surgical household words. There has been a steady increase in the number of contributors and, as might be expected therewith, an increase in size and in the number of illustrations, but the standard is maintained and is a high one, not only in the matter of the text but also in the printing, illustrations, and binding.

Ten volumes of the *Bulletin of the Health Organisation of the League of Nations* have so far appeared, and it has therefore been thought desirable to publish an index. Yet such an index might give a very incomplete picture of the work, since many documents which were issued separately or simply multigraphed would be omitted. The decision has therefore been taken to publish a complete bibliography covering not merely the period during which the *Bulletin* has appeared but the whole of the 25 years of existence of the Health Organization. The present bibliography will be useful to hygienists as a guide to the thousands of technical studies on the most varied subjects carried out under the auspices of the Health Organization of the League of Nations. At the same time it will serve as a record of the work done and as a tribute to the many collaborators from health administrations and scientific institutions throughout the world who have each contributed to that work. It is obtainable, price 6s., from Allen and Unwin Ltd., 40, Museum Street, London, W.C.1.

Dr. AGATHA H. BOWLEY is an experienced psychologist who has studied child life among many different communities and is well fitted to the task by her obvious humanitarian breadth of outlook and real love for children. Her book *The Problems of Family Life: An Environmental Study* (E. and S. Livingstone; 5s., plus 5d. postage), is based on the study of cases encountered during her work at Leicester, and statistical figures are given relating to a variety of factors in a close study of 50 cases. The experienced worker will not find much new in this little work, and no one will dispute the importance of the family environment for the future well-being of the child, but it is simply and pleasantly written so that it can with confidence be recommended for study by those who are less well instructed. Normality and abnormality in family life are both dealt with, as are relationships between teachers and parents. The infectiousness of anxiety, the establishment of bad habits in the home, and the aggressive reactions to emotional stress are explained sympathetically. Among the appendices is a useful list of suitable play material for different ages. Within its limited scope doctors, parents, and teachers will find this book a good companion, easily read, pleasantly illustrated, and clearly expressed.

The U.S. Information Service, 33, Davies Street, London, W.1, reports that the National Research Council of the U.S. Government has prepared a comprehensive index of scientific, medical, and technical books published in the United States from 1930 to 1944. Five thousand copies of the volume are being distributed to United States embassies, legations, and libraries throughout the world. All the books listed are in print and are available for distribution by the United States International Book Association, New York.

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THE SPENS REPORT

The Spens Committee, whose report is abridged in this week's *Supplement*, was appointed in February, 1945, under the following terms of reference

'To consider, after obtaining whatever information and evidence it thinks fit, what ought to be the range of total professional income of a registered medical practitioner in any publicly organized service of general medical practice, to consider this with due regard to what have been the normal financial expectations of general medical practice in the past, and to the desirability of maintaining in the future the proper social and economic status of general medical practice and its power to attract a suitable type of recruit to the profession, and to make recommendations'

Of its nine members, eight put their names to the recommendations, while the ninth, Sir Ernest Fass, added a rider of his own. The majority recommendation is that approximately half of all general practitioners between the ages of 40 and 50 should receive annual net incomes of £1,300 or more, that about three-quarters of practitioners should receive net incomes over £1,000, that about a quarter should receive over £1,600, that slightly less than 10% should receive over £2,000, and that in a small proportion of cases it should be possible for general practitioners to obtain net incomes of at least £2,500. By net income is meant gross income less professional expenses allowed by Inland Revenue for income tax purposes. These recommendations are made in terms of the 1939 value of money, and it is to this value that all the figures and recommendations in the report refer. The Committee has also assumed that the practitioners will have to provide for themselves by insurance against early death, old age, and illness.

These recommendations mean an increase on 1939 net incomes by £200 a year for incomes between £400 and £1,200, and above this by £200, diminishing progressively to nothing at £2,000. The Committee also recommends that "before 40 and after 50 practitioners should be remunerated at the rate applicable between 40 and 50 to the burden and responsibilities of practice which they are in fact carrying." There should be a reduction of the difference between incomes of rural and urban practitioners, and remuneration under the Highlands and Islands scheme should be increased, the scheme to be applied to other sparsely populated areas. In areas which do not attract an adequate supply of practitioners additional remuneration should be offered. In practices where there is an abnormal number of aged persons and chronic invalids some adjustment in the method of payment is advised in so far as this depends on capitation. Finally it is recommended that a recently qualified practitioner on completing resident hospital appointments should obtain an initial net income of not less than £500 a year as an assistant in general practice. In this connexion the Committee suggests that about 10% of practitioners should be selected as

specially suitable to train young men entering general practice as assistants after completing house appointments. A supervision fee of £100 a year in respect of such an assistant is suggested. The approved practitioner will have to provide the assistant's £500 in his first year and £600 in his second, and expenses on top of this. As it would take time to enlarge a practice to an extent which would cover this expenditure, it is suggested that the approved practitioner "who has not previously had an assistant should receive as well as the supervision fee £500 in the first year £300 in the second, and £100 in the third year in which he had assistants." Again it should be emphasized that the Committee's recommendations are in terms of the 1939 value of money. "We leave to others," the Committee observes, "the problem of the necessary adjustment to present conditions, but we would observe in this connexion that such adjustment should have direct regard not only to estimates of the change in value of money but to the increases which have in fact taken place since 1939 in incomes in other professions."

The Committee sets forth in a table the net incomes of general practitioners in urban areas in the years 1936-7-8. This table shows that throughout the best years of a G.P.'s working life—between 40 and 55—almost 20% of urban practitioners had a net income of under £700 a year, and that over 40% had a net income of under £1,000. The Committee was unanimous that these percentages are too high, having regard to the length of training. It points out that in relation to other professions the doctor has a long training and a hard life. In 1931, for example, the mortality among doctors between the ages of 20 and 65 was 54% above that of higher civil servants and 26% above that of professional engineers. The Committee is clear that the proportion of practitioners able to reach an income of £1,300 or over is too low. Apart from any proposals for a publicly organized general medical service, it considers that unless conditions are substantially improved the social and economic status and the recruitment of general practitioners cannot in the long run be maintained. It points out that many young doctors in the past have been deterred from specialist practice by the risks and by the certainty of a number of lean years. As these deterrents will be less formidable in the future, there will be increased competition between other forms of medical practice and general practice. "We," the Committee states, "and not least our lay members, consider that it would be disastrous to the profession and to the public if general practitioners were recruited only from the less able young doctors." If, therefore, general practice is not made financially more attractive the majority of the able will seek to become specialists. Another point the Committee makes is that financial worry must inevitably prejudice the efficiency of many general practitioners. For practitioners in the age group 40-49 the Committee's recommendations can be summed up by saying that there would be only 7% receiving a net income of under £700 per annum, as against 20% before 1939, 24% receiving £1,300 to £1,600, as against 17.5%, and 16% between £1,600 and £2,000 as against 10%.

The Committee was satisfied that "there is a far greater diversity of ability and effort among general practitioners

than admits of remuneration by some single scale applicable to all." Therefore there must be a differentiation depending on ability and effort. "We are satisfied by the evidence put before us that no existing degree or qualification can usefully be made the basis of additional payment, largely because many of the qualities which make the best general practitioner are, in fact, unexaminable." Although it is not in the Committee's terms to express an opinion on the method of remuneration, it does observe that "capitation offers a method of differentiation which is acceptable to the majority of the profession." If the number of persons in a publicly organized service is 45,000,000 the Committee's proposals could be realized at the cost of 15s. 6d. per head.

The Committee feels it should justify its figures, because they are a considerable increase on the capitation payments under the N.H.I. scheme, and on the total net income of practitioners in the three years ending 1939. But the Committee was told it should not be bound to accept as satisfactory the capitation and mileage payments which existed before 1939, and that it could consider rates of remuneration *de novo*. The Committee found justified the widespread feeling among doctors that capitation and mileage payments have been too low. Evidence showed that in the case of mixed panel and private practice "the proportion of the time spent on panel patients to that spent on private patients was in general greatly in excess of the proportion of income derived from panel patients to that derived from private practice." Many witnesses stated that two-thirds of their time was spent in looking after panel patients, even though they contributed only one-third of their total income. The Committee also believes that it will not be possible to maintain recruitment in a profession with such heavy responsibilities if so high a proportion of middle-aged doctors are earning the low incomes of 1939 and before. The Committee also observes that there will be much increase of work in a publicly organized service in which the doctor is not paid per visit. It believes that it is important to improve prospects in general practice as to make it attractive enough to prevent all the abler "from trying to enter specialist practice."

PROGRESS IN THE TREATMENT OF SYPHILIS

It is a serious criticism of the treatment of syphilis by weekly injections of neoarsphenamine that a large proportion of the patients do not complete the course, remain infected, and are a source of danger to the community. In America, where syphilis appears to be a greater problem than it is here, steps have been taken to try other methods; and, indeed, a spirit of enterprise has been displayed which has resulted in commendable progress. It is true that American enthusiasm leads to the trial of measures some of which take our breath away, but their greater grasp of the principles of drug action and the experience they gain from their trials result in notable advances.

The recent activity may be said to have begun in 1931, when Hirschfeld, Hyman, and Wanger¹ demonstrated what seems an obvious point—that the toxicity of many sub-

stances given intravenously depends on the rate at which they are put in. They spoke of "speed shock." This led to a proposal by Chargin in 1932 that neoarsphenamine should be given in syphilis by intravenous drip. In 1935 Chargin, Leifer, and Hyman² published 25 cases, and by 1940 there were³ 400. These were given treatment daily for 5 days, the first 111 patients receiving neoarsphenamine, those coming after being given mapharsen, or, as we now call it, mapharside. The damage in the first group was serious; in 43 there was evidence of peripheral neuritis, and one patient died from haemorrhagic encephalitis. In those receiving mapharside, however, the outcome was much better. Even in 1945 an observer as experienced as Earle Moore⁴ said that the success of the 5-day method is about as great as that attained with the usual 12–18 months' treatment in those patients who complete the long treatment, of whom about 80–85% are cured. From the point of view of the community this is a great advance, since all complete the 5-day course. From the point of view of the individual, however, the result is less good; he is exposed to a death risk of 1 in 400, as compared with a risk of 1 in 15,000 by the longer treatment.⁵ In the 1940 discussion³ on the 5-day method Earle Moore suggested that a series of single injections given, for example, in 3 weeks might be as efficacious and less dangerous.

The Americans therefore turned to the laboratory workers. Eagle and Hogan⁶ began an investigation of syphilis in rabbits. They compared the effect of twelve different treatments with mapharside, varying from the use of intravenous drip for 6 hours on one day to weekly injections for six weeks. They found that the total curative dose of mapharside was constant irrespective of the period over which the treatment was given. Whether the interval between injections varied from 2 hours to 1 week, and whether the total number was 1 or 16, the curative dose remained between 4 and 8 mg. per kg. But as the duration of treatment increased, so the maximum tolerated dose increased, and therefore the margin of safety rose. Then there was the spectacle, unusual in this country, of the laboratory workers telling the clinicians how to plan their treatment, and the clinicians in the main following their advice. Eagle and Hogan considered that any desired margin of safety could be attained by prolonging the period of treatment, and that what was needed was a compromise between an 18-month course which was "vexatious" and a 5-day course which was "dangerous." On their proposals a clinical investigation was begun, the results of which were described by Eagle.⁶ The chief conclusion was that three injections per week of mapharside, each 40–60 mg. when given for 9–12 weeks, cured 82% of cases of early syphilis. Out of 4,823 patients 106 did not complete the treatment because of toxic effects, among which were 2 cases of encephalopathy. In the meantime, between April, 1943, and January, 1944, an intensive treatment of syphilis was begun in the U.S. Army in Europe, in which 775 patients received (Pillsbury *et al.*⁷) a 20-day

¹ *J. Amer. med. Ass.*, 1935, 104, 878.

² *Arch. Derm. Syph.*, Chicago, 1940, 42, 239.

³ *Amer. J. Syph.*, 1945, 29, 185.

⁴ *Science*, 1942, 95, 360.

⁵ *J. Amer. med. Ass.*, 1944, 126, 538.

⁷ *Brit. J. vener. Dis.*, 1944, 20, 154.

¹ *Arch. Int. med.*, 1931, 47, 259

treatment in which mapharside was given in a dose of 1 mg. per kg. daily, together with 8 doses of bismuth salicylate. Of the 775 patients 746 completed the treatment, the others discontinuing because of reactions, of which fever in the second week was commonest. At the present time in the U.S.A., when treatment of early syphilis is carried out by organic arsenicals, mapharside is the substance for the most part used, and it is given either three times weekly for 9-12 weeks, or daily for 20 days. The use of neoarsphenamine has been discontinued. Confusion respecting the relative value of mapharside and neoarsphenamine has arisen in this country because some do not understand that mapharside is excreted in 2 days whereas neoarsphenamine takes from 5 to 7 days. Thus if only one injection is given per week it follows that neoarsphenamine is superior to mapharside, but if injections are given three times weekly mapharside is said by very high authority to be much superior to neoarsphenamine. This can readily be understood when it is realized that 60 mg. mapharside is the equivalent of 600 mg. neoarsphenamine.

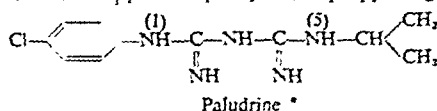
Not only in the treatment of early syphilis has knowledge been furthered: the relative value of malarial therapy and of artificial fever for neurosyphilis has been explored. In 1940 a committee reported³ on 1,100 parietic patients treated with malaria and on 320 treated with artificial fever. The results showed that about half the mild cases had remissions, whether they were treated with malaria or with artificial fever. Of severe cases, however, only 1% had remissions after malarial therapy, while 11% had remissions after artificial fever. Attempts have also been made to apply a combination of mapharside and artificial fever to patients with neurosyphilis (Simpson, Kendell, and Rose⁴) and also to patients with early syphilis, the crowning effort being a treatment intended to effect a cure in one day. This consisted in an initial dose of bismuth salicylate (0.25 g.) and then a 10-hour period of artificial fever at 106° F. (41° C.) (rectal temperature). During the first 7 hours of the fever 0.24 g. mapharside was given by intravenous drip. None of these attempts has been rewarded by much success.

In view of this offensive spirit it is not very surprising that it was the Americans who first discovered the value of penicillin in syphilis. Mahoney, Arnold, and Harris¹⁰ reported in 1943, and again in 1944; and later in the same year Moore, Mahoney, *et al.*¹¹ described results in 1,418 cases. To have secured observations on so many in so short a time represents a considerable achievement; it is in striking contrast with the poverty of the data recorded in papers from this country. High hopes were obviously placed on the excellent clinical results which penicillin quickly gave; as time has gone on expectations have diminished, and it is now certain that a combination of penicillin and mapharside is much more effective in preventing early relapses than is penicillin alone. From their observations in rabbit syphilis Selbie and Simon¹² reached the conclusion that a short course of penicillin is as good as a single dose of an arsenic compound, but that much more penicillin than arsenic is needed to produce a permanent effect, because of the more rapid excretion of the penicillin. Lloyd Jones and Mait-

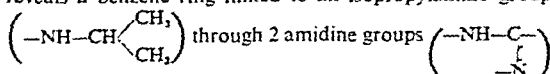
land,¹³ and more recently Lourie *et al.*,¹⁴ have done good service by pointing out that penicillin treatment of syphilis must be organized so as not to require the patient to come into hospital. In the last paper the size of the penicillin dose had risen to 600,000 units given three times daily at hourly intervals for 5 days. We can see that the final place of penicillin in syphilis is not yet known, but it is likely to be the Americans who will find it.

CHEMICAL CONSTITUTION OF PALUDRINE

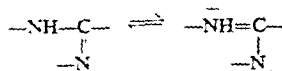
The discovery of paludrine (M. 4888) by Rose, Curd, and Davey¹⁵ has already been recorded in this *Journal*; a description of its evolution and of the initial experimental and clinical investigations has now been published.¹⁶ Paludrine is N_1 -*p*-chlorophenyl- N_2 -isopropyl biguanide,



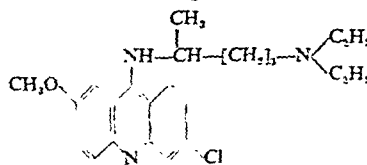
a chemical type not hitherto met with in chemotherapy. It owes its origin to a chain of thought which began with the earlier synthetic drugs. The molecule of paludrine reveals a benzene ring linked to an isopropylamino group



joined "in series." A characteristic of the amidine group is its capacity to be involved in resonance—that is, for electrons to move from one nitrogen atom to the other and back again, with a consequent displacement of electrical charge and the appropriate shift of the double bond, thus:

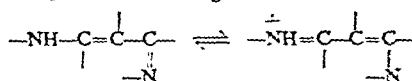


Paludrine has certain chemical features in common with mepacrine. Both are strong bases and form stable salts



with acids; both contain a chlorine substituted benzene ring, and both carry alkyl groups attached to nitrogen (that in mepacrine being more complex). Mepacrine also has a resonance system across the middle of the molecule; not the simple amidine group that appears twice in paludrine, but an extended amidine system with an unsaturated carbon

chain ($\text{—C}=\text{C—}$) interposed, which still permits the drift of electrons from one nitrogen atom to the other, thus:



The biological significance of such a resonance is not apparent, although it is known to influence physical properties.

³ *J. Amer. med. Ass.*, 1940, 115, 677.

⁴ *Brit. J. vener. Dis.*, 1941, 17, 1.

¹⁰ *J. Amer. med. Ass.*, 1944, 126, 63.

¹¹ *Ibid.*, 1944, 126, 67.

¹² *Brit. J. exp. Path.*, 1944, 25, 229.

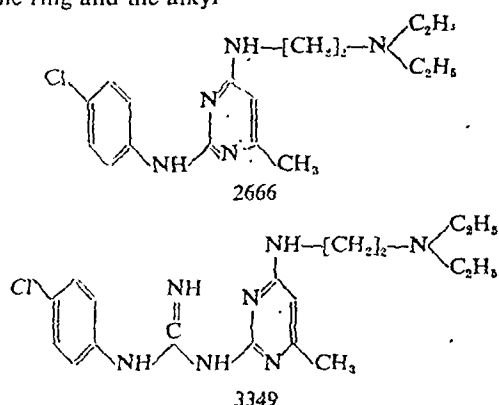
¹³ *Brit. J. vener. Dis.*, 1945, 21, 65.

¹⁴ *Lancet*, 1945, 2, 696.

¹⁵ *British Medical Journal*, 1945, 2, 653.

¹⁶ *Ann. trop. Med. Parasitol.*, 1945, 39, 139.

The evolution of paludrine was not as direct as this comparison of paludrine and mepacrine might imply. The first substance of the new series found active in experimental malarias was 2666. This contained the substituted benzene ring and the alkyl



group attached to a nitrogen atom, and close inspection shows both extended, and true amidine systems. The pyrimidine ring was selected for chemical study because it provided these resonance features, and because, unlike the acridine nucleus of mepacrine, it did not normally give rise to coloured derivatives. Pyrimidine was also a "vital" ring structure, occurring in a number of important biological systems, and in view of its value in the sulphanyl-amide series (sulphadiazine, sulphamezathine) its use in antimalarial synthesis was timely. The compound 3349, which was a guanidine derivative of 2666, and even richer in amidine groups, was more active in experimental malarias, and was the first of the new type to show an action in human malaria. The most profitable lead from extensive research on these structures, during which more than a thousand compounds were made, came from an attempt to simplify the 2666 molecule by assuming a minimal structural requirement for antimalarial activity and omitting superfluous chemical detail. The fragment postulated as inessential is that shown within the dotted lines in the 2666 formula. The residue was then seen to resemble the arrangement of atoms found in the biguanide molecule ($\text{NH}_2-\text{C}(\text{NH})=\text{N}-\text{C}(\text{NH})=\text{N}-\text{NH}_2$); the corresponding

biguanide derivative was accordingly synthesized. After many more preparations highest activity was ultimately found in paludrine, in which the terminal alkyl group was simple isopropyl, in place of the more complex diethylaminoethyl group in the 2666 molecule.

INHERITED POLYPOSIS OF THE COLON

Since Luschka¹ in 1861 observed in the post-mortem room some thousands of polypoid tumours thronging the colonic mucosa of a woman aged 30, this rather uncommon and peculiar pathological echo of genetic mutation has fascinated three generations of clinicians. The pathology of inherited polyposis is well understood. In an affected colon every stage of polyp formation can be recognized, from the initial heaping and overgrowth of mucosa and multiplication of its glands, to the final tumours, pedunculated or cylindrical cystic with dilated glands. Ultimately carcinoma develops at the neck of one of these adenomas, where the cells are distorted, crushed, stunted, and ill nourished, giving the precancerous appearance which Cuthbert Dukes² has styled "collar catarrh." Barger and

Coffey³ record the development of carcinoma of the colon in 82.8% of those who inherit polyposis.

The genetic peculiarities of the condition are also well documented. Polyposis is inherited as a Mendelian dominant. In most affected families it is found in every successive generation. As a rule those who transmit the disease suffer from it, though Bernstein⁴ has recorded a family in which the disease skipped a generation. Polyposis may be transmitted by either sex to either sex, but its incidence is rather higher in males than in females. A curious feature of polyposis is that, though inherited, it seems never to be present at birth, in this respect resembling hereditary optic atrophy and certain forms of hereditary degeneration of the macula. The disease has been recorded in a child of 2 years (McKenney⁵), but in most cases the onset is delayed until the late teens or early twenties. That this curious delay is due not merely to a postponement of symptoms but to a real lag in the actual development of polypi was clearly shown by Lockhart-Mummery,⁶ who, performing pre-cautionary sigmoidoscopy on a member of an affected family at the age of 39, found him free from polypi, but repeating the examination four years later, observed that polyposis had become well established in the interval.

The treatment of polyposis is now fairly standardized. Pfeiffer and Simmons Patterson,⁷ and most other recent authors, advocate a combination of fulguration and colectomy. They eradicate polypi from rectum and rectosigmoid by trans-anal fulguration, short-circuit the colon by an anastomosis of ileum to rectosigmoid, and then proceed to remove the large bowel from caecum to lower sigmoid. The initial fulguration of the accessible lower colon is done in multiple stages, with an interval of not less than three days between sessions. Fulguration is not entirely without risk, for perforation and haemorrhage may occur 5 to 10 days after the operation. It is also not free from discomfort to the patient, and Buie even advises that colectomy precede fulguration, so that if the operation prove fatal the patient has at least been spared the inconvenience of fulguration.

The acquired form of polyposis of the colon, which develops in 10.16% (Rankin,⁸ Barger and Coffey⁹) of cases of chronic ulcerative colitis, differs in certain pathological respects from the inherited variety. Acquired polypi tend to be limited to quite short stretches of colon—Barger and Coffey found them disseminated throughout the whole colon in only 16.6%; they are less numerous and more varied in size and shape than inherited polypi, and in only 21.9% of cases do they proceed to carcinoma.

DELAY IN PUBLICATION OF SPECIAL JOURNALS

Subscribers have had cause to complain of the delay in publication of some of the quarterly journals published by the B.M.A., and we take this opportunity to offer an apology and an explanation. Difficulties in the paper and printing trades seem to have been more acute during the past six months than at any time before the war. One of the difficulties has been to secure delivery of the paper from the mills to the printer. And in instances in which the text paper has been delivered, publication has been held up because of the absence of cover paper. These obstacles are of no one's making, but inevitably accompany the transition from war to peace. Subscribers will eventually get their full number of issues.

¹ *Virchow's Arch.*, 1861, 20, 131.
² *Proc. J. S. A.*, 1926, 13, 720

³ *Surg. Gynec. Obstet.*, 1939, 69, 136.
⁴ *Bull. Minn. med. Found.*, 1941, 13, 70.
⁵ *J. Amer. med. Ass.*, 1936, 107, 1871.
⁶ *Ann. Surg.*, 1934, 89, 178.
⁷ *Ibid.*, 1945, 122, 606.
⁸ *J. Indiana S. med. Ass.*, 1937, 30, 622.
⁹ *Proc. Mayo Clin.*, 1930, 5, 118.

WHAT THE RUSSIANS EAT

BY

LYDIA TEHILY, M.D.

For the last few years the English press has re-echoed with the extraordinary exploits of Russian soldiers, and of the Russian people in general—exploits often carried out in a temperature of 45° below zero. Knowing the vast expanse of Russia, the appalling condition of the roads and the lack of transport one is inclined to ask: 'What do the Russians eat that they should possess such extraordinary stamina and resistance to infection?'

Whole-grain Cereals as Staple Foods

The staple foods of the Russians are whole grain rye and wheat bread and whole grain buckwheat—the latter used for many purposes. The whole grain bread is almost black and is rather coarse, but Russians like it, indeed they prefer it to white bread, which they say tastes "like cotton wool." Unlike other staple foods—such as white bread, maize, or polished rice—black bread even if consumed in large quantities does not produce any vitamin deficiency diseases. When preparing to advance as regular food supplies could not always be relied on, Russian soldiers invariably took with them their "iron ration"—chunks of black bread—to sustain them for two or three days.

In spite of German requisitioning, and the 'scorched earth' policy one may be quite sure that Russian peasants hid quantities of grain—an art in which they are adept owing to past bitter experiences. Actually Russians can live on a diet of black bread alone for weeks and months, and if this diet is supplemented by berries (Russian forests are rich in these), and occasionally by milk and milk products they can exist indefinitely. Buckwheat, also a whole grain cereal, is used as a main dish (gruel), as a supplement to meat, as a dessert (eaten with milk or cream), to stuff poultry or meats or to fill pies.

Animal Protein derived mainly from Milk and Milk Products

Milk and milk products play a great part in the diet of Russians so a peasant feels secure from famine only if he possesses a cow. Even in the Soviet Republics the authorities have had to depart in this instance from the idea of communal ownership and to allow each family to have a cow as private property. The war news reels from the U.S.S.R. often show the pathetic sight of peasants fleeing from their burning villages, the women dragging the children with one hand and leading with the other their so-called "nourisher," the cow. The guerillas, also, while living in makeshift huts in the woods usually have a few cows tethered near by. Thus even under difficult conditions milk and milk products are made available. Although meat or fish is usually eaten with every meal, the first-class protein is derived mainly from the milk and milk products. Sour milk and sour cream are eaten in large quantities in addition to fresh milk, cream, butter, and cream cheese. Sour milk is indeed often preferred to fresh, and is eaten plain or with sugar, and is considered to be good for the digestion and also to be the best remedy for a "hang over." Cream cheese is eaten as a dessert (mixed with milk or cream and sugar), made into pancakes, or used as a filling for pastries, patties, and cakes.

Sources of Vitamins and Minerals

Undoubtedly, in Russia milk and milk products are also the main source of vitamins A and D. Before the Revolution vitamin A deficiency in the form of xerophthalmia was mainly encountered in persons who undertook repeated and prolonged fasts, during which they abstained from milk and milk products in accordance with the practice of the Greek Orthodox religion. During Lent, too, infants fed by women deficient in vitamin A often went blind as a result of keratomalacia. Therefore one may presume that vitamin A deficiency might still be found among people of the "old regime."

It is surprising that in a country where the greater part of the year is very cold, and where the children, if outdoors, are so muffled up that only the eyes are visible, rickets is uncommon. In general the bone formation of Russians is good, while white strong teeth are a national characteristic.

Vitamin B is mainly supplied by black bread and buckwheat, while an additional supply is sometimes derived from a home made slightly fermented drink (kvass) made of stale bread, yeast, and sugar. At any rate, the deficiency of this vitamin has never been observed in Russia. Even during the sieges of Leningrad and Stalingrad, when hundreds of thousands died of starvation, the deficiency of vitamin B was not noted. This was in marked contrast to Spain, where the staple food is white bread and polished rice, and where a great number of cases of nervous and mental disorders occurred during the Civil War.

As a result of the long winters fresh fruit and vegetables are available only for a short time, and their storage also presents a problem owing to the extreme cold. In spite of this scarcity is uncommon. In winter the Russians live mainly on dried, salted, pickled, and otherwise preserved fruit and vegetables, the commonest being salted cabbage. Cabbage was the favourite vegetable in Russia long before its good vitamin C content was known to science. It as well as other vegetables, is usually cooked so that no vitamins or minerals are wasted—i.e., either they are eaten with the water in which they were boiled (e.g., soup), or they are fried, braised, or stewed. In addition frozen cranberries are sent from Leningrad in the north to most parts of Russia, and their juice, which is fairly rich in vitamin C, is widely used as jellies.

The national drink of Russians, apart from vodka, is tea. Before the antiscorbutic properties of lemons were known the Russians drank their tea with lemon. As large quantities of tea are drunk in Russia, especially among the intellectuals, the amount of lemon consumed each day must be considerable. Admittedly since the beginning of the recent war the importation of lemons from abroad has ceased but certain quantities of home grown lemons are still available. Besides, when supplies were short or during sieges, as an anti-scorbutic measure Russians took to drinking infusions made from fir and pine needles.

Thanks to the method of preparing vegetables and to the use of whole grain cereals and milk products, there is no deficiency of calcium or other minerals.

Large Calorie Requirements

The Russian soldiers, in addition to tea and bread in the morning get their traditional diet of cabbage soup, soup meat, buckwheat gruel, and black bread twice daily. Although the main ingredient of cabbage soup is cabbage (fresh in summer and salted in winter) all available vegetables can be added to it, but those most frequently used are beetroot, potatoes and tomatoes (or tomato juice). As a rule, in normal times, a Russian soldier received 3,200 calories a day, not including bread, which was unrestricted and of which an average of 1 kg per person was consumed daily. However, since the beginning of the Second World War bread was rationed and distributed according to the importance of work, a maximum of 900 g being accorded to soldiers and heavy armament workers. As can be seen, the calorie requirements of Russians are great, owing undoubtedly to the rigorous climate. In consequence they take everything with a good deal of fat, and raw bacon is often eaten with black bread. For cooking purposes sunflower seed oil is widely used, so that sunflowers which are grown in almost every garden in Russia, are not only ornamental but useful. Even the cracking of sunflower seeds, a widely indulged in pastime, may be the response of the body to the physiological fat requirements.

Conclusion

Thus from either instinct or experience, the Russians have chosen the most wholesome cereals, and they prepare their food in a way which conserves both vitamins and minerals as much as possible. Taking into consideration the economic and climatic conditions, it would seem that alterations in the food habits of Russians are neither necessary nor desirable. Indeed, it has been stated that the black bread of Russians has won the war for them. Although this statement is rather an exaggeration one has to admit that the black bread helped considerably.

Of course the food referred to in this article is that consumed by the masses of Central European Russia. The populations of the extreme north and south, as well as Russian Asiatic races have their own food habits, more suitable to their climates and their own agricultural products. Hotels and restaurants de luxe, as well as the more privileged people, use normally a modified French "cuisine," with the addition of some national dishes, such as the ubiquitous caviare.

While the King's Fund considers that the responsibility for proper provision in case of fire rests with hospital committees it is thought that notes on the prevention of fire on the lines of those first prepared for the Fund in 1907 and revised in 1926 would be of service to hospital committees in deciding whether the fire precautions at individual hospitals are adequate. A new and revised edition has now been prepared after consultation with the chief regional fire officer for the London Region of the N.F.S. The recommendations relate to the prevention of fire due to various causes, restriction of spread, access for fire fighting purposes, fire exits, fire appliances, fire drills, method of giving the alarm and other immediate steps to be taken. The memorandum is published for King Edward's Hospital Fund for London by George Barber and Son, 23, Fumival Street, E.C.4, price 6d post free.

MORE HOSPITAL SURVEYS

SOUTH-WEST ENGLAND; SOUTH MIDLANDS;
EAST ANGLIA

The hospital services of a wide belt of Southern England, from Devon and Cornwall to the eastern counties, are the subject of three more volumes of the Hospital Survey initiated by the Ministry of Health.¹ The surveyors in the south-west area were Mr. Zachary Cope, Dr. W. J. Gill, Mr. Arthur Griffiths, and Dr. G. C. Kelly; in the Berkshire, Buckinghamshire, and Oxfordshire area, Mr. E. C. Bevers, Prof. G. E. Gask, and Prof. R. H. Parry; and in the eastern area Sir William G. Savage, Sir Claude Frankau, and Sir Basil Gibson.

BRISTOL AND THE SOUTH-WEST

The south-western area comprises the counties of Gloucestershire, Somerset, Wiltshire, Devon, and Cornwall, and the surveyors consider that the whole region should be treated as one. The regional hospital centre, the clinical capital of the service, the seat of medical training, both undergraduate and postgraduate, and the main centre of nursing training, will obviously be at Bristol. The central hospital unit at Bristol should be placed on a site ample for future development. This will mean ultimately the abandonment of the present General Hospital and the conversion of the Royal Infirmary into a casualty reception station and an auxiliary out-patient department. New hospital buildings, including a general hospital of 800 beds, a maternity hospital of 100, a children's hospital of 200, another hospital of 200 for aged and chronic cases, possibly a sanatorium accommodating 200, and possibly also the medical school, should be placed together away from the congested part of the city. A site to the south of the River Avon is tentatively suggested. It is hoped that the Royal Infirmary will find it possible to provide the area general hospital, that the Bristol Maternity Hospital will administer the new maternity centre, and that the Hospital for Sick Children will undertake the provision of the new children's hospital. Southmead Hospital, belonging to the Bristol Corporation, should be developed as a district hospital, and suggestions are made for two other district hospitals in Bristol, and others at Weston-super-Mare, Taunton, and Yeovil, and for 11 local hospitals in the Bristol area. District hospitals are defined as hospitals to be staffed and equipped to undertake a considerable range of medical and surgical practice, while the local hospitals will be available for post-operative care of cases, and for patients who, had the home conditions been reasonably satisfactory, the general practitioner would normally have treated at home. It is considered that Bristol and Taunton should be the only centres for hospitals for infectious diseases.

In Gloucestershire a scheme for an area hospital centre has already been put forward, on a site not yet selected, between Gloucester and Cheltenham, the Royal Infirmary at Gloucester and the General Hospital at Cheltenham to serve as out-patient centres, casualty reception stations, and local hospitals. In this area there is not considered to be any need for district hospitals; seven local hospitals are placed. In the Bath area the organization of a hospital centre on the Combe Park site is recommended to serve the Somerset districts already depending on Bath hospitals and all districts in Wiltshire, with district hospitals at Swindon and Salisbury and maternity centres and isolation hospitals at those two towns and in Bath itself.

For the Exeter area it is recommended that the Royal Devon and Exeter Hospital be developed to become an area hospital, with Exeter City Hospital associated for the care of incurable cases. District hospitals should be at Torquay and Barnstaple, and 16 affiliated local hospitals are suggested. Geographical considerations suggest the closing of seven other small hospitals, but it is admitted that there may be local reasons why some of them should be retained; others might conveniently become health centres. In Plymouth the best course is considered to be the development of a hospital centre with a general hospital and associated institutions all on one site. No district hospitals are thought to be needed in this area, but four local hospitals are recommended. Two alternatives are possible in West Cornwall—one that the whole of

Cornwall should be included in the Plymouth area, the other that West Cornwall should form a separate area with its own centre. The surveyors favour the second course. It is recommended that a new site for a hospital centre should be found in or near Truro, and on it a general hospital of about 400 beds should be built together with special hospitals. The consulting staffs of the Royal Cornwall Infirmary and the Camborne-Redruth Miners and General Hospital should combine to form the specialist staff. A district hospital should be established at Penzance and another on the eastern side of St. Austell, and nine local hospitals are marked out.

Some General Comments

The surveyors of the South-Western Area have some interesting general comments to make. They were struck by the manner in which the affairs of small voluntary hospitals are controlled in varying degrees by committees, medical staffs, and matrons.

"The inclinations and enthusiasms of the medical staffs may determine the functions of a small hospital. To refer to one example, a small hospital was opened a few years ago. One of the general practitioners in the neighbourhood was interested in obstetrics, and as a result of the needs of his patients the hospital became a maternity home. A few years later he left the district. His successor had an interest in general surgery. The maternity practice was stopped, and the hospital became filled with surgical cases. As regards one or two small hospitals it would not be incorrect to say that they had become private nursing homes supported by voluntary contributions."

Too few specialists practise in this area. The surveyors were constantly reminded of the inadequate numbers of obstetricians and gynaecologists and the difficulty of getting the help of a dermatologist. Orthopaedic surgery requires to be developed, especially in Gloucestershire. No uniform scheme of appointment of medical staffs was apparent. The committees of some hospitals appoint all medical practitioners in the locality; in others hospital appointments are in the hands of practitioners already on the staff, and it is in their power to "blackmail" any newcomer, however well qualified. In the larger hospitals the appointment of the members of the visiting medical staffs is subject to an age limit, but in the smaller hospitals the medical staffs may continue to do clinical work until they retire from medical practice. One general practitioner undertook major surgical operations until he was 80. General practitioners often defer calling in consultant help because no fees can be offered, so that patients in a general ward may have to wait for a consultant opinion until a private patient also requires the advice of a consultant in that branch. Yet there is no reluctance on the part of consultants to give their advice and operative skill without fee.

Public assistance institutions were found in which no trained nurses were employed. "Nevertheless we were impressed by the sympathy and evidence of sustained solicitude which matrons, sisters, and nurses showed towards the patients in their care." The majority of public assistance institutions have so many defects as to be unsuitable for further use for aged and chronic sick, who should be reclassified and redistributed, some of them in special units at selected local hospitals.

In the surveyors' view all the consultants should be wholly engaged in consulting work, but for several years to come it will be necessary to accept a less rigid system in certain areas. During the interim the term "consultant" should apply to the member of the visiting staff of a large general or special hospital who is recognized by his professional colleagues as a specialist in general medicine or surgery or in some branch, whether or not he is engaged in general practice.

The desire has been expressed that a medical school should be organized in connexion with University College, Exeter, or in Plymouth; but while such a scheme may be possible in future years, for the present it is considered a primary duty to see that the medical school at Bristol University is fully staffed and equipped.

OXFORD AND ITS AREA

The survey of the hospital services of Berkshire, Buckinghamshire, and Oxfordshire is illustrated by many maps and plans for an ampler provision and better distribution of hospital beds. It is considered that the hospital services for this area should be planned to meet the immediate needs of a popula-

¹ London: H.M. Stationery Office, 1945. *Hospital Survey: South-Western Area*, 10s. net; *Berkshire, Buckinghamshire, and Oxfordshire*, 5s. net; *Eastern Area*, 2s. 6d. net.

tion of about 1,000,000—the population in 1938 was estimated at 867,000—and for this purpose a total of 9,970 beds will be needed, of which 5,000 should be for acute cases and 2,500 for chronic, 600 for maternity, 1,000 for tuberculosis, and 800 for infectious diseases. The present number of beds in the area is 5,711. The greatest deficiency is in Buckinghamshire (1,782). There is also a shortage of medical personnel, most obviously in the consultant-specialist class.

Among the general recommendations of the surveyors are the following: Fever hospitals should be called upon to deal not only with "notifiable diseases" but with such forms of acute infections as most require hospital treatment. The bulk of the public assistance institutions inspected are so bad and ill adapted for their duties that a new service in modern buildings is necessary. Children in these institutions should be separated from adults and cared for in a different environment. Chronic sick should be housed in separate blocks within the curtilage of the general hospital. Colonies under the charge of the health authority should be provided for the aged and infirm. Recommendations are also made for the better organization of out-patient departments—including an appointments system—for the provision of after-care homes for patients requiring post-hospital care or convalescence, and for many improvements in specialist services.

Health Centres Advocated

The policy of establishing health centres as the basis of the health and hospital services of the area is warmly approved by these surveyors. They recommend that existing cottage hospitals should be developed as health centres for their districts, and that other health centres should be established at Hungerford and Wokingham in Berkshire, Beaconsfield, Bletchley, Newport Pagnell, Princes Risborough, and Wolverton in Buckinghamshire, and Witney and Woodstock in Oxfordshire.

The problem of Oxford is declared to be peculiar and weighty. The city and the parts around it rely for their medical services on the Radcliffe Infirmary, which old voluntary hospital is unable to meet the growing demands. Two courses are open: one to reconstruct the Radcliffe Infirmary on its present site and build a second hospital somewhere else, and the other to evacuate the present Radcliffe site and build a new hospital of 1,000 beds about two miles from the centre of the city. In the view of the surveyors the advantages of the second of these plans are overwhelming, but in order to make it effective close co-operation between the municipal authority and the voluntary hospital will be necessary.

It is considered that Aylesbury, the county town of Buckinghamshire, should take a more important place in medical services. There is a growing need here for expansion, upgrading, and co-operation. Banbury, High Wycombe and Amersham, and Newbury should each have a hospital with a unified service and self-supporting to a considerable extent. At Maidenhead more co-ordination is required; there is a "magnificent opportunity" here for unification. Reading has two hospitals—one municipal and the other voluntary—neither of them on an adequate site; it should have one main hospital situated away from the centre of the town and a main health centre situated centrally, with subsidiary health centres or local hospitals elsewhere.

CAMBRIDGE AND EAST ANGLIA

The surveyors in this area, which includes Norfolk, Suffolk, Cambridgeshire, Huntingdon, and Soke of Peterborough, with a population of 1,250,000, are of opinion that there should be one key hospital for the whole region, fully staffed and equipped to deal with all types of cases; a principal hospital for each of the administrative areas and available for all types of service with the exception of neurosurgery and thoracic surgery and to some extent radiotherapy, county general hospitals with 100 or more beds; and, finally, local hospitals of under 100 beds, mainly staffed by general practitioners. They estimate that 3.5 beds per 1,000 are required for the acute sick, entailing an addition of 1,150 beds to those at present available. This could be made up chiefly by extensions of Addenbrooke's Hospital, Cambridge, and the principal hospitals at Peterborough, Norwich, King's Lynn, Ipswich, and Great Yarmouth. With the exception of the Norfolk and Norwich

Hospital, the larger hospitals are understaffed. Apart from gynaecological and ear-nose-and-throat surgeons, there do not appear to be any consultants practising a special branch of medicine and surgery to the exclusion of general work. Radiotherapy has so far been developed only in Cambridge. There are also held to be too many hospitals of considerable size and serving large areas which have general practitioners functioning as the specialist staff.

Addenbrooke's is proposed as the key hospital of the region, and five other county general and five local hospitals are suggested for the Cambridge area. In Suffolk the principal hospital, despite its grave staffing defects, would be the East Suffolk and Ipswich, with two county general and five local hospitals in that county; and in Norfolk the principal hospital would be the Norfolk and Norwich, with four county general and seven local hospitals. Arrangements for x-ray and radium therapy in this region are held to require considerable organization and development. The surveyors suggest one main centre at Addenbrooke's, with full equipment, and two or three subsidiary centres at Norwich, Ipswich, and possibly Peterborough.

For the chronic sick, on the basis of 2 beds per 1,000 population, just over 1,000 beds will be needed. Taken as a whole, especially in the rural districts, the infirmaries of the public assistance institutions are "of a very low standard and are no credit to the counties concerned." An exception is made of the institution at Peterborough, "which might well serve as an example to neighbouring authorities of what can be done under present powers"; the institutions at Norwich and the county infirmary at Cambridge also do not come under the stricture. Recommendations are made for the appropriation or other rearrangement of the existing public assistance hospitals. In West Suffolk it is considered that the needs of the chronic sick could best be met by converting the Bury St. Edmunds public assistance institution into a county hospital. Detailed recommendations are also made for improvements in maternity accommodation, orthopaedic services, and sanatoria for pulmonary tuberculosis. A linkage of hospitals for infectious diseases is suggested whereby each unit over the widest possible area of administration would work in liaison with all the other units concerning admission of patients and use of staff.

ASSOCIATION OF SURGEONS

On May 7 the Association of Surgeons of Great Britain and Ireland entertained to dinner a number of eminent representatives of French and Belgian medicine, and the Directors-General of the armed Forces. The President of the Association, Sir Max Page, had a gracious tribute paid to him by Sir Claude Frankau, who described him as an outstanding example of a vanishing type of surgeon—the general surgeon. He lauded his skill as a man with equal facility in operating on congenital pyloric stenosis and on the femur. In reply Sir Max welcomed the flourishing state of the Association of Surgeons, and extended a warm greeting to their surgical colleagues from the Continent—a welcome that was endorsed in fuller detail by Sir Alfred Webb-Johnson in his toast "The Guests." Extolling the merits of professional dinners, Sir Alfred said the late Sir Buckton Browne told him that it was at a dinner that Lister had first heard of the work of Pasteur. He called upon each distinguished foreign guest present to stand up on mention of his name, and as each man did this with evident pleasure, he was warmly applauded. Ending on a solemn note, Sir Alfred said how much they had admired the patience, fortitude, and faith of the French nation during the hard years, and he thanked them for all they had done in helping our men across the frontier between France and Spain, and helping the parachutists who dropped in France on their dangerous missions. And he thanked, too, "Your wonderful women."

Prof. Lenche, who is an Honorary Fellow of the Royal College of Surgeons, graciously replied on behalf of his French and Belgian colleagues—both those present and those who had been unable to come. He went on to say how close their hearts had been to ours during these past years. He recalled hearing by radio the news that the College had been bombed. He pleaded for still closer contact between the medical professions of the two countries in the future. The young men, he observed, must exchange ideas across the Channel and read each other's literature.

Sir Alexander Hood, who also replied for the guests, spoke of the importance of morale in war and of the part played in sustaining this by the medical profession, and especially by the surgeons. No army had ever had such excellent medical services as the British

Army in this war. The surgeons had done much to plan the Army Medical Services, and he gave as an instance the great help they rendered in tackling the difficult problems of the surgical services for D-Day. Sir Alexander said that special surgery had come very much to the fore in the Army Medical Services between 1939 and 1945. The fact that the soldier knew that, if wounded, he would have first-class expert treatment in a forward area had an enormous effect on the morale of the troops. Sir Alexander paid a tribute to the consultant surgeon for "spreading the gospel of surgery," especially among the younger men. Finally he made a plea for continuing in peace the close contact there had been in war between the Army and civilian medical services. They did not want, he said, once more to go into isolation.

A HUNTERIAN DINNER

The Hunterian Society celebrated the 218th anniversary of the birth of John Hunter by a dinner that was much enjoyed by all those present. Toasting the Hunterian Society, Mr. Justice Hilbery compared his own state to that of John Hunter, who felt so apprehensive before lecturing that he used to take laudanum to soothe his nerves. Hunter, he observed, must have been a difficult man to live with because most of the rooms in his West-End house were full of anatomical specimens. Stressing the value of tradition in the learned professions, Mr. Justice Hilbery praised the Hunterian Society for its continued activity since its foundation in 1819, twenty-six years after Hunter's death. The medical profession, he concluded, was now in danger of a fracture-dislocation with its past.

In reply the president of the society, Mr. Mortimer Woolf, recalled Rudyard Kipling's classification of people into two kinds—doctors and patients. It was now proposed to subdivide the patients into those who when ill chose to lie in a bed or institution of their own choice and those who chose to lie in State.

Mr. A. E. Porritt gave a warm welcome to the guests, and mentioned that Dr. Mervyn Gordon had made a gift of Hunterian relics to the society. Responding for the guests, Lord Moran touched on a number of interesting themes. He recalled Bacon's observation that how a thing happens is more important than why it happens. Lord Moran believed that the differences between physician and surgeon were really small, and referred to Wilfred Trotter as the last of the physicians who did his own cutting. He deplored the fact that the learned professions no longer had leisure, with the result that they were ceasing to be learned. Sir Alfred Webb-Johnson, who also responded, said that Hunter's statue in Leicester Square had been damaged by rowdy soldiers. The statue had been sculpted by Woolner, who was a friend of Darwin's. Woolner, he added, had also sculpted a Puck, to whom he gave sharp projecting tubercles to the ears. Darwin called it Woolner's tubercle. Why, Sir Alfred asked, did we call it Darwin's tubercle?

CANADIAN WAR HOSPITAL FOR BRITAIN

On April 29 the Canadian Red Cross Society hospital in the grounds of Cliveden, Lord Astor's Thames-side estate, became the property of the Crown, as a gift from the Canadian Government and people to Great Britain. Col. R. W. Frost, overseas commissioner of the Canadian Red Cross, presided at the ceremony, when Lord Bennett handed the key of the main entrance of the hospital to Mr. Aneurin Bevan, Minister of Health. In the name of the Government of Canada Lieut.-Gen. J. C. Murchie handed over that part of the equipment and fittings which the Canadian Army Medical Service has added to the hospital. Mr. Bevan, acknowledging the gifts, said he was delighted to accept them on behalf of the British nation as a further example of the warm-hearted generosity of the people of Canada. The British Government intended to use it as a special hospital for research into rheumatic conditions in children, and it would also serve general hospital purposes for people in the neighbourhood. It will be known in future as the Canadian Red Cross Memorial Hospital, in honour of the Canadians who gave their lives in the war.

The Friends Ambulance Unit is a voluntary pacifist association of some 700 men and women who have organized themselves for the relief of suffering wherever it occurs. The war, and the privation and suffering which followed in its wake, took them into many parts of the world and set them a multiplicity of tasks. Though organized in the first place for wartime emergency service the F.A.U. has tried to continue its existence as long as the need for its special kind of contribution to the work of relief exists. It is assumed in the present plans that its work will come to an end by June 30, 1946. An illustrated account of work in various stricken countries is given in the sixth annual report, published from 4, Gordon Square, W.C.1.

Correspondence

The Health Service Bill

SIR,—The implications of the Health Service Bill are now available for study. Its author considers that the essential partners in the scheme—the doctors and the hospitals—must be rolled out by the smoothing-iron of Socialist uniformity. It is, in fact, the first step towards full regimentation of both doctors and patients, and, as everyone knows, it is the first step that matters. After that first step it is harder, and finally impossible, to turn back. Once Mr. Bevan has got his Bill it will be easy for him to issue regulations and use his wide powers to make doctors full-time salaried servants of the State. The public would then have to queue up at health centres like soldiers at sick parade. The public prefer the family doctor as a servant and friend; the Socialists want to turn him into a servant of the State.

In fact, we are back to the days of intolerance. In the past it was the fervour of Dissenters which made the strength of great political movements. Surely the relationship of man to man is of more importance in so personal a matter as healing of the sick than authority's need for central control. All parties and the medical profession are agreed that the aim of this great scheme should be to bring to those in need an equal chance of sharing in the modern advance of medicine, and much more success could have been assured if a proper understanding had been reached as to the limits to be drawn between the province within which the State should organize and that in which the individual should give rein to his creative genius.

If Mr. Bevan pursues his present course and enforces something on the doctors they dislike, and indeed on a large proportion of the public, then, as I indicated in a letter in September, 1945, he will create one of the greatest blunders of his career, which in due course will recoil upon the authority of the present Government.—I am, etc.,

London, W.1.

NORMAN P. HENDERSON.

SIR,—Prof. W. M. Frazer's letter (April 20, p. 621) stimulates comment. He states: "Week by week in the *Journal* we see a spate of high-sounding words which bemuse rather than instruct"; very well, then, let us face facts.

The keynote of the Health Service Bill is the Minister's undisputed authority over the whole of the nation's health services. The Bill may be "most courageous," it may be "prompted by an able Minister," "who conscientiously believes etc.," but this is no time for platitudes; this Bill means State control of the medical profession. "We are the masters"; thus speaks the Attorney-General. Very soon the Bill will be given the force of law; very soon we shall see what has happened to all the proposed amendments. "We shall know how to deal with organized opposition to the will of the people"; thus threatens one Cabinet Minister after another.

We are in for a hard fight, let there be no mistake about that. Those who are alive to the danger will agree that criticism of the B.M.A. at the present time is tantamount to high treason however justifiable it may be at other times. The profession must be content now to repose full confidence in its leader and give them loyal and unfaltering support. "We would not ask the community to allow us to retain a similar measure of freedom to that accorded to other professions," says Prof. Frazer. Whatever may be expected of the community, it is our bounden duty to rely on ourselves. If freedom is worth having it is worth fighting for, the choice lies between this acquiescence in totalitarianism. The community will give its verdict in due course.—I am, etc.,

Keighley, Yorks.

H. M. HOLT.

SIR,—I feel I must join other correspondents in calling for simplification and hardening of the policy of the B.M.A. The first essential is honesty of motive. The interests of the public are being safeguarded by the Government in the very introduction of a National Health Service. While being in favour

of this service, our motive is candidly to protect our own interests by fighting points in the service which are at variance with them.

There are three points on which the majority of the profession seem to differ from the Government. One is on the principle of becoming completely controlled by the State owing to compulsory surrender of goodwill and to payment by salary. The second is likely to be the total amount of remuneration to members of the profession, when this is published. The third is the loss of freedom of enterprise of the voluntary hospitals through their compulsory total acquisition by the State.

Unless these points are adjusted by negotiation between the profession and the Government what action can be taken? The proposed negative action of refusing to join the scheme is not calculated to give practitioners confidence in the speedy solution of the differences. Early concerted action by (say) refusal to sign certificates will be essential to bring the need for negotiation strongly before the Government. Unless the B.M.A. Council takes the lead with some such action most doctors will be unable to afford financially, despite the B.M.A.'s fighting fund, to lose their income and capital by refusing to join on the appropriate date whatever scheme the Government pleases to introduce.—I am, etc.,

Have Sussex

E. N. G. GORMAN.

SIR,—To fight with every legitimate weapon to secure amendments to the National Health Service Bill is necessary, urgent, and constitutional. To plan with fighting fund and threatening word to make an Act of Parliament of which we disapprove unworkable is revolutionary. It is no sufficient answer to claim that we are fighting for the public good. Obviously other groups displeased with other Acts of Parliament could make a similar claim, and would be the more likely to do so since this method of bringing the law into disrepute had been blessed by so respectable a body as the B.M.A.

Surely, especially in these restless and troubled days, there is here a principle involved greater even than the Council's Principles, important as these are. Is there time to consider calmly along what road we are planning to march, what kind of forces are likely to join with us on the way, and where this revolutionary army, swollen by a multitude of recruits as it marches, and led by the Council of the B.M.A., is likely to arrive.—I am, etc.,

Nuneaton.

T. H. FORREST.

SIR,—The National Health Service Bill will in due course become law, in spite of opposition by any individual doctor or group of doctors. Why? Because it is the will of the people expressed by their freely elected representatives in Parliament, to reorganize the country on urgent and truly economic grounds. Every organization and interest in these islands will in turn come up for scrutiny and ruthless reorganization. Each one of us who has the country's interest at heart must not stand in the way of progress, for it is progress. In order that this country can become great again many pre-existing ideas must be scrapped for the smooth running of the whole. I submit that the medical profession will recover from this courageous major operation and enter into an uninterrupted convalescence.—I am, etc.,

Compton

T. W. ROTHWELL.

Assistants and the Bill

SIR,—Among the numerous letters on the effects of the proposed health service I have seen nothing about what strikes me from my own experience as one of its most important deficiencies—the abolishing of the status of assistant. Before entering general practice I had longer than most in resident hospital posts, but I should be the first to admit that what I learned from my principal when I was an assistant was a most important part of my training, which I should have sadly missed had I set up on my own account.

I have tried in vain to see how under the proposed scheme the newcomer to practice can be "introduced" unless he is attached in some subordinate capacity to an older hand. With

a capitation basis it might be obligatory for a doctor, on reaching an agreed limit of numbers, to employ an assistant; but where salary is the basis, and each doctor is responsible only to a committee, there can be no smooth and natural succession from the older doctor to the younger, nor can there be the gradual slackening off of a tiring old man, which is the present general method.

This has seemed to me from the beginning the strongest argument for the retention of the private ownership of practices. Both the patients and the succeeding doctor must suffer from the sudden disruption of practices which seems inevitable under the proposed scheme—I am, etc.,

Sheborne

R. McINTOSH

Penicillin and Diphtheria

SIR,—Your annotation on the action of penicillin in diphtheria (April 27, p. 656) is based solely on the experimental findings of Ercoli, Lewis, and Moench (*J. Pharmacol.*, 1945, 84, 120) and disregards those of R. M. Young and G. M. Mood (*J. Bact.*, 1945, 56, 205) which seriously conflict with them. You quote the former as stating that a concentration of over 1 unit per ml. of penicillin is required to inhibit the growth of *C. diphtheriae*. Young and Mood tested six strains and found all to be inhibited by concentrations between 0.004 and 0.06 unit per ml. (This is comparable with my own findings in thirty strains, mostly gravis.) They also found that experimental infection by *C. diphtheriae* in guinea-pigs could be prevented by extremely small amounts of penicillin mixed with the inoculum, or cured by larger doses given as long as 23 hours after inoculation with a larger dose of culture.

The effect on the results of such experiments of the routes of inoculation and other factors appears to need further study, but I submit that to base a definitive judgment solely on the findings you quote is unjustified. Your conclusion that penicillin "would have no appreciable value for the treatment of patients with established diphtheria" is premature and unsupported by my own experience, as described in the letter which you published on April 20 (p. 627). It could have been confidently predicted without the experiment you quote on this point that penicillin would not influence the action of diphtheria toxin. On the other hand, if administered in sufficient dosage to inhibit the growth of bacilli in the lesion it will prevent the formation and absorption of further toxin, and it is reasonable to suppose that this should have a further influence on the course of the disease.

My experience, which now extends to five cases, combined with my observations on the fate of penicillin-sensitive organisms in deep gum and tonsillar infections treated with general penicillin, leads me to believe that large doses—at least 500,000 units a day—are necessary to ensure penetration into the membrane, whether from the circulation or via the saliva. The effect is rapid and treatment need only be continued for three days.—I am, etc.,

St Albans

DAVID A. LONG,
Penicillin Officer, H.M. End Hospital.

Unusual Reaction to Penicillin

SIR,—In penicillin-treated syphilis a febrile reaction, occurring within twenty-four hours (or more exceptionally after ten to twelve days) of commencing treatment and frequently associated with exacerbations of clinical manifestations of the disease, is commonplace, and its incidence has been variously reported as from 10 to 50%. The chief practical application of this lies in the fact that the flare-up of an advanced syphilitic lesion in a vital organ or tissue may have disastrous, and even fatal, consequences. The phenomenon is of the nature of a Jarisch-Herxheimer reaction, and is familiar to all venereologists.

Capt. M. Swardlow (April 27, p. 664) has doubtless excluded the possibility that his patient was suffering from coexisting syphilis when treatment for gonorrhoea commenced, and may have omitted to mention this on the grounds that it was routine procedure. I cannot shed any further light on his case, but his letter may serve as a useful reminder to those with a limited experience of the use of penicillin in venereal diseases. As increasing supplies of penicillin become available to non-specialist practitioners, doubtless more and more cases of gonorrhoea will be treated with this powerful therapeutic agent by

doctors with limited experience of its use in V.D. The two chief lessons to be learned derive from the fact that both the gonococcus and the *Treponema pallidum* are penicillin-sensitive organisms. Therefore: (1) Before exhibiting penicillin in a case of gonorrhoea (or, indeed, in any general medical or surgical condition) the practitioner should bear in mind the possibility of coexisting syphilis, particularly with clinically active lesions in vital tissues—e.g., cardiovascular and central nervous systems. (2) The clinical and serological surveillance of penicillin-treated gonorrhoea, to exclude syphilis contracted at the same time and masked by penicillin because of its longer incubation period, must be systematic, thorough, and prolonged. In cases of doubt arising out of either or both of these conditions the advice of an experienced venereologist should be sought.—I am, etc.,

Inverkeithing, Fife.

RICHARD SCOTT.

The "Intractable" Vesico-vaginal Fistula

SIR,—Dr. Donald Mackay's interesting report of the spontaneous closure of a large vesico-vaginal fistula (April 27, p. 650) is a useful reminder that this injury, so often regarded as intractable, is in fact possessed of a strong tendency to spontaneous cure. This is particularly so when the fistula is the result of the tearing of otherwise healthy tissue rather than the loss of tissue by necrosis. The first type behaves in this respect like the deliberate vaginal cystotomy which was much used by a previous generation of gynaecologists, and which invariably closed, it seems, within a few days. In several cases in which I have resorted to vaginal cystotomy spontaneous cure has always quickly occurred without the need for suturing. Dr. Mackay's case is specially interesting inasmuch as the closure took place without the help of urethral drainage, which is, of course, indicated after cystotomy.

Dr. Mackay comments on the difficulty of exposure of the fistula. This difficulty may be very great, but is, in most cases, overcome by the use of a generous episiotomy and the adoption of the knee-chest position as recommended by Sims in his pioneer work. I have found Grey Turner's modification most helpful. The anaesthetized patient is rolled on her face, is drawn by her legs to the bottom of the table, the legs flexed at the hips, and the knees placed on, and banded to, a low stool: the table is then lowered until the pubic region is just clear of the top. Whereas the true knee-chest position is difficult to maintain, this modified position can be kept up without difficulty for long periods.

I deplore the pessimistic impression conveyed in Dr. Mackay's report regarding the curability of vesico-vaginal fistulae, and the implication that transplantation of the ureters is an operation frequently required. Mahfouz Pasha,¹ with experience of more than 400 cases—many of a very severe variety—reports a cure rate of 95% in the last 100 cases. Writing of the abdominal and transvesical approach he says: "For the last eight years I have not resorted to any of these abdominal operations; I find the vaginal route safer, and if I fail to close the fistula by the vaginal route I seldom succeed to do so by the abdominal." In my own much smaller experience of 30 vesico-vaginal fistulae it has been possible in all of them to repair the fistula by the vaginal approach alone, using, for the most part, a simple Sims's type operation (one patient is still under treatment with every prospect of cure). Most of these were cases of long-standing incontinence—one as much as 32 years—and most of the patients had had multiple previous operations, many by the abdominal or transvesical route. In view of this satisfactory experience with the vaginal operation I disagree with the pessimism so often expressed regarding the treatment of this injury. The most difficult case is that in which there has been an extensive loss of tissue at the vesico-urethral junction; in it a perfect anatomical repair may be marred by a subsequent severe stress incontinence of urine. In these cases relief may sometimes be obtained by the use of a pessary to press on the urethra, or, more certainly, by the use of the Aldridge fascial-sling operation.²—I am, etc.,

Nuffield Department of Obstetrics
and Gynaecology, Oxford.

CHASSAR MOIR.

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Iritis in the Rheumatic Affections

SIR,—Prof. Arnold Sorsby and Dr. A. Gormaz (April 20, p. 597) wrote an interesting paper on iritis in the rheumatic affections. They made the important observation that iritis occurs in some 5% of cases of rheumatoid arthritis, and again drew attention to the incidence of iritis in ankylosing spondylitis. The rest of their paper, however, only serves to show how completely meaningless are the terms "rheumatism" and "rheumatic." They investigated the incidence of iritis in rheumatoid arthritis, acute and subacute rheumatic fever, Still's disease, fibrositis, osteoarthritis, ankylosing spondylitis, gout, and sciatica. Rheumatoid arthritis, Still's disease, and ankylosing spondylitis are no doubt closely related to each other from the point of view both of aetiology and of pathology, but there is no satisfactory proof that they are in any way related to acute and subacute rheumatic fever. Though both groups of conditions may have an infective origin, this has not been proved.

Osteoarthritis is a degenerative condition, and is often a misnomer in that what is called osteoarthritis is commonly no more than the presence of osteophytes quite unrelated to joints. Although gout may sometimes give rise to diagnostic difficulty, there is nothing to suggest that its causative factors are in any way related to those of the other conditions under discussion. Similarly, sciatica has nothing whatever to do with any of these conditions. It is, therefore, not surprising that they found no significant incidence of iritis in osteoarthritis, gout, or sciatica. Indeed, the only feature common to all these conditions is pain, and on this basis "rheumatism" might just as well embrace such unallied conditions as trigeminal neuralgia, tabes dorsalis, or angina pectoris. Nor is the absence of iritis in "fibrositis" unexpected. This latter must surely be the biggest diagnostic rubbish heap in current medicine; the last three cases bearing this label that have come to my notice have respectively been chronic empyema, lobar pneumonia, and metastatic carcinoma of the spine, though the bulk of cases so labelled are, in fact, examples of psychogenic pain. I have long felt that the terms "rheumatism" and "rheumatic" are so devoid of meaning that they should be expunged from the medical vocabulary or limited to acute and subacute rheumatism or rheumatic fever.—I am, etc.,

Leeds.

HUGH G. GARLAND.

Sjögren's Syndrome with Rheumatoid Arthritis

SIR,—Dr. F. Parkes Weber in his letter (May 4, p. 700) questions whether anyone in this country has seen rheumatoid arthritis in patients suffering from Sjögren's syndrome. If he will be good enough to come round here I can show him several such patients, including one now receiving in-patient treatment. Far from being a curiosity in Sjögren's syndrome, rheumatoid arthritis is an essential feature of the condition, and I hesitate to diagnose keratoconjunctivitis sicca unless the patient shows evidence of rheumatoid arthritis.—I am, etc.,

Royal Eye Hospital, London, S.E.1.

ARNOLD SORSBY.

Partial Deafness of the Elderly

SIR,—Now that I have myself become a victim of this very common form of deafness I realize that the public (and most doctors) are unaware of its peculiarities. If these were widely comprehended, a little consideration would enable speakers—in public, in private, and on the wireless—to become intelligible to thousands of these elderly unfortunates. The remedy usually applied is to shout. This is not only unnecessary (except in advanced cases) but is resented as calling attention to their infirmity. No, the main defect is a blurring of the words together when people talk too quickly or indistinctly; also if two people talk at once or if there is another noise, such as a passing aeroplane.

The defect seems to me analogous to an old piano in which the dampers have become worn so that the notes run together if played too loud or quickly. Hence, in conversing with one of these unfortunates, it is considerate and polite to face him so that he can see the movement of your lips, and to speak more distinctly and deliberately than is customary with most people, especially the young. For this and more important reasons, children should be taught not to speak in a slovenly

manner. Speech is an intricate and important cerebral activity executed by countless nerve cells which need educating (as in Scotland). Slovenly speaking means a slovenly brain.

On the wireless (relayed) most of the announcers are unintelligible to me because they talk too fast—or, provokingly, one may hear all the sentence except the end, when the voice is dropped. (This breaks one of the first rules in public speaking.) I can hear every word of a deliberate speaker like Mr. Churchill. The Brauns Trust transmission is always inaudible to me owing to blurring and booming. I listened once to a fine wireless set provided with a "sharpener." When this device was connected I could hear every word.

With the stethoscope I can hear the faintest heart murmurs as well as any of my house physicians. For years I have tested the merits of a stethoscope by applying it to the ball of my thumb. Contractions of its adductor muscle produce a sound of constant intensity which I hear as well as ever. I still prefer my old stethoscope because it has two bells either of which can be twisted into position. (1) a $1\frac{1}{2}$ in (3 cm) diaphragm for the lungs and faint aortic leaks, (2) a bell with rubber rim for mitral murmurs emaciated patients and blood pressure measurements.

I can hear the slight sound of a cigarette extinguished in water, yet in conversation or on the telephone I often have to say "Please repeat more slowly." High notes, including the telephone bell, are badly heard. I describe my own experiences because they must be typical of thousands of miscomprehended mortals. I withhold my name chiefly because I hope the public press will broadcast some of these hints—I am etc.

M D

Ocular Signs of Vitamin Deficiency

SIR.—In your issue of April 6 (p. 546) Dr. R. E. Wright questions the validity of the statement made in an annotation on "Ocular Signs of Arboflavinosis" (Dec. 22, p. 889) that corneal vascularization "has been noted as a result of vitamin-A deficiency." This statement was made to stress the non-specificity of corneal vascularization as a pathognomonic sign of arboflavinosis. Although it may occur in riboflavin-deficient subjects it is seen, in a variety of conditions such as vitamin A deficiency, tryptophane deficiency, injury to the corneal epithelium by irritants, diseases causing pannus such as trachoma, phlyctenular keratitis and any superficial keratitis.

Corneal vascularization as an early sign of vitamin-A deficiency was described by Wolbach and Howe (*J. exp. Med.*, 1925, 42, 753) and by Bessey and Wolbach (*J. exp. Med.* 1939, 69, 1). Keratinization occurs first and then corneal vascularization which is indistinguishable from that of riboflavin deficiency. It is a very early change, and it is possible that native patients in the East are seen only when their eyes are badly affected when any corneal changes have progressed, and the eye has frequently become secondarily infected.

Dr. Wright hopes that we are nearing the time when vitamin deficiencies will be confirmed in the laboratory. Unfortunately the laboratory diagnosis of avitaminosis has many pitfalls. Authorities are not agreed on normal standards for vitamin levels in the body fluids, different techniques give different results, individuals vary widely in their daily requirements and in their absorption, storage, and excretion of the vitamins and some vitamins can be synthesized by bacterial action in the human gut and are possibly absorbed. Also vitamin deficiencies are multiple and very rarely single unless produced artificially or by special diets. These are some of the complications encountered. There are many others—I am, etc.

YOUR ANNOTATOR

Smallpox in the Vaccinated

SIR.—Infant vaccination may modify the disease for very many years. A soldier returning from India has recently introduced smallpox into Essex and infant vaccination protected many adults. The unvaccinated died. The cases may be divided thus:

	Cases	Deaths
Successfully vaccinated in infancy and successfully re-vaccinated	3	2
" " " " " " " "	2	2

Three of the cases vaccinated in infancy only were aged 54, 59, and 69, respectively. If the population had been completely unvaccinated, numerous contacts with the original soldier, a highly modified case, would have contracted virulent smallpox. As it was, infant vaccination protected many persons completely and modified the disease in the few that developed it before they were revaccinated. Does Dr. Killick Millard (April 20, p. 625) consider that this protection from the undiscovered highly modified but infectious case is not worth having?—I am, etc.

C. H. CROFT

W. F. CORFIELD
Medical Officer of Health

Medical Supplies on Merchant Ships

SIR.—The letter by Dr. J. S. Hall (March 30, p. 504) criticized the medical equipment of merchant ships but unfortunately did not go far in suggesting improvements.

The first (and false) impression is that the medicines supplied are childishly inadequate. This arises because the casual medical visitor is faced by an array of bottles labelled "sore throat mixture—good for indigestion," "sweating mixture" and so on, with directions given in the simplest language. A study of the standard prescriptions in the scale of stores in the appropriate part of the *Shipmaster's Handbook* will reveal that these are stock medicines comparable to *N.H.J. Formularies* preparations. It is quite true that NaCl and glucose is a more rational remedy than the carminative "fireman's cramp mixture" and no doubt, the V.D. clinics would prefer the undiagnosed peritonitis to be dressed with simple saline rather than "black wash." Sulpha-thiazole is already provided, but acriflavine could oust the traditional iodine with advantage, especially in ships carrying native crews, who may neglect abrasions rather than attend for an unnecessarily painful dressing. These items might well be brought up to date at the next revision of the *Shipmaster's Handbook*.

In my opinion the big defect in treatment in foreign trade ships is that too little can be done for complicated cases of malaria, especially cerebral malaria. It must not be forgotten that malaria is one of the common occupational diseases of seamen. Many cerebral cases are missed because malaria is never suspected. Any man suffering from coma with pyrexia, even if he collapses in an overheated stokehold or engine room in the Tropics, should be treated as a case of cerebral malaria unless a clear alternative diagnosis is indicated. With the exception of ships bound south through the Red Sea direct from North European or U.S.A. ports it may be argued that in any region where the crew are exposed to extremes of heat they have also been exposed to malaria. Specific treatment apart from the handling of cerebral malaria and heatstroke is reduced to palliative nursing, and by regarding all coma-fever cases as cerebral malaria to be treated with quinine by injection an occasional heatstroke may receive a (to him) harmless and unnecessary dose of quinine while it is made certain that no malaria case misses this life-saving procedure.

In general such injections by laymen should be intramuscular though many officers are prepared to put a needle in a vein. The equipment provided could be ampoules and syringes or a specially developed "tubonic" ampoule or a syringe with cartridge loading. (In connexion with this it is inevitable that penicillin will be included in the list of medical stores, and its reconstitution with distilled water or the repeated use of a rubber-capped bottle has drawbacks in lay hands which might be avoided by the use of expendable cartridges.) The provision of such antimalarial facilities in the early days of the war would have saved many lives in ships touching at West African ports.

While on the subject of injections I should like to evoke the opinion of medical officers of the various fishing organizations on the following. I have not been to sea in a steam trawler since my student days, but I well remember having to exercise my professional talents even then. The number of fractures sustained in handling the heavy gear in winter time is considerable. The shock experts may well consider what to do with a trawlerman with a fractured femur put up with the first aid equivalent of a "long Liston" and lying in a springless bunk which moves every way as the vessel steams, often for several days, to get him into port and a hospital bed. In my opinion no trawler should put to sea without a dozen "tubonic" ampoules of morphine and a tube of 1/2-gram (32 mg) morphine tablets for oral administration. Simple instructions are easily carried out, and a rule of an injection at the time of the

accident with another in an hour if the pain persists, followed by a tablet by mouth to be given whenever the patient is fully conscious and the pain is coming back, could only be beneficial and would save much unnecessary suffering.

As orthopaedic fashions and the treatment of burns change so rapidly it is difficult to see what alterations are acceptable to the experts. It is sufficient to say this. Let the reformer go slowly. The shipmaster or chief steward has little time to keep up with a constantly changing scale of medical stores, and it is better that he should have a small stock of sound and essential remedies and appliances which he understands and can handle with confidence. The wartime American scheme of training chief stewards up to pharmacist's mate (sick-berth petty officer) standard has much to recommend it, but until a similar scheme is introduced into the Merchant Navy the medical equipment cannot be increased to any great extent with any guarantee of efficient use.—I am, etc.,

W. S. PARKER,
Surgeon, M.N.

London W 11

Diuresis by Suggestion

SIR,—Mr. A. Basil Rooke's interesting observation of this phenomenon (April 13, p. 589) reminds me of a case I saw some years ago, in which similar observations were made.

In June, 1940, at a Northern Emergency Hospital, a man of 35, wounded in the evacuation of Dunkirk, was admitted with a shrapnel

wound in the left posterior renal area, which had resulted in a urinary fistula. We were able, with the aid of intravenous pyelography, to locate the shrapnel at the upper extremity of the left ureter, where the opaque material could be seen escaping through the opening (see A.P. view).

It was not possible at once to remove the foreign body, so that for a week or two one was able to observe the fistula. (It is noteworthy that the shrapnel fragment worked its way slowly along the sinus and was ultimately easily removed near the surface.) During the period of observation it was found that, on inclining the patient to the left, urine was seen to drip at regular intervals from his fistula, so that a rough idea of the rate of excretion could be obtained. I was able in this way to test the effects of various stimulants, both mental and physical, on the excretory rate. I found, like Mr. Rooke, that the mere mention of pleasant drinks and foods was followed, after a

short "lag" period, by a definite measurable increase in the rate of flow.

This phenomenon reminds one irresistibly of the valuable observations of Wolf and Wolff (*Human Gastric Function*, Oxford University Press, 1944) on the response of the stomach in terms of vascularity, secretion, and motility to the mere discussion of delectable dishes, without the sight, taste, or smell of food. These observations were made on a patient with a large gastrostomy, the opening of which was surrounded by a protruding collar of prolapsed mucosa. When discussion of appetizing food was begun the membrane became redder (from 40 to 70% according to their scale of designation), indicating a marked increased mucosal vascularity, and the output of parietal (oxyntic) cells was increased proportionately. Actually tasting the food added little to these effects. Earlier authors describing this psychic secretion were Beaumont, 1833; Longqvist, 1906; Pavlov, 1910; and Mantelli, 1911. Also, it is interesting in this respect to recall the work of Babkin, who showed that mankind's favourite hot drinks (i.e., tea, coffee, and cocoa) are excellent stimulants of secretion.

In the case of the stomach the nerves responsible for vasodilatation are the vagi, which are, of course, readily influenced by the cerebral cortex and hypothalamus. The renal plexus, from which the kidney derives its autonomic nervous supply, is formed by filaments from the coeliac plexus, the aortico-

renal ganglion, and the aortic plexus. It is also joined (according to Renner) by the lowest splanchnic nerve and by branches from the vagus, these being mainly vasomotor in function. It is therefore quite conceivable that, in parallel with parasympathetic activity in the stomach and elsewhere, dilatation of the renal capillaries with activation of "quiescent" glomeruli should occur in response to a suggestion of some pleasant food, with consequent relative diuresis.—I am, etc.,

Queen Elizabeth Hospital, Gateshead.

MANUELL ANDERSON.

"Congenital Malaria"

SIR,—Recent correspondence on "congenital malaria" prompts me to add the following observations on the subject.

In the course of a malaria survey in East Africa before the war I examined 143 blood smears from newborn African infants and found 11 infants showing typical *P. falciparum* parasites; but none of those 11 infants developed clinical malaria in the first week of life. The only figures I now have available refer to the first 54 trials, which yielded the following results in smears from the sites given:

Umbilical Cord		Child's Heel		Placenta	
<i>P. falciparum</i> ...	5	<i>P. falciparum</i> ..	7	<i>P. falciparum</i> ...	4
<i>P. malariae</i> ..	1	<i>P. falciparum</i> ..	1	<i>P. malariae</i> ..	2

Thick and thin films were prepared and stained by the "Shute method," using buffered distilled water and acetone-free alcohol. Special precautions were taken against carrying over parasites from the mother's blood when making the film from the child's heel.—I am, etc.,

Preston.

R. MACKAY.

SIR,—Dr. J. S. English (May 4, p. 701) perpetuates the fallacy of previous reporters on this subject in ignoring the possibility that a malarial infant 6 days old or thereabouts could have acquired the infection post partum. He says that in his case "the malaria was transmitted before birth"—i.e., congenital—and expresses surprise "that there are not more cases on record." My submission, as suggested in my previous letter (April 13, p. 586), is that there are in fact no proved cases on record. As a student more than ordinarily desirous of enlightenment on this difficult subject, and echoing, as I imagine, the desires of many other students and practitioners of tropical medicine, I suggest that information from an acknowledged authority as to the absolute criteria required to support a diagnosis of congenital malaria would be welcome.—I am, etc.,

"STUDENT NO. 2."

Alien Doctors in Britain

SIR,—In the near future a number of medical men will be released from the Forces whose position presents an urgent problem. I am referring to the doctors of Allied and friendly alien nationality who served during the war in H.M. Forces and who, for various reasons, cannot return to their countries. As things are at present, on demobilization they are automatically debarred from practising their profession here because most of them do not possess British qualifications. In order to obtain these it is necessary to sit for examinations after studying at a recognized medical school for periods ranging up to three years; in practice it may be much longer, as medical schools are reluctant to admit these doctors as students in view of the shortage of accommodation.

For the majority it is impossible to comply with these conditions—mainly for financial reasons. They are, therefore, left stranded. Surely these men to whom we entrusted the care of our fighting men should be given some consideration, and some effort should be made to modify the very stringent regulations, facilitating their admission to the *Medical Register*.—I am, etc.,

London, W.1

E. M. HERBERT.

Hospitals and nursing homes may now have "dunlopillo" mattresses and pillows, as may invalids against medical certificates for use in their own homes. The Board of Trade has issued a licence to the manufacturers for a limited number to be supplied over the next six months.

Obituary

SIMON FLEXNER, M.D., LL.D., D.Sc.

Dr Simon Flexner, is already announced died in New York on May 2 aged 83. One of the leading bacteriologists of his time he was director of the Rockefeller Institute for Medical Research from 1903 to 1935, when the title of emeritus director was conferred upon him. During a lifetime of patient and illuminating research he distinguished himself especially by his work on terminal infections, his experimental studies on venoms on the aetiology and treatment of cerebrospinal meningitis and acute anterior poliomyelitis. His name is indelibly associated with Flexner's dysentery bacillus and Flexner's antimeningococcus serum.

Born at Louisville, Kentucky, on March 25, 1863 he graduated M.D. of the University of Louisville in 1889, he then became a postgraduate student at Johns Hopkins University, Baltimore, and attended clinics on the Continent of Europe, at Strasbourg, Prague, and Berlin, and later at the Pasteur Institute, Paris. He was professor of pathological anatomy at Johns Hopkins in 1898-9 and of pathology at the University of Pennsylvania Philadelphia 1899-1903 during which time he was also director of the Ayer clinical laboratory at the Pennsylvania Hospital. Simon Flexner began his long service with the Rockefeller Trust in 1903 when he moved to New York to take charge of its pathological laboratories which had been opened two years earlier, many of the researches carried out there by him and his staff have become part of the history of bacteriology, immunology, and experimental epidemiology. Recognition of his work came from almost every civilized country, he received honorary doctorates from many universities in America and Europe and distinctions from other learned bodies. He was elected a Foreign Member of the Royal Society in 1919, and four years later the French Government advanced him to the rank of Commander of the Legion of Honour. He had been Huxley lecturer at Charing Cross Hospital Medical School, and in 1937-8 was Eastman visiting professor at Balliol College Oxford, which elected him to an Honorary Fellowship. The British Medical Association made him a Foreign Corresponding Member in 1932. In his own country he had been a trustee of Johns Hopkins University, of the Carnegie Institute of Washington and of the Rockefeller Foundation, chairman of the Fellowship Board of the National Research Council, and of the Public Health Council of New York State, and assistant surgeon general in the U.S. Public Health Service Reserve. Besides contributing many important papers and monographs on pathological and bacteriological subjects he wrote in 1941 with his kinsman James Thomas Flexner a book entitled *William Henry Welch and the Heroic Age of Medicine*. His youngest brother, Dr Abraham Flexner, the educationist, is well known for his reports and books on medical education in the United States and Canada and in Europe.

SIR HAROLD STILES

Dr EDWIN BRANWELL writes

As a great admirer, and one who had many intimate contacts with him during the later years of his professional activity I would like to add something to what has been written of Sir Harold Stiles. His reputation as a brilliant anatomist and one of the leading surgeons of his day is well known, but he had a combination of additional exceptional faculties some of which, I would emphasize, made him an outstanding figure in the profession which he adorned. Gifted with a great charm of manner, he possessed to a most unusual degree the psychological insight which enables "the healer" to see a case from the patient's point of view. Very thorough in everything he did it was a pleasure to be asked to see a case with Stiles, for he always knew exactly the information he required and was most appreciative in acknowledging any help he might receive. Keenly interested in anything which was new to him particularly if it had a practical application, he had a thirst for pertinent knowledge. My impression is that saturation with everyday procedures, which demand so much expenditure of time and physical energy in the life of the busy surgeon, may have precipitated his retirement. A most stimulating teacher and demonstrator, Stiles had a brain which never seemed to tire. It was soon after the first Great War that Harvey Cushing, who was staying the night with him, told me of the day they had just spent together at the Edin-

burgh War Hospital at Bangour. From ten o'clock to six, with brief intervals for lunch and an afternoon cup of tea, Stiles had continued to demonstrate cases—he was not operating—and, said Cushing, he was as enthusiastic, brilliant, and interesting as "the close of the day as he had been at the beginning," "the most remarkable instance of mental endurance with which I have ever met."

When I dined alone with Stiles at his house at Great Stuart Street a few days before he left Edinburgh to live at Gullane, I asked him how he proposed to spend his time. He told me that, now that he had given up surgery, he intended to make a serious study of golf and had bought all the leading books upon the game. It was obvious that this would never satisfy his active mind, and I was not surprised to hear soon afterwards that he was concentrating upon geology. Some two years later when I asked him whether he proposed to contribute to the literature of geology, his reply was "Although I have worked harder at the subject during the past two years than I did at medicine during any two years of my undergraduate course, I realize that I have only grasped the rudiments." Stiles recognized his limitations, this indeed was one of his many characteristics. Yes Stiles was a remarkable man for, in addition to his powers as a surgeon, he had the mental aptitude, insatiable scientific curiosity, and urge of the investigator, combined with a wonderful power of concentration. He loved new knowledge for its own sake, for the problems which it raised and the mental satisfaction which their solution afforded his ever active brain.

Prof GREY TURNER sends the following appreciation

It must be over forty five years ago since Harold Stiles became an inspiration to the younger men working in surgery in Newcastle upon Tyne. His name was already prominent in cancer research and especially in connexion with the breast, but we also heard that he was rapidly becoming the leading surgeon in Edinburgh. Stiles had a thorough training in the basic subjects, especially anatomy and pathology, and in after years he always regarded such studies as of great importance as an introduction to the practice of surgery. I remember him stressing the fact that for the first ten years of his professional life he never touched a knife other than in the dissecting room. He was always a most persevering and industrious worker. His approach to surgical problems was largely anatomical, as might indeed have been expected from one who had been trained in anatomy under so great a master as Sir William Turner, and in its application when he served as house surgeon to Prof John Chene. To the end of his days he kept up this subject, and long after his retirement he expounded the anatomical basis for certain interventions which we were discussing. It was applied anatomy that made the greatest appeal, and he contributed the article on that subject to the first edition of Cunningham's textbook. I believe that his name first became prominent in surgical practice through his translation of Theodor Kocher's great work, the *Textbook of Operative Surgery*. Kocher was then regarded as the father of modern technique, and it is generally recognized that it was Stiles who first introduced the methods of dry sterilization with the use of gowns, masks, etc. into Edinburgh. Up to that time everything had been conducted on the strictly antiseptic plan, but his firm advocacy gradually made a change which eventually became general.

Though he touched many fields in surgical work probably his greatest individual contribution was on transplantation of the ureters. I saw a couple of his early cases in Edinburgh in 1905 and was tremendously impressed by the statement that these two little girls were able to sit comfortably throughout a performance of "Peter Pan." But it was his paper to the American Surgical Association at Denver City in 1911 that was the means of bringing the method he then employed before the surgical profession the world over. This marked a great advance, and a new era may be said to have dawned for the victims of congenital anomalies of the urinary tract with incontinence. It was a great delight to many of his friends that at the age of 73 he was present at a meeting of the Medico-Chirurgical Society of Edinburgh when one of the first patients he had treated by transplantation was presented in good health and enjoying complete rectal function and control 23 years after operation.

Stiles was an inspiring teacher and those who were present at the meeting of the Association of Surgeons held in Edinburgh during his presidential year in 1921 are never likely to forget that wonderful demonstration which he gave on cervical rib. It was my privilege to visit America in company with Stiles in 1906, and a week which we spent together in the Mayo Clinic will always remain memorable. He and William Mayo were greatly attracted to each other and began a friendship on that occasion which lasted throughout the rest of Mayo's life. In 1903 we also paid a short visit to some of the Swiss hospitals, including a most inspiring and profitable time at Kocher's clinic in Berne. Everything was freely open to my friend, and he was cordially received as a distinguished visitor. All American surgeons loved Stiles, and in spite of his being a very bad sailor he several times crossed the Atlantic. It was not only that they were impressed by his work but they were attracted by his personality, for he was an arresting companion and a splendid

talker, always vivacious and cheerful. He had great zest for work and was filled with enthusiasm, but he seemed to do everything at full pressure so that he took it out of himself. I have no doubt that when he unexpectedly retired from the Chair of Clinical Surgery before the normal age he was suffering from the most strenuous overwork, which continued throughout the 1914-18 war and straight on into the period when he took over the new duties of the chair.

Stiles was proud of the family tradition as doctors and often referred to his experiences of general practice with his grandparent and father in Lincolnshire. This period was dealt with in his most interesting "Reminiscences of a Surgical Training," as he entitled his inaugural address in 1919 as Regius professor. As an operator he was delightful to watch, for he was precise and accurate though deft and speedy. All his operations were planned on an anatomical basis. There was no doubt about his position and success in the Scottish capital. Stiles was among the most loyal of friends, and was always ready to help the younger men and especially those who showed enthusiasm. He was greatly attached to the first Lady Stiles and to his daughter, and they on their part sympathized and helped him in his devotion to his professional duties. His second wife, who survives him, proved a wonderful and most devoted companion, and the happiness of his last days was enhanced by her tender and understanding care.

Mr. STANLEY DODD, consulting obstetric surgeon to the Westminster Hospital, consulting surgeon to the Chelsea Hospital for Women, and consulting gynaecologist to the Bolingbroke Hospital, died in London on April 21, aged 70. The third son of Arthur Dodd of Tulse Hill, he was educated at Eastbourne College, Caius College, Cambridge, and the Westminster Hospital, where he won an entrance scholarship, and after qualifying in 1902 was in turn house-surgeon, house-physician, and obstetric tutor. He had also been senior resident medical officer at Queen Charlotte's Hospital. He obtained the F.R.C.S.Ed. diploma in 1908, was elected F.R.C.O.G. in 1929, and F.R.C.P.Lond. in 1932. While in full harness as an obstetrician and gynaecologist in London, Stanley Dodd examined for the Universities of Cambridge and London, for the English Conjoint Board, and for the Central Midwives Board. He had a happy knack of putting nervous examinees at their ease, as he was obviously and rightly more interested in finding out what they did know than in uncovering their limitations. In his chosen specialty Dodd's patent trustworthiness and quiet efficiency enabled him to dispense with mere showmanship, which in any case he was not equipped for and would have despised. He was one of the team of fine surgeons who during the quarter-century which roughly covered the reign of King George V made the Chelsea Hospital for Women a place of pilgrimage for gynaecologists from overseas. Though quiet in manner, there lurked a twinkle of the eyes which showed a sense of humour; and he was essentially a good colleague to work with. He was part author of the book *Midwifery and Diseases of Women*. He married Miss Phyllis Embury, who, with one son, survives him. He joined the B.M.A. in 1910, but gave up membership when he retired to Wurt in Surrey.

Dr. PHILIP PAINE MURPHY, acting surgical specialist at the Wil Hospital, Aden, who died on April 7, was born in County Wexford on Aug. 23, 1910, the son of a doctor. After graduating in 1932 as M.B., B.Ch. of Trinity College, Dublin, he worked in hospitals in England for two or three years and then joined the Colonial Medical Service in British Somaliland; he was transferred to Aden in 1939. During his service in Aden he carried out at various times the duties of all the higher posts in the medical department. The following are extracts from a colleague's tribute: "Of his many sterling qualities perhaps the most outstanding were his manliness, honesty, sincerity, straightforwardness, and thoroughness. He aimed at perfection in all that he undertook, in work, in play, and in the smallest details of everyday life. He had an inquiring mind, and any new idea that he took up he pursued with great enthusiasm. He was an able surgeon who inspired confidence in his patients. The war years bore especially hard on him, with extra work and shortages of staff, and few would have carried through as he did. The spirit of comradeship that prevailed among the hospital staff—Arab, European, Indian, and Somali—was ample testimony both to his ability as an administrator and to his attractive personality."

Miss ROSA TURNER, L.R.C.P.&S., who died on April 27 at the Royal Free Hospital after a short illness, was the youngest daughter of the late Alfred Turner, of the Manor House, Upper Twickenham, and practised for many years from 87, Gower Street. She studied at the London School of Medicine for

Women and obtained the Scottish triple qualification in 1895. She had been honorary clinical assistant in the venereal disease clinic at the Elizabeth Garrett Anderson Hospital in Euston Road and was for some years visiting medical examiner at the Brentwood Colony and Homes for the Feeble-Minded under the old Metropolitan Asylums Board; she had also been clinical assistant in the V.D. department of the London Hospital and surgeon to the same department at the Bermondsey Hospital and Medical Mission. Dr. Turner joined the B.M.A. in 1898; she was a Fellow of the Royal Society of Medicine and an active member of the Medical Women's Federation.

Dr. ALFRED COLERIDGE, who died on April 28 at Taunton, had practised for many years at Wadebridge, Cornwall. A native of Bristol, he entered the University with a scholarship from Clifton College in 1892, qualified in 1901, and took the M.B., B.S.Lond. in 1905 after holding house appointments at the Bristol General Hospital and at the Mount Vernon Consumption Hospital in Hampstead. He was for four years surgeon to the Bristol Dispensary, and during the war of 1914-18 served as major, R.A.M.C., T.A.; with No. 46 (Wessex) Casualty Clearing Station in France. On returning to civil life he practised in North Cornwall and was appointed M.O.H. by the Wadebridge Urban District Council in 1923. Dr. Coleridge had been a member of the Cornwall Panel Committee and commandant of the Wadebridge Mobile Aid Post in the A.R.P. service.

Medico-Legal

SECRECY IN JUDICIAL PROCEEDINGS

In a divorce action held at Birmingham Assizes at the beginning of April it appeared that one of the parties was said to be suffering from venereal disease and that, in order to simplify the procedure, the doctor treating the party had been sent a questionnaire signed by both the petitioner and the respondent, with the consent of the solicitors on both sides. If the questions had been answered in one way the petitioner would have succeeded, and if in another way the respondent would have succeeded. The doctor had refused to answer the questionnaire though he had said that he would give evidence in court if summoned. He actually gave evidence, and there was no question of his good faith. Mr. Justice Lewis gave an important ruling, which he said had the blessing of Lord Merriman, president of the Divorce Division. It was of the greatest importance, said the learned judge, that appropriate secrecy should be observed in connexion with V.D. clinics, and nothing should be done to diminish their efficiency or infringe the confidential relationship between doctor and patient. This, however, did not justify a doctor in refusing to divulge confidential information to a patient or any named person when asked by the patient to do so. The doctor could in the circumstances have given the information required without any breach of confidence.

This ruling, which will be a valuable guide to doctors in the future, recalls the case of *Garner v. Garner* (1920), in which the wife petitioned for divorce on the grounds of cruelty, alleging that her husband had infected her with venereal disease. She called a medical officer of a hospital to prove that she had the disease. Although she was his patient and therefore had waived the duty of secrecy between doctor and patient, as in the present case the patient waived it by signing the questionnaire, the doctor and the chairman of his house committee took the view that he was bound by the Public Health (Venereal Disease) Regulations, 1916, to maintain secrecy. Mr. Justice McCardie said that the statutory regulations could not override the obligation of a medical witness to give evidence. Mr. Justice Lewis has extended the principle by ruling that they cannot override the doctor's obligation, when asked by his patient, to give a preliminary statement. Although technically there may be a conflict between the wording of the regulations and the demands of justice, the rule of secrecy exists solely in the interests of the patient, and if the patient waives it there can be no further reason for its observance. If the patient does not give consent the situation, of course, is totally different, and the doctor should refuse a preliminary statement and only give evidence in court at the direct order of the judge.

RAYNAUD'S DISEASE AS AN ACCIDENT?

A workman may successfully claim compensation if personal injury by accident arises "out of and in the course of" his employment. These words have caused perhaps more legal argument than any others, partly because of the desire of the court to benefit the workman wherever it possibly can. The result has been that the word "accident" has gradually acquired a meaning considerably wider than it usually has among laymen. Quite early in the history of workmen's compensation the House of Lords decided¹ that a disease such as anthrax may in certain circumstances be compensable, because the entry of a germ into the body may be an accident. The principle was extended in a case² in which the Court of Appeal and later the House of Lords awarded compensation to a girl who had over a long period suffered from slight cuts and abrasions which gradually caused poisoning. That case was followed recently in an appeal³ by a workman who had been employed as a "rotary fitter." He had to cut material with an electrically driven instrument which vibrated at 2,800 revolutions a minute: he held it tight in his left hand and pressed it against the material with his right, using the weight of his body to increase the pressure. After about a year he began to find the tips of the fingers of his left hand going dead in the morning. He showed it twice to the works doctor, but each time he was told it was not a "dead hand." Finally his hand went dead three times in one morning, and he was incapacitated totally for three months and thereafter partially. His own doctor said that he was suffering from Raynaud's disease, due partly to loss of blood in the tissues, which caused the hand to go white, and partly to loss of blood in the nerves causing spasm of the blood vessels. The first cause was an upsetting of the balance of nervous control of the blood vessels due to the tight grasping of a rapidly vibrating instrument, every time the tool was used the condition got worse. The judge accepted the facts, but held that to constitute an injury by accident the workman must be suddenly and decisively attacked at his work, and that the gradual ruining of his blood vessels did not bring him within the Acts. He was influenced by a decision of the Court of Appeal⁴ given 30 years ago against a worker who gradually became poisoned by lead, on the ground that a gradual process could not be an accident. The Court of Appeal has now held that its earlier decision was not in accordance with later decisions of the House of Lords and so ought not to be followed. Guided by these later authorities, the court took the view that each vibration caused by the rapidly rotating instrument was an infinitesimal blow to the man's hand and arm transmitted to the nerves, causing an infinitely small damage to their tissues and in the end cutting off the flow of blood needed to keep the hand in a healthy condition. The mere fact that the breakdown did not occur until the cumulative effect of the tiny blows had produced a certain degree of alteration in the nerves did not, they said, affect the character of the cause. An injury is still caused by accident even though it is due to an infinite number of small accidents and not to one large one.

¹ *Brintons, Ltd v. Turvey*, 1905 A.C. 230.² *Burrell v. Selvaig*, 1921 90 L.J.K.B. 1340.³ *Fitzsimons v. Ford Motor Co.*, 1945 1 All E.R. 429.⁴ *Steel v. Cannell Ltd*, 1905 2 K.B. 232.

In making a medical film, up to eighteen months may elapse between the time that preparations are begun and the time that the completed film is available. During this interval someone else may unwittingly have planned another film on the same subject. The Scientific Film Association has undertaken a voluntary co-ordination scheme intended to minimize the possibility of such overlapping. It is suggested that the S.F.A. Medical Committee should be informed confidentially at the inception of a plan to make a new medical film. The committee will then do its best to advise the intending producer of existing films on the subject, and if practicable will arrange a viewing. Where two or more organizations or persons disclose to the committee the same or overlapping subjects for a medical film, the two parties concerned will be informed that others are in the field, but names will not be disclosed. However, if both parties wish for a consultation the committee will arrange this, and will in the case of collaboration as in individual work assist with what technical advice is at its command. Offers of co-operation and any other inquiries should be addressed to the Hon. Secretary, Medical Committee, Scientific Film Association, c/o the Royal Society of Medicine, 1, Wimpole Street London, W.1.

Medical Notes in Parliament

Members of the Standing Committee

To Standing Committee C, for the consideration of the National Health Service Bill, have been added Mr. Bevan, Mr. Willink, Dr. Clitherow, Dr. Comyns, Mr. Somerville Hastings, Mr. Linstead, Dr. Morgan, Sir Henry Morris-Jones, Colonel Stoddart-Scott, Dr. Stephen Taylor, and other members.

HEALTH SERVICE BILL IN COMMITTEE

With Mr F. G. BOWLES in the chair, a Standing Committee of the House of Commons, to which several medical M.P.s had been added, began on May 14 the Committee stage of the National Health Service Bill. Mr. Bevan and Mr. Key were the Ministers in charge of the Bill. Mr. Bevan proposed that the Committee should meet each week on Tuesdays, Wednesdays, and Thursdays. He said this was essential to get the Bill on the Statute Book this session. Mr. Richard Law and Sir Henry Morris-Jones assented to the proposal. Each disclaimed for his friends any intention of obstructing the Bill. The Committee agreed to sit three days a week.

CONSULTATION WITH CENTRAL COUNCIL

In Clause 1, defining the duties of the Minister for promotion of a comprehensive health service, Mr. WILLINK moved to insert:

Provided that in the discharge of the said duty the Minister shall consult with the Central Health Services Council, to be constituted under this Act, and shall have regard to regional schemes to be submitted to him by the Regional Boards to be constituted under this Act for the proper planning and integration of all such services as aforesaid within the areas of such boards.

Mr. Willink said the Opposition wished to raise the status of the Central Health Services Council and the question of the integration of the health services as a whole. The Opposition amendment did both. He pointed out that the amendment referred to Regional Boards, not merely to Regional Hospital Boards. He was sure Mr. Bevan wished to avoid the service being excessively bureaucratic or over-centralized. The service must win and keep the confidence of the medical profession, which was an individualized one, both centrally and locally. The principle of consultative councils had been established in 1919, but there had since been a lack of confidence in the medical profession owing to the absence of adequate consultation between the Ministry and the profession. There had consequently been disappointment in the profession at the progress made by the Ministry of Health. He felt that the Bill, as it stood, was inadequate on the status of the Central Council. Under it the Minister undertook no duty to use the services of the Central Council for any purpose and no obligation to consult them. The status of the Council should be stated in close association with the Minister's main duties in Clause 1.

"PLANNING" THE HOSPITAL SERVICE

Mr. Willink said that the second part of his amendment related to one of the greatest changes made by Mr. Bevan in the previously projected health scheme. The Bill made no provision for the planning of a comprehensive health service. Therefore the amendment introduced the phrase "Regional Boards," leaving the function of these to be defined later. There was not even provision for planning regional hospital services. The Regional Hospital Boards were only to administer what existed. Did the Committee want an extraordinary centralization entrusting to the Minister's staff the planning of all hospital development throughout the country? Surely some body nearer the people in the regions or the area should have a planning function. Moreover, it was essential in a health service that someone should consider how the various parts should fit in. Someone should decide the proportion between specialist beds in hospitals and general practitioner beds. Some authority should decide who should provide V.D. services. Similarly with the health centres, which the White Paper, though not the Bill, said should be outposts of the hospitals. The Bill left these entirely to the local authorities. Croydon had provided an integrated maternity service. Nothing in the Bill ensured that this would be continued or imitated. In mental services the Bill did nothing to decide who should provide after-care. Ophthalmic services fell under two parts, with no authority to see how they fitted together. The White Paper of 1944 said it was essential that, though still locally conducted, health services should be regarded as parts of a wider whole with some authority to plan the whole. It was, he said, disastrous to leave the vital part of the work to a heavily burdened Department.

AMENDMENT RESISTED

Mr. BEVAN said Mr. Willink's speech showed considerable misunderstanding. The Minister would not set up a Central Advisory Council if he did not intend to consult it. That Council had the power of initiative and a much higher status than most advisory councils. It had also the right to publish annual reports so that the public would be apprised of the advice which it had given to the Minister. If the duty were imposed on it of advising the Minister on everything, the Council would be overweighted. It had the power to advise the Minister on subjects about which he had not asked for advice. Mr. Willink's proposal that the Regional Boards should prepare schemes for integration of services would cause the Boards to break down, and years would be needed to harmonize the different unrelated schemes. The responsibility must rest upon the Minister, where Parliament had placed it. Integration of the services would result from the use of the services. In the past the hospital services had been in the hands of competitive bodies, each denying its services to the other, but in future they could not deny them to anyone, and the common use would prove to be the co-ordination. Under the Bill Regional Hospital Boards were to submit new schemes when called upon. The more that was put into the Bill of a defining character the less elastic the service would become. They must beware of making the whole health service muscle-bound. He felt he must resist Mr. Willink's amendment.

Mr. J. S. C. REID considered that the facts on fundamental matters should be brought to the attention of the Central Council before the Minister took decisions. If the Minister took the view that regional schemes must be centrally prepared there would be a sealed pattern in the Ministry. Mr. Bevan thought that because everybody was to be a public servant there would be no rivalry and no difference of view on the extent of their functions. Mr. H. G. STRAUSS said he found no obligation in the Bill that the Minister should consult the central advisory body on every regulation that he proposed to make.

Mr. LINSTAD said the professions concerned were suspicious. If the Minister could renew his assurance that any regulations would be communicated beforehand that would affect the attitude of the professions. Mr. BEVAN replied that there would certainly be such consultation on regulations concerning medical matters. Mr. LINSTAD thought that if that were so the Minister would have the professions with him. On co-ordination he remarked that under the Minister's scheme regional co-ordination would in fact occur through the Minister's regional officers instead of the preferable co-ordination through the representatives of the local health authorities.

The amendment was rejected by 29 to 17. Clause I was carried.

LIMITING THE CENTRAL COUNCIL?

In Clause 2 Mr. LAW moved an amendment to remove a limitation on the Central Council. Its advice to the Minister under the Bill was restricted to general matters. Was the Council unable to advise on particular matters, and if so what were these? Under Clause 2 the Central Council might be barred from advising the Minister on directions to teaching hospitals.

Mr. BEVAN said if the word "general" were deleted the character of the Council would be altered to its own misfortune. The Minister could ask the advice of the Council on any question, but it was inappropriate that a body of 41 persons could submit the whole of the health services to microscopic examination. He added that on subjects such as gynaecology there would be specialized subcommittees to advise him. The reports of these subcommittees would be available to the Central Council as well as to the Minister.

Mr. LINSTAD said the Central Council would not bother itself about detail. Only the expert body could decide whether a point were of general importance. Mr. HOPKIN MORRIS said the Minister would be wise to omit the word "general." The clause said it should be the duty of the Central Council to advise the Minister "as they think fit." Why not trust these responsible men?

Mr. BEVAN said if the Council thought a particular matter required investigation it would advise the Minister to refer it to an expert committee, if one existed, or to set up such a committee for the purpose. But among the people many bees would be buzzing in many bonnets, and the word "general" would be a protection to the chairman of the Council. Mr. WILLINK said the Council should be able to pronounce upon the Minister's decision on the number of rheumatism centres or plastic surgery centres to be established in the country. But that would not be a "general" matter. Under the Bill the Minister could give unlimited directions to the teaching hospitals which, in the opinion of the Central Council, would be disastrous. Yet that would not be a "general" matter.

Mr. BEVAN replied that the Council could advise on any particular service when a standing advisory committee reported on it, because the report would go to the Central Council as well as to the Minister. The Council could advise on each one of the services provided as well as on all the services as a whole. If further examination showed that the language of the clause prevented the Council from reviewing the advice of standing advisory committees he would have the language altered.

In view of this undertaking Mr. LAW withdrew his amendment.

Clause 2 provides that the duty of the Central Council is to advise the Minister upon general matters relating to the services provided under the Act. Sir H. MORRIS-JONES moved to delete "services" and the words following, and to substitute "purposes of this Act defined in Section 1." Mr. WILLINK thought that for years to come many medical services would not be provided under the Bill.

The CHAIRMAN ruled the amendment out.

POWER TO ALTER CONSTITUTION OF COUNCIL

Mr. H. STRAUSS moved to omit the provision that the Minister could, after consultation with the Central Council, vary by Order the constitution of the Council. He said this power was unlimited and dangerous. Mr. BEVAN said he had no sinister intentions. The subsection was for the purpose of practical administration. When the Midwives Board was set up the Board could not be varied in its constitution save by Act of Parliament, and difficulties had followed. He recognized that the Central Council might feel it was living under a threat of replacement. Therefore he was prepared to move, on report, a provision that the Council should be consulted on changes and that the Order should be subject to a negative resolution of the House. Sir HAROLD WEBB said the balance in the Council was delicate, and there was anxiety lest it should be upset. Mr. STRAUSS withdrew his amendment.

Mr. LINSTAD moved amendments to ensure that certain standing advisory committees were named in the Bill. He proposed to specify the hospital and specialist services, the general medical services, the dental services, the nursing services, and the pharmaceutical services. Mr. BEVAN said the amendment was unnecessary. Spokesmen of ancillary medical services wished to have standing advisory committees. He sympathized, but could not agree. Moreover, an advisory committee, if named in the Bill, could not be dissolved if circumstances changed. Mr. WILLINK said not only small interests wished to have the statute clear on this point. The White Paper did not specify a standing advisory committee at the centre on hospital organizations. In the Central Council only 5 persons out of 41 must have experience in hospital service. Only 2 out of 41 must have experience in mental health.

The amendment was rejected by 30 to 15 and the Committee adjourned.

Spens Report

Replying to Mr. Somerville Hastings on May 9, Mr. BEVAN said the report of the Spens Committee on the Remuneration of General Practitioners had been published that day. He had not reached a decision as to its implementation. He would have to have discussions with the representatives of the doctors before he reached any decision on the report.

Student Entry to Universities

Answering questions on April 30 Mr. GEORGE ISAACS said that the following decisions had been made about the entry of students to the universities for the year beginning October, 1946: (1) Preference would be given to men who had served in the Armed Forces and others who had been engaged for an equivalent period in important civilian work, provided they were suitable for acceptance by the university concerned; (2) places in all subjects at universities should be filled; (3) any young men still liable to be called up for military service who were granted deferment to enable them to study at a university would be called up on the completion of their course. It would be open to the universities to apply for release in Class B of scholars and highly promising students in any subject who were still serving in the Forces and were in release groups 1 to 55. The universities might also admit students with similar qualifications who had completed three years' work of national importance by Sept. 1, 1946, and such students would be granted continued deferment of their calling-up to enable them to complete their studies.

After the requirements of men in (1) above had been satisfied any remaining places in any subject might be filled by promising students in the age group Oct. 1, 1927, to Sept. 30, 1928, who were recommended for deferment by Joint Recruiting Boards. Any university, however, could make out a special case for reserving places for such students where their accept-

ance meant the exclusion of the older men. These arrangements involved a change for medical, dental, and veterinary students. These had hitherto been reserved; in future new entrants would be dealt with in the same way as other students, and would have to be considered individually for deferment by Joint Recruiting Boards. Mr. ISAACS said he was asking universities to give preference at women's colleges to those women who had been engaged on war service, and, where women competed with men, to limit the women entrants from school to those of exceptional promise.

The number of young men who could be deferred could not be determined until they knew the number of applications coming from ex-Service men. This meant a period of uncertainty which could not be avoided, and acceptances by universities of men in the age group Oct. 1, 1927, to Sept. 30, 1928, must be regarded as provisional.

Atomic Energy Bill

The Atomic Energy Bill was read a first time in the House of Commons on May 1. The Bill provides that the restriction proposed on disclosure of information relating to plant for the purpose of producing or using atomic energy shall not include references to plant designed to be used solely for scientific research or education.

Kenya Medical Service

Mr. BOWLES asked on May 1 whether the Secretary for the Colonies knew that resident Kenya medical officers, on release from the Army, were denied Government appointments, some of which were held by Italians. Mr. GEORGE HALL replied that he was aware of only one case during the war in which an applicant who was a serving military or ex-military medical officer had been refused a permanent appointment in Kenya. He was not considered suitable on account of his age, but had since been given a post under the Kenya Pensions Assessment Board. Four Italian doctors were at present employed on a purely temporary basis, but would be replaced as soon as suitable candidates were available. Several Kenya residents with medical qualifications were also employed as temporary medical officers. Mr. BOWLES said he had information that Italian medical men were taking the places of medical men who had been resident in Kenya.

Deaf Aid

Mr. BURKE, in a debate on Post Office research on May 3, said the Post Office had just been successful, in association with the Medical Research Council, in bringing out an ear aid which would benefit thousands of deaf people in this country.

Diphtheria Incidence and Deaths

On May 6 Mr. VIVANT asked the Minister of Health how many cases of diphtheria were recorded in England and Wales in 1945; how many of these proved fatal; what were the patients' ages; and how many in both fatal and non-fatal cases had been immunized.

Mr. BEVAN said the number of cases of diphtheria notified in 1945 was 18,571. The number of deaths notified in 1945 was 720, this figure being provisional. The ages in the cases notified and in fatal cases were as follows:

Age	Notifications	Deaths
0- ..	188	18
1- ..	1,486	113
2- ..	2,001	120
3- ..	5,948	257
4- ..	3,467	74
5- ..	3,330	45
10- ..	2,421	93
15- ..	130	0
25 and over	130	0
Unknown	130	0
Total ..	18,571	720

Information about cases of and deaths from diphtheria in relation to immunized children for the year 1945 was not yet available.

Mr. WESTWOOD furnished the following table of cases of diphtheria recorded in Scotland in 1945:

Age Group	Cases		Deaths	
	Immunized	Non-immunized	Immunized	Non-immunized
0-4 ..	267	1,175	1	76
5-14 ..	1,104	1,151	5	29
15 and over	153	810	-	15
Totals ..	1,524	3,136	6	120

Analgesia in Childbirth

Mr. MIKARDO inquired on May 2 how Mr. Bevan proposed to make universal the use of apparatus and techniques designed to reduce or eliminate pain in childbirth. Mr. BEVAN said administration of gas-and-air analgesia in childbirth could not become universal until there was an adequate supply of apparatus and of midwives trained to use it. The production of apparatus had already been increased, and all pupil midwives beginning Part II of their course on and after July 1 next would be trained in its use. No practicable step would be neglected, but until more women could be attracted to the practice of midwifery progress was bound to be slow. He promised to investigate the use of the triline apparatus.

Notes in Brief

The number of deaths from cancer in England and Wales during 1945 was 73,754, this represents a crude death rate of 1.945 per million living. These figures are provisional and relate only to civilians. In 1944 21,571 experiments were performed on living animals in connexion with cancer research. The figure for 1945 is not yet available.

Of 749 men and women employed in the Department of Health for Scotland on April 1, 1946, 23 possessed medical degrees. These figures do not include staff employed in the Department's emergency hospitals.

Only one case of smallpox has been notified in Scotland this year in the person of an Army officer returning on a troopship from India.

The Minister of Supply is not aware of any general shortage of rectifying valves for deep x-ray therapy apparatus, although there is difficulty in obtaining replacements for apparatus of German origin.

The Services

Surgeon Rear-Admiral H. M. Whelan has been appointed an Honorary Surgeon to the King in succession to Surgeon Rear-Admiral A. Maclean, C.B., D.S.O., deceased; and Surgeon Rear-Admirals A. E. Malone, C.B., and J. O'Flynn have been appointed Honorary Physicians to the King in succession to Surgeon Rear-Admirals Sir Reginald Bankart, K.C.V.O., K.H.P., deceased, and J. F. Hole, C.M.G., deceased, respectively.

Air Vice-Marshal K. Biggs, C.B.E., M.C., has been appointed Honorary Physician to the King in succession to Air Marshal Sir Harold E. Whittingham, K.C.B., K.B.E., who has vacated the appointment on retirement from the R.A.F.

Surg. Lieut.-Cmdrs. R. T. Jones and H. R. Vickers, R.N.V.R., have been awarded the R.N.V.R. Officers' Decoration.

The Efficiency Decoration of the Territorial Army has been conferred upon the following officers: Lieut.-Col. (Temp. Col.) R. H. Robinson, Lieut.-Col. T. H. Wilson, Majors (Temp. Lieut.-Cols.) F. R. Bettley and A. S. L. Malcolm (T.A.R.O.), Majors E. Davies-Thomas, R. W. Gemmell, and F. S. Mitchell-Heggs, and Capt. (Temp. Major) F. J. Whitelaw, R.A.M.C.

Subadar K. S. Gupta, I.A.M.C., has been appointed M.B.E. (Military Division) in recognition of gallant and distinguished services while a prisoner of war.

The following have been mentioned in dispatches in recognition of gallant and distinguished services in Burma:

Brian (Temp. Col.) J. C. M. DSO, MC, and N. T. Menzies, C.B.E. Col. (Temp.) J. P. W. Hannay, P. W. Hannay, H. Morris, W. I. G. H. Waters, Lieut.-Col. (Act. D. Billig, N. H. McK. Couper, T. Fitt, L. A. I. H. C. Page, W. J. Major (Acting) Chase, D. H. (J. J. Phillips, G. and R. L. Wit. N. Slater, R.A. Col. (Acting) V.

Lieuts. C. L. Nagrah, C. R. S. P. K. Tamaskar, and S. C. Sen; I. Khan, K. C. Bedi, K. Lal, N. Nath, N. Singh, and T. Singh; Jemadars A. A. Khan, B. Bux, M. Singh, M. T. Hussain, N. Ram, B. D. Pandey, and S. R. Shah, I.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Died at sea.—Major Colin Campion, R.A.M.C.

Died in India.—Lieut.-Col. Gilbert Wolridge Rose, R.A.M.C.

Universities and Colleges

UNIVERSITY OF OXFORD

In a Congregation held on May 2 the following degrees were conferred:

D M.—J. F. Loutit, J. N. Mills (in absence)
B M., B Ch.—M. B. McEvedy, T. H. S. Burns

UNIVERSITY OF CAMBRIDGE

At a Congregation held on May 3 the following medical degrees were conferred, all by proxy except one marked with an asterisk:

MD—A. G. V. Aldridge, *G. C. Tooth.
MB, B Chir.—R. W. P. Jackson, B. A. J. C. Gregory, R. N. Grabowsky-Atherstone, P. N. Magee
MB—R. G. Orr.

A report by the Council of the Senate on the establishment of a chair of pharmacology appears in the *Cambridge University Reporter* of May 7 (p. 777). This recommends that there be established from Oct 1, 1946, a Shield Professorship of Pharmacology limited to one tenure, and that the professor be E. B. Verney, MA, MB, B Chir, whose readership in that subject would then lapse.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At an ordinary meeting of the Council, held on May 9, with Sir Alfred Webb-Johnson, Bt, President, in the chair, Prof. R. V. Bradlaw was re-elected a member of the Board of Examiners in Dental Surgery.

It was decided, subject to the grant of the necessary powers, to establish a Faculty of Dental Surgery in the College.

Dr. G. M. Vevers and Dr. A. J. Durden Smith were admitted as fellows of the College.

The Walker Prize was presented to Prof. E. C. Dodds; the John Hunter Medal and Triennial Prize to Dr. Joan Ross; and the Begley Prize to Mr. Otto Fleischer.

The Council accepted the trusteeship of the Cecil Joll Memorial Fund, under which there will be awarded a triennial prize for some surgical subject.

The Chase Farm Hospital, Enfield, the Seamen's Hospital, Tilbury, and the Broad Green Hospital, Liverpool, were recognized in respect of the resident surgical post required of the candidates for the Final Fellowship Examination.

Diplomas of membership were granted, jointly with the Royal College of Physicians of London, to J. R. Handforth and to the 125 successful candidates whose names were printed in the report of the meeting of the Royal College of Physicians of London in the *Journal* of May 4 (p. 704); as were the names of the successful candidates for the diplomas in medical radiodiagnosis and medical radiotherapy.

EPIDEMIOLOGICAL NOTES

Discussion of Table *

In England and Wales an increase was recorded in measles 401, diphtheria 62, while the notifications of both whooping-cough and dysentery fell by 26.

The largest variations in the local trend of scarlet fever were an increase in London 20 and a decrease in Glamorganshire 20. The returns for diphtheria showed the smallest total for 34 weeks. Whooping-cough was slightly more prevalent in most districts, the largest rise was Glamorganshire 33, and the chief exceptions to the general trend were decreases in London 38 and Middlesex 32. Measles is still mainly concentrated in London and the surrounding counties, and the largest rises were London 119, Essex 66, Middlesex 56, Kent 41, and Warwickshire 41.

The notifications of dysentery were the lowest for 16 months. The chief centres of infection were Lancashire 28, London 25, Staffordshire 14, Kent 13, and Surrey 10.

In Scotland increases were recorded for acute primary pneumonia 51, diphtheria 24, and scarlet fever 19; decreases were shown for measles 105 and whooping-cough 15. The incidence of dysentery remained unchanged. The rise in cases of diphtheria was contributed by Glasgow, where the figures rose from 32 to 55.

In Eire the incidence of diarrhoea and enteritis increased by 20 and reverted to the level of the preceding weeks. Increases were also reported for scarlet fever 17 and whooping-cough 11.

In Northern Ireland scarlet fever fell by 21 cases.

Week Ending May 4

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 945, whooping-cough 2,147, diphtheria 367, measles 2,711, acute pneumonia 610, cerebrospinal fever 58, dysentery 212, paratyphoid 6, typhoid 5.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended April 27

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included) (b) London (administrative county) (c) Scotland. (d) Eire. (e) Northern Ireland. Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland. A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	48	6	32	—	1	56	3	18	3	1
Deaths ..	1	—	2	—	—	1	—	—	—	—
Diphtheria ..	389	27	104	42	11	564	24	126	104	22
Deaths ..	1	—	—	1	1	7	—	2	2	—
Dysentery ..	163	25	63	—	—	486	32	188	3	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute ..	—	—	1	—	—	2	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Erysipelas ..	—	—	40	8	3	—	—	32	7	1
Deaths ..	—	—	—	—	—	—	—	—	—	—
Infantile enteritis or diarrhoea under 2 years ..	—	—	—	42	—	—	—	—	16	—
Deaths ..	56	6	2	14	6	43	8	6	4	4
Measles* ..	2,793	1054	354	29	—	16,023	1058	341	65	23
Deaths ..	6	1	—	—	—	8	1	—	2	—
Ophthalmia neonatorum ..	50	5	24	—	—	59	5	15	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever ..	5	—	—	—	—	3	—	2 (B)	—	—
Deaths ..	—	—	—	—	—	—	—	1 (A, B)	—	—
Pneumonia, influenza ..	654	39	11	21	2	530	29	3	9	—
Deaths (from influenza)† ..	18	2	1	3	—	12	2	1	—	—
Pneumonia, primary ..	—	—	188	28	—	—	—	174	31	—
Deaths ..	—	28	—	14	7	—	25	—	11	10
Poli-encephalitis, acute ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	1	—	1	—	—	—	2	—	—
Poliomyelitis, acute ..	5	—	—	—	—	5	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Puerperal fever ..	—	—	23	—	—	—	1	11	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡ ..	148	12	17	—	—	128	13	17	2	1
Deaths ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever ..	1,054	104	147	29	19	1,426	71	212	13	34
Deaths ..	3	—	—	—	—	2	—	—	—	—
Smallpox ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever ..	4	—	—	2	1	3	—	—	13	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Typhus fever ..	—	—	—	—	—	1	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* ..	1,669	138	76	36	5	1,190	65	201	39	2
Deaths ..	7	3	1	—	—	4	—	3	1	—
Deaths (0-1 year) ..	354	50	53	34	16	304	40	40	29	2
Infant mortality rate (per 1,000 live births) ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) ..	4,553	662	578	197	131	4,057	576	536	190	12
Annual death rate (per 1,000 persons living) ..	—	—	12.7	12.6	—	—	—	12.2	12.3	—
Live births ..	8,303	1202	1062	454	258	6,587	701	906	396	25
Annual rate per 1,000 persons living ..	—	—	21.4	29.1	—	—	—	18.1	25.6	—
Stillbirths ..	235	32	40	—	—	186	21	30	—	—
Rate per 1,000 total births (including stillborn) ..	—	—	36	—	—	—	—	32	—	—

* Measles and whooping-cough are not notifiable in Scotland, and the return are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

Medical News

The Nutrition Society will hold a conference on Saturday, May 18, at 2 p.m. at the London School of Hygiene and Tropical Medicine, Keppel Street, London W.C.1. This follows the annual general meeting of the English Group which is to be held there on the same morning at 11 a.m. The programme and time table are as follows: Lt-Col J. Bennet will read a paper on nutritional conditions in Army prison camps in the Far East; Dr D. A. Smith will speak on experiences in the civilian camp at Hong Kong; and Prof. R. G. Scott MacGregor on similar experiences in Singapore. Dr R. C. Burgess and Dr E. K. Cruickshank will deal with conditions in the military camp at Singapore, and Dr Cicely Williams with nutritional conditions among women and children. The opening of the discussion will be Dr J. V. Landor. Non-members are admitted to meetings of the Society by the introduction of a member. Meetings are private, and no unauthorized account may appear in the press. Further details of the Nutrition Society can be obtained from the hon. secretary, Dr Leslie J. Harris, Nutritional Laboratory, Cambridge.

At a meeting of the Colour Group of the Physical Society to be held at 3.30 p.m. on Thursday, May 23, in the lecture room of the Royal Photographic Society, 16 Prince's Gate, Kensington, S.W., a paper on "The Colour Sensitivity of the Retina within the Central Fovea of Man" will be presented by Dr L. C. Thomson and Dr W. D. Wright, and will be followed by an informal discussion.

At a meeting of the Medical Group of the Royal Photographic Society to be held at 16, Prince's Gate, London, S.W. 7, on Thursday, May 23, at 6.30 p.m., Miss Sylvia Treadgold, Mr Victor Willmott, Mr Norman K. Harrison, and Dr B. Richardson Billings will give short papers on "Methods in Medical Photography," with illustrations. A discussion will follow.

At a meeting of the Medical Legal Society to be held at 26 Port Land Place, W., on Thursday, May 23, at 8.15 p.m., the president Dr W. Norwood East, will read a paper on "Crime and Maturity."

A meeting of the Middlesex County Medical Society will be held at St. Shewell Hospital on Saturday, May 25, at 3 p.m.

The forty-seventh annual meeting of the Association of Port Health Authorities of the British Isles will be held in the City Chambers, High Street, Edinburgh, on May 28, 29, and 30. Among the papers to be read are one by Dr M. T. Morgan M.O.H., Port of London, on some aspects of the control of smallpox, and another by Dr W. P. Cargill on developments in disinfection. The honorary secretary of the Association is Dr H. C. Maurice Williams, Health Department, Civic Centre, Southampton.

A general meeting of the Heberden Society will be held at the Medical Society of London (11, Chandos Street, W.) on Friday, May 31, at 5.30 p.m., when Mr H. Jackson Burrows and Dr George Graham will present a paper on "Spinal Osteoporosis of Unknown Origin."

Dr L. Alice Hamar has been elected a county councillor for Salop. Dr Aubrey Ireland has been re-elected as county alderman for Salop and chairman of the Mental Deficiency Committee; he has also been elected chairman of the West Midland Joint Board for Mental Deficiency.

The Medical Women's Federation will award, in the autumn, either two grants (one of £50 and one of £25) or one grant (of £75) from its Christine Murrell Postgraduate Fellowship Fund. Applications are invited from women general practitioners, who must be members of the Federation. Age, qualifications, experience, and some indication of the use to which the grant would be put should be stated. Applications must be received not later than Aug. 31, and should be addressed to the Secretary, 73, Bourne Way, Hayes, Bromley, Kent.

For the delegations of seven Belgian and six French surgeons who attended the conference of the Association of Surgeons in London the British Council has arranged a provincial tour to Manchester, Oxford, and Edinburgh. They are visiting hospitals and other medical institutions under arrangements made by Prof. H. Platt, University of Manchester, Prof. Hugh Cairns, University of Oxford, and Prof. J. R. Learmonth, University of Edinburgh.

The Treasury has made an Order the effect of which is to exempt from Purchase Tax batteries of not less than 15 volts and not more than 45 volts specially designed for high tension supply for deaf-aid appliances and using layer type cells not exceeding 6 mm in thickness with zinc elements of which each face does not exceed 500 sq mm. The exemption applies only to goods which are delivered on sale, or appropriated to retail trade or similar purposes, on or after May 20, 1946, or, in the case of imported goods, which are entered with the Customs or delivered from bonded warehouse for home consumption on or after that date.

Sir Howard Florey, F.R.S., is visiting France under the auspices of the British Council from May 18 to 25 to lecture on penicillin and allied subjects in Lyons, where he will receive an honorary degree, and Paris.

The Rockefeller Foundation has made a grant of £22,000 to develop practical work in such problems as industrial relations, resettlement of returning Service men, and the current difficulties of families and communities in the reconstruction period. Two anonymous donors have added £3,500 to this fund. The work will be undertaken by a group of psychiatrists and psychologists with wartime experience in the field of social psychology, and will form the main task of a new organization, the Tavistock Institute of Human Relations, whose formation is being planned by the Council of the Tavistock Clinic, London.

The Cardiff Public Health Committee has planned a Health and Housing Exhibition to be held in the City Hall from June 17 to 22, and the set up is full of interest. There will be 10 bays in the large assembly room representing health through the home, school, recreation, nutrition, personal hygiene, housing, community, careers, port, and knowledge. In two large rooms adjoining the main hall will be exhibits of hospital services for mental and bodily health. All who are interested in the possibilities of health education are invited to visit the exhibition at Cardiff and while there to discuss the subject with the specialists in charge of each bay. The medical officer of health for Cardiff, Dr J. Greenwood Wilson, is organizing the exhibits and a detailed programme will be sent on application to the Public Relations Officer, 52, Park Place, Cardiff.

The British Association of Urological Surgeons Home and Overseas will hold its annual general meeting at the Royal College of Surgeons on June 27, 28, and 29. The business meeting is arranged for the first day from 4 p.m. On June 28, at 10 a.m., the president, Mr Ogier Ward, will open a discussion on the treatment of benign enlargement of the prostate, and the afternoon will be devoted to operating sessions at several hospitals. There will be a demonstration of films of urological interest on Saturday, June 29. Further particulars and tickets for lunch and dinner at the College on June 28 can be obtained from the secretary at 45, Lincoln's Inn Fields, W.C.2.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, London, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: ARICLAE. All letters sent to the Editor should be accompanied by a return address. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the British Medical Journal, unless the contrary be stated.

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MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association, TELEPHONE: EUSTON 2111. TELEGRAMS: MEDICARE & WESTCENT, London.

B.M.A. SCOTTISH OFFICE: 7 Drumshush Gables, Edinburgh.

ANY QUESTIONS?

Closed Circle in Malaria

Q.—The malaria parasite spends part of its life in man and part in the mosquito. How did it get into this apparently closed circle in the first instance?

A.—This question might be asked of a number of other parasites which have a specialized life-cycle involving two quite different hosts. The answer is not known, but presumably the plasmodium was originally a parasite of either the mosquito or of man, and a mutation occurred which enabled it to propagate more successfully by the complex two host arrangement that exists now. There are, of course, other protozoa, both in man and in the mosquito, which do not cause disease but which, presumably, might evolve into pathogenic types.

Thiouracil for Thyrotoxicosis

Q.—What is the correct mode of administration of thiouracil, and is it wise for a doctor who has no experience of the drug to prescribe it?

A.—Thiouracil is usually given in a dosage of 0.6 g daily, though it is probable that smaller doses are as, or almost as, effective. This dose is continued until a definite response is obtained, the criteria of response being general improvement,

increase in weight, fall in pulse rate, loss of vasodilatation, and fall in B.M.R. Where the apparatus is not available the last is not essential. After response the dose is reduced to 0.2 g. daily. After a few months it is often possible to reduce the dose to 0.1 g. daily, and eventually, in a few patients, it may be discontinued. There is only one serious danger—that of agranulocytosis. Most of the reported cases occurred with a higher dosage than that which is now used. Nevertheless, a white cell count should be done every other day while the initial dose is being administered. A drop below 5,000 per c.mm. should be a signal for stopping the drug, and a continued drop, or symptoms of agranulocytosis, should be treated immediately with pentose nucleotide and liver injections (both of doubtful value) and blood transfusion.

Lest this should seem rather frightening advice, I would add that I have never seen a case of agranulocytosis due to thiouracil, and that since the original high dosage was dropped I have not seen one of even granulopenia. More common but less serious complications, which may be neglected provided that a watch is kept on the white cells, are skin rashes, conjunctivitis, nausea, and depression. It is possible to overdo it and produce hypothyroidism, but this is evidence of carelessness, and anyhow it clears up when the drug is discontinued.

If proper care is exercised there is nothing against the use of thiouracil by those who have no experience of the drug provided they have experience of the disease. There are, however, circumstances in which surgery is still indicated. Thiouracil should not be used if the goitre is very large, because the treatment does not reduce its size and may even (though probably only in excessive dosage) increase it. For the same reason it should not be used if there is any evidence of pressure on neighbouring structures or if the goitre is retrosternal.

Phytic Acid in Oatmeal and Bran

Q.—*The regular ingestion of oatmeal is said to have a rachitogenic effect because of its large content of phytic acid. Is this also true of bran?*

A.—Wheat contains as much phytic acid as oats, and this phytic acid is largely concentrated in the bran and germ. Bran is therefore exceedingly rich in phytic acid. Wheat products, however, are on the whole less prejudicial to calcium absorption than similar preparations made from oats, because wheat contains an enzyme—phytase—which may destroy part of the phytic acid during the manufacturing or baking processes. Nevertheless, bran will probably do more to prevent the absorption of calcium from the gut than an equal weight of oatmeal. Neither bran nor oatmeal will deplete the body of calcium if the diet contains plenty of milk and cheese.

Legal Responsibility for Negligence

Q.—*A dermatologist prescribes a correct dose of x rays for a patient who is then treated by a technician in an x-ray department controlled by a radiologist. If through an error on the part of the technician a patient is damaged by the x rays, who carries the responsibility—the dermatologist or the radiologist?*

A.—The dermatologist presumably carries no liability, for he has not himself been negligent and is not in control of the technician, who is therefore neither his servant nor his agent. The liability of the radiologist depends on the degree of control he was in duty bound to exercise. If he had good reason to suppose that the technician was competent to give the treatment without supervision, and if to do so was the technician's duty according to recognized medical practice, then the radiologist is not liable. If, however, special circumstances existed which made it reasonably necessary for the radiologist to supervise or control in some way the actual giving of the treatment by the technician—for example, if the treatment were especially difficult or the technician relatively inexperienced—then the radiologist might be held to have been negligent, but the action would be founded on the radiologist's personal negligence rather than on his liability for that of the technician.

Medical auxiliaries employed in hospital departments are recognized as fully competent to do the work allotted to them, and would only rarely, if at all, be regarded as the servants or agents of the medical chiefs of the departments. Their negligence can, however, be visited upon the hospital authorities who employ them, for they are the servants or agents of the

hospital. The questioner is advised to read the full judgments in the case of *Gold v. Essex County Council (All England Reports, 1942, 2, 237)*, in which the facts were similar. It is significant that in that case the plaintiffs did not allege that the radiologist, still less the dermatologist, was in any way responsible for the negligence of the radiographer in giving treatment for a skin complaint. Lord Justice MacKinnon indicated in passing, purely by way of illustration, that if the radiographer had been merely doing something which the dermatologist had told him to do, and as he told him to do it, the dermatologist would be liable. Such circumstances, however, are probably rare in hospital practice.

Inheritance of Otosclerosis

Q.—*What advice would you give a young woman of 25 suffering from otosclerosis and anxious to marry? The deafness is severe; with an electrical device she can hear general conversation with difficulty. What are the chances of inheritance of the disease? Her future husband's family history is clear. Her own father was deaf, but the nature of the deafness was never diagnosed.*

A.—It is well known that during pregnancy and after childbirth the deafness of otosclerosis sometimes increases, but this happens in an erratic fashion, not only generally but also individually. That is to say, a woman may suffer no further loss of hearing from one pregnancy but may be decidedly affected for the worse by another. This pregnancy factor has therefore probably been overestimated, though the patient should certainly be made aware of it, as also of the possibility of transmitting the defect, so the history on the male side must receive consideration. It is evident that if the hearing becomes worse it will also be worse even when the hearing aid is in use. If the patient wishes to marry she should not be discouraged from doing so on her own account, but the risk of transmitting the defect to offspring is not entirely her own affair.

Otosclerosis is often due to a dominant gene, though its expression is sometimes irregular—i.e., a generation is skipped. Some affected persons, however, have no affected relatives. It may be that in them some non-genetic error of development is responsible. Instances are in fact known in which what appears to be the same end-result is due sometimes to an abnormal gene, sometimes to environmental causes. Thus, the crucial point about the question is whether the patient's father did indeed suffer from otosclerosis. One wishes that more were known about him. If there is nothing in his known history inconsistent with otosclerosis, then in view of his daughter's condition it seems probable that he was affected. If so, inheritance will be dominant and the chance that any child of the patient will also carry the gene is one in two. A child bearing the gene would usually, though not inevitably, develop otosclerosis. One would also like to know more about the family history, in particular about the brothers and sisters both of the patient and of her father. If there were large numbers of these, all normal, the genetic prognosis might be improved.

Thrombo-angiitis Obliterans

Q.—*What is the most effective treatment for thrombo-angiitis obliterans?*

A.—There is no really effective treatment. The position is that no certain measures are known of avoiding further arterial and venous occlusions, though it is commonly agreed that tobacco should be given up. It is also agreed that symptomatic improvement may be produced by measures designed to increase the blood-flow to the limb and to open up collateral vessels—such as sympathectomy and the use of intermittent venous occlusion.

Tremor and Pain in Paralysis Agitans

Q.—*Can anything be done to relieve increasing tremor and pain in an early case of paralysis agitans?*

A.—In paralysis agitans tremor is generally the most intractable of the symptoms, and patients are usually best advised to reconcile themselves philosophically to its existence. The common medicinal remedies (atropine, stramonium, hyoscine) are more efficacious in helping the rigidity, the feelings of tension, and the reluctance to move. Very large amounts may

produce a slight and temporary inhibition of the tremor, but such large doses are rarely justifiable, especially in a disease which is progressive.

Pain is not a common symptom in paralysis agitans; it is most often due to stiffness and to adhesions forming around the joints, and in such cases will be relieved by massage, passive movements, radiant heat, and hot baths. Rarely "thalamie" or "central" pain occurs in paralysis agitans, and proves most intractable; gelsemium is worth a trial, however.

Endometriosis

Q.—A woman of 35, with two children, has pain in both iliac fossae, more severe during menstruation, and has been diagnosed as a case of endometriosis. Should she be treated by operation, by x-ray therapy, or by radium?

A.—As a general rule surgery takes precedence over x rays and radium in the treatment of endometriosis. In the first place, the diagnosis can rarely be made for certain without laparotomy. In particular, it is often difficult to exclude chronic pelvic infection, and the application of radiotherapy to such a case might have unfortunate results. Secondly, in young women treatment short of ablation of ovarian function should be the aim. At operation local excision of the growth or the greater part of it is often found possible. Even when the removal is incomplete and ovarian function is conserved the results can be surprisingly good. When the condition is extensive and conservative measures are out of the question, surgical treatment remains preferable, since it offers the means not only of destroying ovarian function but of dealing with the dense adhesions and the displacement of pelvic organs. These latter remain after radiotherapy and may continue to cause discomfort.

The chief indication for deep x-ray therapy is to suppress ovarian function in those cases in which symptoms recur after a conservative operation—that is, when the diagnosis has been made for certain and when the gross manifestations of the disease have been dealt with. Radium inserted into the uterus is a less efficient means of destroying ovarian function, but it is occasionally used for the direct destruction of an accessible endometriomatous growth, such as one situated in the recto-vaginal septum.

In the case quoted, and on the evidence submitted, the diagnosis of endometriosis is by no means certain. The multiparity of the patient is rather against it. If she does suffer from endometriosis it might be worth while delaying active treatment in the hope that she will conceive again. She may have to wait some time for this, because low fertility is almost invariably associated with endometriosis, but if she succeeds in becoming pregnant spontaneous cure is to be expected.

Hormone Effects on Electrolytes

Q.—Parathormone increases the excretion of phosphate ion. Cortin reduces the excretion of sodium. Posterior pituitary extract not only corrects the polyuria of diabetes insipidus but also the hyperchloraemia which may be present in this condition. Are these effects brought about by an action on the renal tubules, or are they secondary to changes in the metabolism of electrolytes?

A.—If the questioner means to ask whether the changes in concentration of urinary electrolytes result from changes in the concentration of these electrolytes in blood plasma, the answer is clearly No, because in the first two matters cited in the question the changes in urinary concentration are certainly the inverse of those in the blood plasma. It is probable that parathyroid extract acts directly on bone, since it is effective in the absence of the kidneys (H. Selye, *Arch. Pathol.*, 1942, 34, 625; T. H. Ingalls, G. Donaldson, and F. Albright, *J. clin. Invest.*, 1943, 22, 603; H. C. Stoerk, *Proc. Soc. exp. Biol.*, N.Y., 1943, 54, 50), but, as it produces an immediate increase in the urinary excretion of phosphate (W. R. Tweedy and W. W. Campbell, *J. biol. Chem.*, 1944, 154, 339), it is possible that it acts also on the kidney tubules. Nevertheless, when parathyroid extract is given together with phosphate, no influence of the extract on the clearance of inorganic phosphate can be observed (M. Fay, V. G. Behrmann, and D. M. Buck, *Amer. J. Physiol.*, 1942, 136, 716). In the latter experiments a possible complicating factor is the administered inorganic phosphate.

Desoxycorticosterone acetate increases serum sodium and chloride concentrations as well as increasing the plasma volume in normal dogs (M. Clinton, jun., G. W. Thorn, H. Eisenberg, and K. E. Stein, *Endocrinol.*, 1942, 31, 578), and it seems extremely probable that this results at least in part from a direct action on the kidney. Nevertheless, the influence of adrenal cortical hormones on electrolyte metabolism in muscle cells is clearly an important one (cf. D. M. Harkness, E. Muntwyler, F. R. Mautz, and R. C. Mellors, *J. Lab. clin. Med.*, 1942, 28, 307). As the result of their investigations in normal dogs and in dogs suffering from diabetes insipidus, Hare and his colleagues (*Amer. J. Physiol.*, 1943, 140, 334) conclude that "for the regulation of water exchange there is a system which includes the hypothalamico-hypophyseal mechanism, which, through its sensitivity to changes in the salt content of the blood, controls the secretion of pituitrin, and thereby the concentration in which salt is reabsorbed by the renal tubules back into the blood." Nevertheless, they conclude that the factors which determine the partition of chloride between tubular reabsorbate and urine "are not revealed."

In general, it may well be that the influence of these hormones on kidney excretion is a particular aspect of their general action on the electrolyte metabolism of the body as a whole, but although there is no evidence that either the general action or the action on urinary excretion is primary, there is more reason to consider the possibility that the influences on the body in general are secondary to the action on urinary excretion, rather than the converse.

Chemical Prophylaxis of Venereal Disease

Q.—Can you give me information about recent views on the chemical prophylaxis of venereal disease?

A.—Sulphadiazine has proved very effective in the prevention of gonorrhoea and chancroid, particularly in the American Forces. The dose is 2 g. by mouth as soon after exposure as possible, some recommend, in addition, 2 g. next morning, and a similar dose four hours or so later.

Calomel ointment is effective against syphilis if employed early, recent work has shown that particle size is important. Thus, calomel containing particles of 100 microns protected only 2 of 39 rabbits infected with *Spirochaeta pallida*, whilst that of 5 μ protected 9 out of 40, and that of 1 μ 15 out of 40. A good deal of work on chemical prophylactics has been carried out in America during the war, especially on arsenicals, but as the reports are "restricted" it is not possible to give the results. The British Army prophylactic cream, containing oxyzanide of mercury and calomel, is effective if used early enough; soap and water also appears to be effective against syphilis and gonorrhoea, but much less so against chancroid. With any form of chemical prophylaxis the time element and thoroughness of application are the most important factors.

INCOME TAX

Payments in Lieu of Residence, etc.

"DEMobilized" ask whether such payments are liable to tax, and suggest that if so the taxation is "most unjust."

* Such payments are liable. In this connection it should be remembered that with few exceptions taxpayers have to meet the cost of the accommodation and board of themselves and their families out of the net amount left after payment of income tax on their earnings. The exception is that quite small class of taxpayers who receive accommodation, etc., in kind as part of their emoluments. Legislation would be necessary to alter the present state of the law, and it might perhaps be more likely to take the form of making such emoluments liable to tax than that of exempting such portions of emoluments as are expended on the accommodation, etc., of the taxpayer.

Service in India

"HEPAR" served in India from Jan. 1, 1944, to Feb. 25, 1946; he married there and has now returned to the United Kingdom.

* Broadly speaking, liability to British tax on Indian Army pay depends on whether the individual has, while abroad, a residence available for his use in this country. As "Hepar" (unlike the other officer to whom he refers) apparently had no such residence in this country while he was abroad, he is not liable on his Indian pay. If he had such a residence he would be liable on the amount of his remittances to the United Kingdom.

Tax on Colonial Pension

A. N. is in receipt of a pension from which the Crown Agents deduct both British and Colonial tax.

* We suggest that he write to the Chief Inspector, Departmental Claims Branch, the Hydro, Llandudno, Caernarvonshire, stating the facts, and asking for the Dominion income tax relief due to him for the past years.

Depreciation Allowance

G. W. asks: "What depreciation allowance can be claimed for a car used for professional purposes?"

* The normal allowance for the current financial year will be 25% (i.e., 20% plus an additional one-fourth), calculated on the written-down value of the car in use at the end of the year (prior to April 5, 1946) to which the professional account has been made up.

Forces Pay—Dominion National

L. W. completes his 56 days' demobilization leave in June, 1946. He has already returned to South Africa and, presumably, has retained no residential rights in this country. What United Kingdom tax is deductible from his U.K. pay for 1946-7?

* Pay issued from United Kingdom sources is taxable irrespective of the residence of the recipient. The tax for 1946-7, therefore, will be calculated on the basis that a full year's personal allowance is deductible from the amount of income liable to assessment. As the "office or employment" has terminated the pay can be reckoned on the 1946-7 amount.

LETTERS, NOTES, ETC.**Treatment for Sprue**

Dr. H. C. SAKSENA (Preston, Lancs) writes: I should be interested to hear about any cases of sprue which have not responded to usual treatment (resistant cases) and in which the condition is getting worse. I have been trying a new method of treatment which has given extremely satisfactory results, but I haven't had enough cases yet to publish the results and method of treatment.

Preventing Orchitis in Mumps

Dr. Y. G. SOFER (Edgware) writes: Can any prophylactic measures be taken at the onset of mumps to prevent orchitis? (April 27, p. 670). May I refer to the investigation done by McGuinness, Aims, and Peters Michael (*Amer. J. med. Sci.*, 1945, 210, 661) where 20 ml. of gamma-globulin prepared from mumps convalescent serum one to three months after recovery from mumps was given intramuscularly to patients with mumps whose glandular swelling had been present for twenty-four hours. Patients who complained of testicular ache at the time of admission were excluded. The results were as follows:

		No. of Patients who Developed Orchitis	
No. of injected patients	51	4	7.8%
No. of controls	51	14	27.8%

Gamma-globulin from normal human plasma employed in a similar investigation was found to be ineffective.

Precaution when Using Throat Packs

Dr. H. PARRY-PRICE writes: Deaths have been recorded due to the removal of tracheal tubes after tonsillectomy and failure at the same time to remove the throat pack. I have recently instituted what I hope may prove a more or less fool-proof routine to avoid such accidents. All throat packs are soaked in vaseline and kept in a separate tin on the anaesthetic trolley. Thus no packs can possibly be involved in the sister's swab count at the end of the operation. The lid of the throat pack tin is painted red, and across it in white letters THROAT PACK TIN. Directly the tin is opened the lid is hung up on the trolley in a prominent position so that all may see it. It is not replaced until the pack is removed from the throat.

Princess Tsahai Hospital Appointments

MISS E. SYLVIA PANKHURST writes from 3, Charteris Road, Woodford, Essex: Some time ago you were good enough to publish a request that members of the medical profession who might be willing to take up appointments in the Princess Tsahai Memorial Hospital would communicate with the honorary secretary of the Hospital Council. The Council, however, was not able to proceed with the making of appointments, as had been anticipated, at the time, because, on further consideration, it was decided to revise and enlarge the original scheme, and this delayed the whole project. The generous assistance of the eminent hospital architect, Mr. Lionel Pearson, F.R.I.B.A., was obtained in revising the scheme.

Mr. Pearson drew a new set of plans, modifying and enlarging the original partly completed structure, which has been presented to the Council by H.I.M. the Emperor of Ethiopia, and adding new blocks for a big out-patient department and an ample operation theatre, kitchen, etc. The building is now in progress on the revised plans under a contract to be completed on Aug. 25 next. It is hoped that the interior equipment, which is being purchased in this country, may be fitted during the autumn. The Council, therefore, desires to make arrangements well in advance for the staff, and invites applications for the resident posts of physician, surgeon, obstetrician, radiologist, anaesthetist, and other specialists.

The Tuberculous Patient

"A. E." writes: As a doctor's wife now undergoing treatment for tuberculosis, I ask leave to make a few general observations in your columns. I often wonder if the attitude to tuberculosis which I have encountered is the usual one. A fairly common statement (by medical and nursing personnel) is that complaints about the food by sanatorium patients are a symptom of the disease. I am aware that fussiness about food is apt to develop in anyone who is confined to bed, and that in the tuberculous patient this tendency is aggravated by (a) the duration of the illness, and (b) the patient's awareness that an exceptionally nourishing diet is an essential part of his treatment. I would suggest that the sanatorium physician who neglects to investigate thoroughly all complaints about the food may be saddling his patient with the extra burden of frustration. Perhaps the most saddening aspect of the thing is that the vast majority of patients dare not press their complaints, being completely in the hands of the authorities, and knowing that in the event of their being expelled from their city, or county, sanatorium while still "open" case they run the risk of infecting their relatives. One would imagine that the physician, aware of his omnipotence in this matter, and being possessed of a conscience, would be specially punctilious in the appreciation of his exceptional power. I must also add that it sometimes seems to me that while we still await the State Medical Service itself, some of its alleged "attendant evils" are with us already and have been with us for many a long day. Tuberculosis, after all, is not a "rare" disease in this country, but it is fairly obvious that its victims are denied freedom of speech in many quarters—I speak from personal experience, and from the hearsay evidence of many responsible people.

Perhaps the present era of shortage of nursing and domestic staff is not the moment to broach this other point—but it is at least worth bearing in mind for the future. I refer to the unwillingness of nurses to give more than the bare minimum of attention to their patients. Many of these girls are untrained, certainly, but I fear there is often official backing for their ungraciousness. Instances of apparently meaningless, and certainly exasperating, petty restrictions could be cited. Perhaps I have been unfortunate in my past experiences, and I am glad to put on record that in my present place of treatment I have been given every consideration, and have found conditions—especially in view of the food shortage and other handicaps—wellnigh perfect.

The chances of survival of the tuberculous patient (thanks to the improved methods of local treatment, and their efficient application) are growing daily greater. I make the plea that he be not returned to the outside world healed in body but embittered in spirit, and that his recovery be not retarded by an unsympathetic environment. Although my own illness has now lasted for eighteen months, I have never been acutely ill, and have good grounds for believing that within eight to ten months I may once more be able to lead a normal life. Therefore I speak in a spirit of constructive criticism, rather than one of bitterness and frustration.

DISTRIBUTION OF PENICILLIN

On June 1 the present free issue of penicillin by the Ministry of Supply through the hospital system will cease. From that date penicillin will be available to hospitals, to the medical and dental professions, and to retail pharmacists through trade channels. Supplies should be obtained from the usual suppliers of such products. Penicillin or any preparation containing it may be supplied to the public only against the prescription of a registered medical or dental practitioner.

Initially most of the penicillin will be in the form of dried powder packed in phials or ampoules containing 0.1, 0.2, 0.5, 1.0 mega unit. The maximum retail prices of these packs will be 2s. 9d., 4s. 9d., 10s. 6d., and 20s. respectively. Penicillin will also be available in an oil-wax suspension for injection. Pharmacists may use dried penicillin in dispensing the prescriptions of medical and dental practitioners. As time goes on increasing quantities of penicillin preparations will become available from the manufacturers.

Should any difficulty be experienced in obtaining supplies, advice may be sought from the Ministry of Supply, Penicillin Production Control, Tothill Street, London, S.W.1. (Telephone No. 7788, Ext. 403.)

BRITISH MEDICAL JOURNAL

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PROGRESS AFTER PERFORATED PEPTIC ULCER*

BY

C. F. W. ILLINGWORTH, M.D., Ch.M., F.R.C.S.Ed. L. D. W. SCOTT, M.D., M.R.C.P.

AND

R. A. JAMIESON, F.R.C.S.Ed.

It is a common experience that acute perforation of a peptic ulcer may lead to a remission of symptoms, but there is little evidence as to the expectation of such improvement or the risk of relapse, and still less about the factors influencing the prognosis. Accordingly it seemed useful, as part of a broad survey of perforated ulcer, to carry out a careful follow-up study of a large series of cases.

Particulars of Survey

Method of Study.—The survey is based on all patients treated for acute perforation at the Western Infirmary of Glasgow during the period 1938–43. There were 880 such patients, of whom the 733 survivors (83%) form the material surveyed. An attempt has been made to trace all these survivors and recall them for examination. A large proportion of the patients were traced by letter and readily agreed to report. When this failed, the almoner visited the patient in his home and urged him to attend. For patients living at a distance the help of Red Cross workers and other voluntary organizations was elicited. Where the patient had left his former address and could not be traced by post, his present address was sought from the family doctor, from relatives, or from neighbours. By these various methods we were able to trace 666 of the 733 survivors, and, of these, 596 attended for follow-up examination.

Total number of patients treated for perforation	880
Survivors	733
Traced by letter	596
Traced by other methods	43
Completely untraced	17
	66
	67

The Population subjected to Survey.—Nearly all the patients followed up came from Glasgow and the adjacent districts; 95% were men, and the ulcer was situated in the duodenum in 87% of cases. The age distribution was as follows:

Age (at Perforation) of Survivors Interviewed

Age (Years).	15-20	25-30	35-40	45-50	55-60	65-70	75-79	All Ages						
Cases ..	33	49	51	74	89	86	64	63	37	29	15	4	2	596

Operation and Post-operative Care.—In all but 10 cases the operative treatment was limited to closure of the perforation; in the remainder a simultaneous gastro-jejunostomy was performed. Most patients were discharged after a stay in hospital of 14 to 21 days. A few received further care in a convalescent institution, but the majority were discharged to their homes. They returned to work usually in 3 to 4 months. All patients on discharge from hospital were given instructions as to diet and medication. Inquiry during the follow-up examination made it clear that most of them attempted to follow the

instructions for some months, but few persisted for more than a year. At the time of the examination the majority were taking advantage of the special milk and egg ration, but admitted that their only dietary restriction was to avoid the foods which, from experience, were known to cause indigestion; while as to medication, few did more than take an alkaline powder when symptoms were present. This state of affairs, lamentable though it is as a reflection on the impracticability of medical measures in a working-class population at the present time, has the advantage of providing for our survey a series of peptic ulcer cases whose post-operative course has been practically uninfluenced by treatment.

Method of Tabulation.—The investigation was carried out in 1944 and the early part of 1945. Consequently at the time of examination five years or more had elapsed in some cases since perforation, while in others the period was shorter. For the purpose of analysis we have tabulated the follow-up state for each period of 12 months post-operatively and treated the series as a whole. It follows that, while we have records of the whole series for the first year after perforation, the number of cases followed up for longer periods is smaller, and a full five-years follow up is available only for those who perforated in 1938–9.

Assessment of Clinical State.—At the follow-up examination patients who had suffered a relapse were graded according to the severity and persistence of the symptoms. An attempt to base a grading on loss of working time was soon abandoned, since it was found that many patients remained at work even though suffering severe indigestion. For the purpose of this paper we have adopted a simple clinical grading into three groups (1) those completely free from symptoms; (2) those who have suffered mild indigestion; and (3) those who have had attacks of severe indigestion, together with those who have suffered haemorrhage or re-perforation or undergone elective operation.

Record of Progress after Perforation

One method of presenting the progress after perforation is to record the number (or proportion) of patients who have remained continuously symptom-free and those who have suffered a mild or severe relapse. The findings in our series of cases analysed in this way are presented in Fig. 1 and Table I. It will be noted that at the end of the first year rather more than 60% of patients have remained free from symptoms, while about 20% have had a relapse with mild symptoms and the remaining 20% have had a severe relapse. The percentage who have sustained a relapse increases with the passage of time. By the end of the fifth year about 30% have remained continuously symptom-free, 20% have had a mild relapse, and as many as 50% have had a severe relapse.

Year-by-Year State of Health.—The method used above may be criticized as painting too gloomy a picture of the progress, for peptic ulcer is notoriously liable to remissions, and a patient who in one year sustains a relapse may subsequently enjoy a long spell of good health. This difficulty we have met by presenting a "year-by-year" statement in which is recorded

* This paper is based on observations made in the course of a survey of peptic ulcer carried out under the auspices of a Committee on Sickness Records set up in Glasgow by the Nuffield Provincial Hospitals Trust.

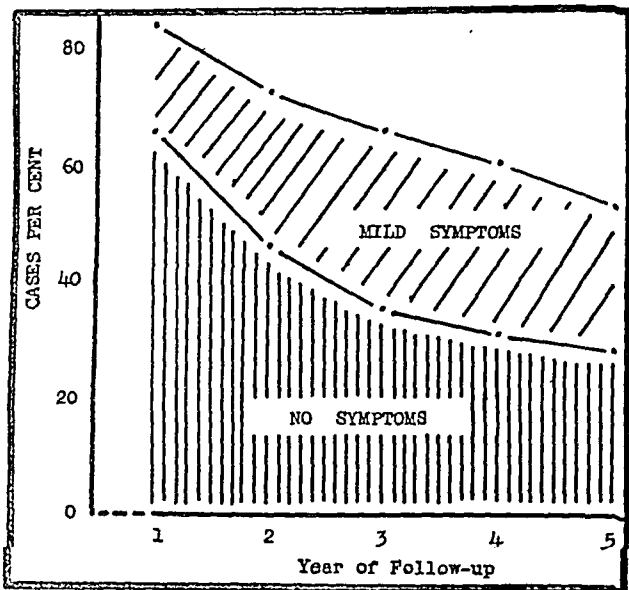


FIG. 1.—Progress after perforation. Showing (a) proportion of patients continuously symptom-free; (b) proportion of patients who have had mild indigestion. (See Table I.)

TABLE I.—Progress after Perforation

Year of Follow-up:	1st	2nd	3rd	4th	5th
No symptoms ..	392	254	160	107	47
Mild symptoms ..	110	147	140	97	41
Severe symptoms ..	94	151	157	136	78
Total cases ..	596	552	457	340	166

for each of the post-operative years the number (or proportion) of patients who *during that year* have remained symptom-free or have suffered mild or severe relapses. Our results are analysed in this way in Fig. 2 and Table II, and it will be seen by

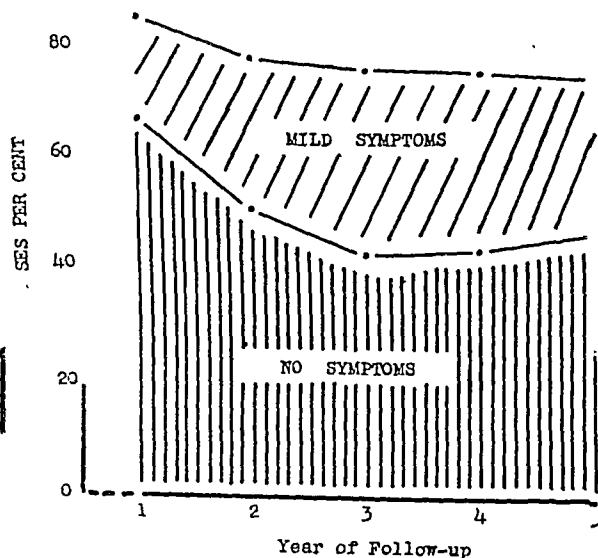


FIG. 2.—Year-by-year state after perforation. Showing (a) proportion of patients symptom-free in current year; (b) proportion of patients with mild indigestion in current year. (See Table II.)

TABLE II.—Year-by-year State after Perforation

Year of Follow-up.	1st	2nd	3rd	4th	5th
No symptoms ..	392	277	191	144	76
Mild symptoms ..	110	149	150	107	45
Severe symptoms ..	94	126	116	89	45
Total cases ..	596	552	457	340	166

comparison with Fig. 1 and Table I that the effect of allowing for prolonged remissions becomes obvious in the later years of the follow-up. Thus the proportion of patients who are symptom-free falls from about 60% for the first year to 50% for the second year, but thereafter remains above 40%, while the proportion of patients with no more than mild indigestion remains above 70%. The proportion with severe relapses varies between 20 and 30%.

This estimate of the yearly state of health of our ulcer population may be of value from the economic standpoint. We have shown that the proportion of patients having no more than slight indigestion tends to stabilize between 70 and 80%. It would seem reasonable to suppose that, of a group of workers who had survived perforation, approximately the same proportion should be healthy enough to remain in continuous employment during any one year.

Incidence of Major Complications.—In Table III we give the number of patients who suffered re-perforation or haemorrhage, together with those who subsequently underwent an elective operation for the relief of ulcer symptoms. It will be noted

TABLE III.—Major Complications after Perforation

Year of Follow-up:	1st	2nd	3rd	4th	5th
Cases observed ..	596	552	457	340	166
Re-perforation ..	10 (1.7%)	8 (1.4%)	11 (2.4%)	5 (1.5%)	4 (2.4%)
Haemorrhage ..	5 (0.8%)	7 (1.3%)	7 (1.5%)	4 (1.2%)	1 (0.6%)
Elective operation ..	16 (2.7%)	12 (2.2%)	8 (1.8%)	3 (0.9%)	3 (1.8%)

that in each of the post-perforation years roughly 2% of patients suffered re-perforation, roughly 1% sustained a haemorrhage, and roughly 2% found it necessary to undergo operation for the relief of symptoms. It will be observed also that the incidence of major complications showed little sign of diminishing with the passage of time: it was almost as high in the fifth post-operative year as in the first. Even allowing for the few who appear more than once, we estimate that within five years of perforation some 20% of patients may be expected to suffer a major complication.

Mortality after Perforation.—Of the 666 traced survivors from the original operation 43 are known to have died during the period of the follow-up survey. In 11 cases death resulted from a complication of peptic ulcer (re-perforation 7, haemorrhage 0, elective operation 4). In 23 cases death was attributable to causes other than peptic ulcer. In the remaining 9 cases the cause of death was not known.†

Factors Influencing Progress after Perforation

In our survey we have studied the possible influence of various factors on the progress after perforation. In this paper we present our results in relation to the sex and age of the patient, the duration of symptoms, and the social status. The influence of other factors will be discussed in subsequent papers. In presenting our results we have used as the index of progress the proportion of patients continuously symptom-free, but we have verified that what is said is also applicable to the year-by-year state of health.

Influence of Sex.—Of our 596 cases only 28 were women. They appeared to fare somewhat better than the men, but the number of women is too small to allow a reliable comparison to be made.

Influence of Age.—To assess the influence of age on progress we have divided our series of cases into three groups, of approximately equal size, according to age at the time of perforation—those aged 34 years or less, those aged 35 to 49 years, and those aged 50 or more. The progress of these groups is recorded in Fig. 3 and Table IV. It will be seen that the oldest group fared better than the younger groups. For example, in the oldest group the proportion symptom-free after

† The mortality among survivors from perforation has been investigated from the actuarial standpoint by Mr. W. Lundie, F.F.A., who has compared the actual deaths in our series with those which might be expected on the basis of a mortality rate calculated for Glasgow at the present time. While the number of deaths in our series is too small for reliable conclusions, it is probable that the mortality among our survivors from perforation is in excess of expectation. The excess might be wholly accounted for by the deaths due to further complications of ulcer.

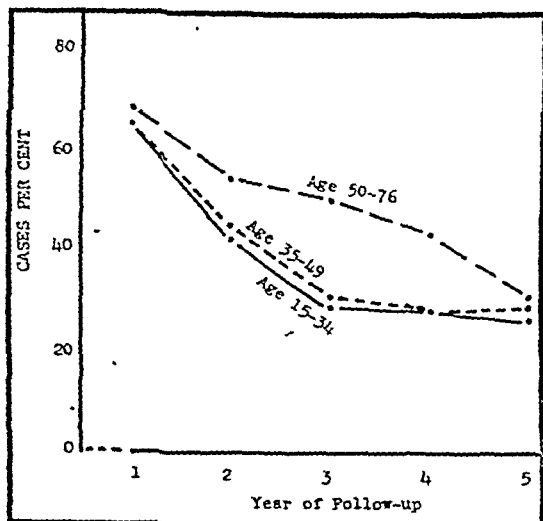


FIG. 3.—Influence of age (at perforation) on subsequent progress. Showing proportion of patients continuously symptom-free. (See Table IV)

TABLE IV.—Influence of Age (at Perforation) on Subsequent Progress

Year of Follow-up.		1st	2nd	3rd	4th	5th
Age 15-34 years	Symptom-free	135	81	48	37	19
	Total cases	207	193	165	130	73
Age 35-49 years	Symptom-free	155	99	55	35	17
	Total cases	239	222	178	126	58
Age 50-76 years	Symptom-free	102	74	57	35	11
	Total cases	150	137	114	84	35

For 3rd follow-up year $\chi^2 = 14.82$, P less than 0.01 For other follow-up years P exceeds 0.05.

three years was 50%, as against 30% in the younger groups. Using as our index the proportion of patients continuously symptom-free, the outcome in the middle and young age groups was almost identical, as is seen in Fig. 3 and Table IV. Examination of our records shows, however, that had we used as our index the proportion free from severe symptoms (i.e. those symptom-free and those with mild indigestion taken together) the age groups would appear in orderly sequence, with the oldest group progressing most favourably and the youngest least favourably. We concluded that among patients who survived perforation the prognosis is best in the old and worst in the young.

Influence of Duration of Symptoms—Fig. 4 and Table V show the progress of groups of patients classified according to the duration of symptoms prior to perforation. It will be noted that the outcome is more favourable in the groups with a short antecedent history of dyspepsia than in the groups with a long history. Not only are the differences material, but the groups follow each other in orderly sequence. Thus patients with no previous history of dyspepsia fared better than patients who had symptoms for 0 to 3 months, who in turn fared better than patients who had symptoms for 3 to 12 months, and so on.

Influence of Social Status—We have also studied the effect of social status on the progress after perforation, and in view of the present interest in the social aspects of medicine we believe that our findings are worth recording. For this purpose we have used the scheme of social grading adopted by the Registrar-General for England and Wales. In this scheme Grade I includes members of the professions, Grade III includes skilled artisans, and Grade V includes unskilled workers; while Grades II and IV are intermediate. With our patients grouped according to this classification we have compared the post-operative progress, using as our index in turn the proportion continuously symptom-free, the proportion continuously free from severe symptoms, and the corresponding figures relating to the year-by-year state. In none of these comparisons have we been able to demonstrate a difference in the outcome of the various social grades, whose progress, with

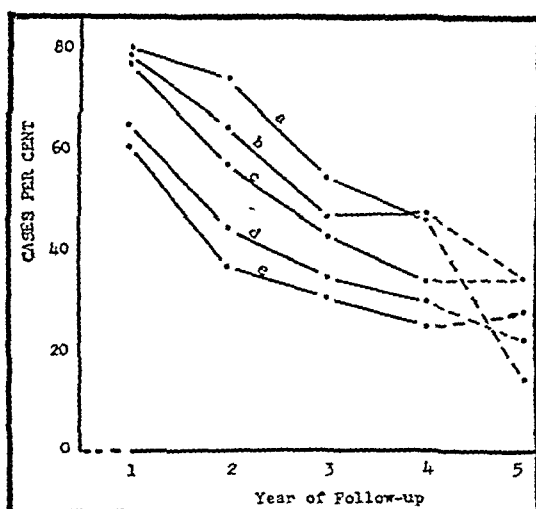


FIG. 4.—Influence of duration of symptoms before perforation on subsequent progress. Showing proportion of patients continuously symptom-free at follow-up: a = No symptoms before perforation; b = Symptoms for 0-3 months before perforation; c = Symptoms for 3-12 months before perforation; d = Symptoms for 1-5 years before perforation; e = Symptoms for more than 5 years before perforation. (See Table V)

TABLE V.—Influence of Duration of Symptoms Before Perforation on Subsequent Progress

Year of Follow-up		1st	2nd	3rd	4th	5th
None	Symptom-free	43	39	20	16	2
	Total cases	54	53	37	35	13
0-3 months	Symptom-free	49	36	19	15	6
	Total cases	62	56	41	32	17
3-12 months	Symptom-free	43	31	16	11	6
	Total cases	56	54	38	32	17
1-5 years	Symptom-free	77	49	29	22	8
	Total cases	119	111	84	71	37
More than 5 years	Symptom-free	159	93	58	38	21
	Total cases	263	250	190	155	76

χ^2 test applied to each follow-up year = for 1st and for 2nd year, P less than 0.01; for 3rd and 4th years, P less than 0.05

one exception, has been uniform. The exception was the class of semi-skilled workers (Grade IV), whose progress after perforation was notably favourable. For this anomaly there is an unexpected explanation—namely, that our Grade IV patients happened by chance to include an excessive number who gave a short history of dyspepsia before perforation, and who, as we have stated, must be expected to show a favourable outcome. There is therefore no evidence that the progress after perforation in this series was modified by the social status of the patient.

Discussion

Many follow-up studies of peptic ulceration have been published, but comparison of their results is difficult owing to the lack of a standard pattern of presentation. The series may include cases of different types treated by a variety of medical or surgical methods. The duration of the follow-up period may be inconstant, and one sometimes sees such statements as "in cases followed from two to ten years the proportion of cures was so-and-so." Lastly, the grading of cases according to the severity of symptoms, particularly under such categories as "I.S.Q." or "Improved," gives infinite opportunities for individual variation.

In this series we have the primary advantage of dealing with a group of patients who are uniform in two respects—namely, that all have peptic ulcers which have perforated, and that their post-operative course has been practically uninfluenced by treatment. In our clinical assessment we have adopted grading which is as free as possible from the errors of individual variation. We have recognized three grades—namely, "symptom-free," "mild indigestion," and "severe relapse." In our study of the factors influencing progress we have used as our index the simple criterion "continuously free from all digestive

symptoms." The use of this high standard of health has been necessary in the present series, because a considerable number of our patients suffered perforation (or re-perforation) after having had only slight occasional indigestion.

In the presentation of our results we have followed the method by which the series is treated as a whole, and the follow-up records are tabulated for each period of 12 months. In reporting the progress of a disease such as peptic ulcer, which is prone to remissions and recurrences, this seems to us to be the best method of giving an accurate picture.

Although, as we have said, the published studies of peptic ulceration follow no standard pattern, one finding is common to all—namely, the longer the follow-up period the greater the number of relapses—and the impression grows that what is being shown is not so much the result of treatment as the natural history of the disorder.

Some observers believe that the prognosis as regards future health is better in cases of perforation than in any other form of peptic ulcer. This opinion can be supported by considerations of pathology. It is the ulcer on the anterior wall of the duodenum which commonly perforates, and consequently these ulcers can penetrate only to a shallow depth before being treated surgically. On the other hand, ulcers on the posterior duodenal wall can penetrate deeply into the substance of the pancreas, creating conditions which make healing difficult, if not impossible. However, our findings provide little support for the view that the peptic ulcer which perforates runs a satisfactory course. It is possible that the non-perforating ulcer has an even worse record as regards health, but until we have completed the study of a group of non-perforating ulcers we are not prepared to say much about this, apart from observing that, since in the present series of patients the incidence rate of major complications within five years of perforation was 20%, the standard of health set by the perforating ulcer is not high.

It is noteworthy that in the great majority of cases acute perforation of an ulcer is followed by a remission of symptoms for, at any rate, a period of months. It is commonly averred that "perforation cures an ulcer"—by which it is implied that healing is due to the actual rupture, associated as it is with sloughing and removal of the fibrous bed of the crater. It seems more probable that the remission of symptoms is due to the rest in bed, the careful diet, the prolonged convalescence, and perhaps the alteration of mental outlook induced as a result of the operation.

The influence of the duration of ulceration before perforation (as judged by the history) on subsequent health is interesting. The longer the ulcer has been present before perforation the poorer the health in the post-operative years. In all probability this is accounted for by the structural changes accompanying chronic ulceration, but proof of this would depend on obtaining an adequate view of the ulcer at the time of operation, and for technical reasons this is not possible.

It is more difficult to suggest a reason why those who perforate in later life should have a better record of health after recovery from the operation than the younger men. The difference is not due to an excessive proportion of chronic ulcers in the younger age groups. It is possible that the difference may be related to factors connected with occupation, psychology, or dietary habits, or to a greater readiness on the part of older patients to submit to a more ordered regimen of life. The question certainly deserves further study.

It is a common belief that the treatment of peptic ulcer gives more satisfactory results in private than in hospital practice, and this is thought to be related to economic factors. The Registrar-General's classification of the population into five social grades corresponds roughly to income levels and provides a way of studying the influence of economic factors on disease. As has been shown, we have been unable to detect any difference in the morbidity between the various social grades in our series. This finding is surprising, and clearly merits further study. However, it should be noted that the period of follow-up coincides largely with the rationing of foodstuffs, and there can be no doubt that dietary differences between the various income groups have been greatly lessened during wartime. Furthermore, as we have noted, most patients were taking advantage of the extra allowance of milk and eggs granted in

cases of peptic ulcer, and this should mean considerable uniformity in diet in the different social grades. The increased earnings of the lower social grades in wartime may also have played a part in improving their conditions—although the greater number of hours worked is to be set against this. We have already suggested that working overtime may have been partly responsible for the great increase in the number of cases of perforated peptic ulcer occurring in the West of Scotland in 1941 (Illingworth *et al.*, 1944).

Summary

A follow-up study of 733 patients who had survived perforation of a peptic ulcer is reported, and the following findings are discussed:

(1) Remission of ulcer symptoms after perforation was seldom of long duration. Within one year 40% of patients had relapsed (symptoms were mild in 20% and severe in 20%). After five years 70% had relapsed (symptoms were mild in 20% and severe in 50%).

(2) The incidence rate of major complications (re-perforation, haemorrhage, symptoms requiring elective operation) was 20% within five years of perforation.

(3) The mortality rate among survivors from perforation was somewhat higher than the standard mortality rate. The excess might be accounted for by deaths due to complications of ulcer.

(4) Progress among survivors was best in the old and worst in the young.

(5) Progress was best in patients with a short history of dyspepsia before perforation, and the longer the antecedent history the worse was the progress.

(6) Progress was not modified by the patients' social status.

We are indebted to our surgical colleagues at the Western Infirmary, who have given us full access to their case records and every facility for following up their patients. It is literally true that without their helpful co-operation this paper could not have been written. We have pleasure in acknowledging our debt to Mr. W. Lundie, C.A., F.F.A., who at the suggestion of Mr. J. G. Kyd, Registrar-General for Scotland, has submitted our mortality rate to an examination from the actuarial standpoint. Our thanks are due also to Miss Wood, our social worker, for her help in tracing many patients and securing their attendance for the follow-up; and to Miss Good for her tireless attention to the secretarial work involved in the collection of records.

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ONE HUNDRED CASES OF PERFORATED PEPTIC ULCER

WITH AN ANALYSIS OF IMMEDIATE AND REMOTE RESULTS OF SIMPLE CLOSURE

BY

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Perforated peptic ulcer is a subject with a vast and steadily growing literature. Formerly this was concerned mainly with problems of diagnosis, choice of operation, and immediate post-operative results.

Compared with most abdominal emergencies, the diagnosis of perforated gastric and duodenal ulcers now presents few difficulties. Their treatment likewise admits of no division of opinion so far as the need for closure of the perforation at the earliest possible moment is concerned. Fashions in abdominal surgery have, however, been reflected in the periodical shift of opinion as to what other operative procedures might with advantage be used as a supplement to simple closure of the perforation. Whilst one school of thought has persistently held that so grave an emergency called for the performance of the simplest life-saving operation, others have seen fit to employ gastro-enterostomy and, more recently, partial gastrectomy in the initial treatment of perforations. Less popular devices such as local excision of the ulcer and pyloroplasty have similarly had their advocates as and when each became current in the treatment of non-perforated ulcers.

It may be suspected that the advocacy of these various measures has not been wholly free from a tendency to rationalization. Thus, for instance, the enthusiasts for gastro-enterostomy convinced themselves that the suture of an ulcer

in the vicinity of the pylorus involved a high incidence of pyloric stenosis and obstruction, which justified the performance of a gastro-enterostomy for its prevention as part of the initial operation for a perforation. Similarly, the more recent adoption of partial gastrectomy as the operation of choice in the treatment of gastric and duodenal ulcers has been followed by a wave of popularity for the view that ulcers which have previously perforated frequently remain active or break down again, and that the immediate performance of a partial gastrectomy is justified as the surest means of protecting the patient from this hazard.

Considering the comparatively small amount of evidence that has hitherto been published concerning the later progress of patients who have survived the perforation of a peptic ulcer, it would seem that these views, no less than the widely held opinion that suture of a perforation commonly leads to the permanent cure of the ulcer, are largely based on vague impressions rather than upon factual knowledge derived from the prolonged and close observation of the results of simple closure. Patients discharged from hospital after suture of a perforation have not, on the whole, been followed up with the same care and persistence as have those who have received medical or surgical treatment for unperforated ulcers.

Latterly, publications on this subject have increasingly recorded the results of following up the cases over considerable periods. The present investigation is reported as a contribution to the more exact knowledge of long-term prognosis which is being gained as a result of such inquiries.

Material and Method of Investigation.—The material of this paper consists of 100 consecutive cases of perforated gastric and duodenal ulcers on which I operated at Redhill County Hospital, Edgware, during the five years 1938–43; 88 occurred in men and 12 in women. The patients who survived were re-examined at intervals of six weeks, three months, and six months after discharge from hospital, and thereafter every six months. Clinical examination was supplemented by x-ray investigation approximately once a year, whether there was a recurrence of symptoms or not, and more often when there were special indications.

Operative Procedure and Immediate Post-operative Results

Operation was undertaken at the earliest possible moment after admission to hospital. Glucose-saline was administered by rectal drip as a routine for the first 24 hours after operation. Fluids were then allowed by mouth and the diet was gradually increased.

Anaesthesia.—A general anaesthetic was administered in the majority of cases, using gas-oxygen and ether.

Incision.—The usual method employed was to open the abdomen through a right paramedian incision, either splitting the rectus muscle or displacing it laterally. Displacement of the rectus gave appreciably stronger scars than did splitting the muscle, and the latter has now practically been abandoned. There was no greater tendency to wound sepsis after displacement of the rectus muscle, and the time that can be saved by splitting it is quite negligible.

Intra-abdominal Procedure.—In all cases but one, simple closure of the perforation, with or without drainage of the peritoneal cavity, was carried out. A single chromic catgut suture was passed through all layers to approximate the edges of the perforation. Occasionally, when the perforation was very large or the tissues were unusually friable, a second such suture was introduced at right angles to the first. The ulcer was then invaginated by a row of three interrupted Lembert stitches passed in the long axis of the stomach and duodenum, the ends being left long to tie over and secure any available piece of omentum as a patch. A toilet of the peritoneal cavity was next carried out, excess of fluid being removed by means of moistened gauze mops. A sufficiently large abdominal incision was made to allow of a hand being freely introduced for this purpose, and the areas receiving routine attention were: (1) the space between the right lobe of the liver and the diaphragm, whence a considerable quantity of locked-up fluid can generally be released; (2) Morison's pouch between the under surface of the liver and the hepatic flexure of the colon; (3) the pelvis and the right paracolic gutter; (4) the space between the splenic flexure and the diaphragm, where fluid

particularly collects in perforations of a gastric ulcer. I have repeatedly noted the localization of the bulk of the fluid to one or other of these compartments, and I believe that a systematic toilet of the abdomen in this manner is of considerable importance in minimizing the incidence of post-operative peritonitis and of subphrenic and pelvic abscesses. The use of a sucker introduced through a small abdominal incision is not an adequate substitute for gauze swabs carried by a hand to each of the areas mentioned above.

Drainage of the peritoneal cavity was carried out in 54 cases. In 47 of these the drain was introduced to the bottom of the pelvis, a suprapubic "stab" wound being employed in 41 cases; in the remaining 6 cases a right gridiron incision which had been made for exploration in suspected appendicitis was used. In 7 cases with long-standing perforation and a perigastric abscess a local drain to the site of the ulcer was brought through the paramedian incision. The remaining 46 cases were closed without any drainage.

Post-operative Complications

Some infection of the wound occurred in 14 cases, of which 10 had been drained suprapubically and 4 had been closed without drainage. Two of these patients died—one on the 20th post-operative day with an empyema, and the other from spreading gangrene of the skin 5 months after operation. Pulmonary complications occurred in 39 cases, but were mild and recovered quickly in all but 7 cases of severe bronchopneumonia, which accounted for 5 deaths. Two empyemas occurred, with one death. Two subphrenic abscesses formed, with one death. Seven patients complained of digestive symptoms while still in hospital and one had a haematemesis. In 41 cases post-operative recovery was completely uneventful.

Deaths

Seventeen deaths occurred in the series. These are analysed in Tables I and II.

TABLE I.—Causes of Death

Cause of Death	Broncho-pneumonia	Tetanus and Shock	Cardiac Failure	Wound Sepsis	Sub-phrenic Abscess	Empyema	Total
No. of cases	5	6	3	1	1	1	17

TABLE II.—Cases and Deaths in Each Decade of Life

Decade	1st	2nd	3rd	4th	5th	6th	7th	8th
Total No. of cases	0	3	12	23	27	9	18	3
No. of deaths	0	0	0	1	6	1	6	3

Table II shows the relative total number of cases and of deaths in each decade of life. Under the age of 40 there were 43 cases, with one death; over the age of 40 there were 57 cases, with 16 deaths. There were 12 deaths among the men and 5 among the women. Thus whilst the cases occurring in women were 12% of the total, 29% of the deaths were among the women.

Anatomical Site of Perforation

The term "juxtapiyoric" has been used to describe those of the ulcers which were in very close relation to the pylorus and about whose classification as either gastric or duodenal differences of interpretation might arise. In my opinion the majority of these were on the duodenal side of the pylorus. This view is supported by the post-operative x-ray appearances. Deformities due to scarring or to persistent ulcers, when present, were almost always found to be in the duodenum. Adopting this terminology, the distribution of the perforations was as follows: gastric, 12; juxtapiyoric, 58; duodenal, 30. Five of the 17 deaths in the whole series occurred amongst the gastric ulcers. Five of the 12 gastric perforations occurred in women, with 3 deaths.

From these figures it appears that much the highest mortality was associated with the gastric perforations—42%, as compared with 15.5% for the juxtapiyoric and 10% for the duodenal cases. Furthermore, the higher incidence of gastric perforations among women largely explains why there were proportionately so many more deaths in women than in men.

Attendance at Follow-up Clinic

Of the 83 patients who left hospital alive after operation, 13 were lost sight of immediately and 70 attended in the follow-up clinic for varying periods. Table III shows an analysis of these attendances.

TABLE III

Duration of Attendance:	1 Year or Less	Up to 2 Years	Up to 3 Years	Up to 4 Years	5 Years and Over	Total
No. of cases	25	16	6	13	10	70

That only 10 of the 70 patients should have continued to attend for as long as five years might be considered to be somewhat disappointing. It should be noted, however, that the period covered by this investigation coincided with the war years, when evacuation, call-up to the Forces, and transfers of industrial labour took an exceptionally heavy toll of attendances. This disadvantage is to some extent offset by the fact that the observation of these patients with peptic ulcer histories was carried out at a time when dietetic, living, and working conditions were particularly adverse for people suffering from digestive disorders.

Recurrence of Symptoms

During the time of their attendance in the follow-up clinic 38 patients had a recurrence of digestive symptoms. These were classified as "slight" (13 cases), with a complaint of occasional discomfort after eating, heartburn, or flatulence; "moderate" (11 cases), whose indigestion involved periods of absence from work but which responded to domiciliary treatment; and "severe" (14 cases), which required readmission to hospital for medical treatment or for the performance of a secondary operation.

The time which elapsed between operation and the first onset of a recurrence of digestive symptoms is shown in Table IV.

TABLE IV

Year after Operation.	1st	2nd	3rd	4th	5th
No. of recurrences	25	3	3	5	2

In Table V the number of recurrences of symptoms is related to the age groups in which they occurred.

TABLE V

Decade of Life:	2nd	3rd	4th	5th	6th	7th
Total No. of perforations	3	12	28	27	9	18
Total No. of recurrences of symptoms	1	6	10	9	3	3
of severe and moderate	1	1	7	6	2	3

Table VI shows the relation of the duration of ulcer symptoms before perforation to the rate of incidence of post-operative recurrence of indigestion.

TABLE VI

Length of Past History:	3 Years or Less	3 to 5 Years	5 to 10 Years	10 to 20 Years
No. of cases	47	12	19	10
No. of post-op recurrences	8	3	6	4
Recurrence rate	17%	25%	32%	40%

The following inferences may be drawn from the evidence summarized in Tables IV, V, and VI.

1. A high rate of recurrence during the first year after perforation is followed by a sharp drop during the second year, a fairly constant low level of recurrence being then maintained during succeeding years (Table IV). The numerous recurrences during the first year are probably evidence that suture of the perforation failed to heal the original ulcer in those cases, whilst the recurrences of symptoms during the second and later years were almost certainly due to re-ulceration of a previously healed ulcer or to the formation of completely new ulcers. A striking example of this was a man who had a perforation of a duodenal ulcer and then remained completely free from digestive symptoms for four years. During the fifth year after perforation he developed symptoms of a gastric ulcer, with

pain immediately after food. Skiagrams showed a large crater at the middle of the lesser curvature. A partial gastrectomy was performed, and the ulcer was found to be perforating into the pancreas.

2. The rate of recurrence of ulcer symptoms for each decade of life runs roughly parallel with the total incidence of perforations in the series for the corresponding age groups, each being maximal during the fourth and fifth decades.

3. The longer the patient has suffered from an ulcer before he perforates the more likely will he be to have a recurrence afterwards.

In general, it may be surmised that suturing the perforation in itself has little influence on the natural history of the ulcer, and that the immunity from further symptoms enjoyed by 32 of the patients among those observed in the present series was mainly due to the three weeks of complete rest and strict dietetic regime enforced during convalescence in hospital, combined with their ready observance of the instructions which they received on discharge, lest the price of carelessness should be a repetition of their recent ordeal. Those who have had a perforation have been warned, and they are not likely to forget. But the long-standing chronic ulcer is no more susceptible of cure by purely medical means after perforation than it was before, and it is in this group of cases that radical surgery after perforation finds its chief justification.

X-Ray Examination

At the follow-up clinic 130 x-ray examinations of the stomach and duodenum were made on the 70 patients who attended—54 during the first year after perforation, 32 during the second year, 18 during the third year, 16 during the fourth year, 9 during the fifth year, and 1 during the sixth year. The significant results of these examinations are given in Table VII.

TABLE VII

Year After Perf.	Normal	Irritability and Hypersecretion	Pyloric Spasm	Duodenal Ulcer	Gastric Ulcer	Pyloric Obstruction	Doubtful
1st	14	7	6	13	2	2	1
2nd	7	4	2	8	2	1	3
3rd	5	2	0	6	0	0	2
4th	4	1	0	4	1	1	1
5th	0	0	0	5	1	1	1
6th	0	0	0	1	0	0	0
Total	30	14	8	37	6	5	8

The striking feature of these records is that in the course of 130 x-ray examinations pyloric obstruction was encountered only five times, whilst the appearances of an active ulcer crater were present on no fewer than 43 occasions. The performance of a gastro-enterostomy as part of the initial operation for a perforated peptic ulcer is therefore quite unjustified in view of the very low incidence of pyloric obstruction as a remote complication after simple suture of the perforation.

The 43 occasions on which the niche or crater of an ulcer was seen occurred in the course of the x-ray examination of 31 different patients. Of these, 24 suffered from recurrent symptoms of indigestion. In the case of the remaining 7 patients the x-ray appearances were probably due to the effects of the scarring of healed ulcers.

Secondary Operations

Secondary operations were performed on 10 patients. One of these was an emergency operation necessitated by a second perforation of a duodenal ulcer after an interval of 4 years and 3 months. During this interval the patient, a man aged 66 at the time of his first perforation, had remained completely free from symptoms until a fortnight before the second perforation, when he had a recurrence of indigestion. Skiagrams then showed slight deformity of the duodenal cap, thought to be due to scarring of the old ulcer. At the second operation a large juxta-pyloric perforation was found. When last seen, 18 months after the second operation, he had again remained free from symptoms, and was in good health at the age of 72. A further skiagram at this time showed deformity of the first part of the duodenum. The stomach emptied rapidly and there was no pyloric stenosis.

The remaining 9 secondary operations were performed because of symptoms which persisted in spite of medical treatment or on patients whose livelihood depended upon an

occupation incompatible with adherence to a gastric regime adequate to keep them free from symptoms. The latter circumstance occurs commonly among hospital patients in an industrial district, and is a factor which, when duly taken into account, must be regarded as a strong indication for advising partial gastrectomy more frequently than would be justifiable in more sheltered sections of the community. The secondary operations performed are analysed in Table VIII.

TABLE VIII

Case No.	Condition	Secondary Operative Procedure	Interval After Perforation	Result
6	Pyloric obstruction	Gastro-enterostomy	6 months	Remained symptomless
9	Duodenal ulcer	Partial gastrectomy	4 years	Died
26	D.U. and pyloric obstruction	Gastro-enterostomy	4 years	"
31	Pyloric obstruction	"	1 year	Remained symptomless
42	Gastric ulcer	Partial gastrectomy	5 years	"
44	Duodenal ulcer	"	1 year 3 months	"
45	Hour-glass stomach	Gastro-gastrostomy	2 years	"
62	D.U. and pyloric obstruction	Gastro-enterostomy	6 months	"
88	Duodenal ulcer	Partial gastrectomy	9 months	"

Two post-operative deaths occurred among the 9 patients who were submitted to an elective secondary operation. One was that of a man of 69 on whom a gastro-enterostomy was performed, and occurred from progressive heart failure five days after operation. The other occurred from acute haemorrhagic cystitis and bronchopneumonia five days after the performance of a partial gastrectomy on a woman aged 44. One woman aged 37 was completely relieved of digestive symptoms by a gastro-enterostomy, but died six months later of a carcinoma of the ovary (Case 6). Of the remainder, two patients who had a gastro-enterostomy performed for pyloric obstruction are alive and well, and have remained entirely free from symptoms four years and nine months and five years after operation respectively (Cases 62 and 33).

Three patients are alive and well seven months, three years, and four and a half years after performance of a partial gastrectomy, and have been completely relieved from digestive symptoms. Two of these operations were necessitated by renewed activity of a duodenal ulcer (Cases 44 and 88), and the third by a lesser-curve ulcer of the stomach which developed five years after perforation of a duodenal ulcer (Case 42).

One patient remains well and has had no recurrence of symptoms three years after a gastro-gastrostomy. This operation was performed for an hour-glass contraction of the stomach opposite a lesser-curve ulcer which had perforated two years previously. The patient was a man, aged 52, who was considered to be unfit to stand a partial gastrectomy. He made an entirely uncomplicated recovery from the gastro-gastrostomy, with immediate relief of the severe pain from which he had suffered for six months. He has now remained free from symptoms for three years and nine months (Case 45).

Summary and Conclusions

A series of 100 cases of perforated peptic ulcer were treated by simple suture of the perforation, with 17 deaths. The death rate was highest among the gastric ulcers, and the incidence of these was higher in women than in men.

The after-history of 70 of the 83 surviving patients was studied in a follow-up clinic for periods up to five years.

A recurrence of digestive symptoms occurred in 38 cases, in 14 of which they were severe enough to require readmission to hospital. The rate of recurrence of symptoms was highest in those patients who had suffered longest from their ulcer before perforation occurred.

On the 70 patients attending the follow-up clinic 130 x-ray examinations of the stomach and duodenum were made. Evidence of a persistent or recurrent ulcer was found on 43 occasions. Pyloric obstruction was found on only 5 occasions.

Ten secondary operations were performed, with 2 deaths: suture of a second perforation (1 case), gastro-gastrostomy for hour-glass stomach (1 case), gastro-enterostomy for pyloric obstruction (4 cases), partial gastrectomy for recurrent ulcers (4 cases). There has been no return of digestive symptoms after any of these operations.

The evidence of this investigation provides no justification for supplementing suture of a perforation by either gastro-enterostomy or partial gastrectomy as an initial procedure. The proportion of cases eventually requiring secondary operations is in the region of 10 to 15%. Periodical re-examination will reveal the need for these when it arises, and the operations can then be performed with good results.

THE PROGNOSIS OF IMMATURITY

BY

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There are two questions to be answered in any case of immaturity: (1) Is the child likely to survive?; and (2) If he survives, will he develop into a normal person or is he likely to be mentally or physically handicapped? In other words, both the immediate and the ultimate prognosis need to be considered. The study reported below deals mainly with ultimate prognosis, but two aspects of immediate prognosis were considered—namely, the effect of birth weight and of sex on survival.

Immediate Prognosis: Method and Scope of Examination

The investigation was carried out at the Duchess of York Babies' Hospital, Manchester, in 1938 and 1939; the case sheets of all children who had been admitted between 1926 and 1938 on account of immaturity, and who had weighed $5\frac{1}{2}$ lb. (2.5 kg.) or less at birth, were examined.

TABLE I—Mortality and Result of Follow-up of Children Admitted to the Duchess of York Babies' Hospital on Account of Prematurity 1926-38

Birth Weight (in lb. (kg.))	Males		Females		Both Sexes	Follow-up			
	No. Admitted	No. Dying	No. Admitted	No. Dying		Cases	Alive	Dead	Untraced
1-2 (0.45-0.9)	4	4	0	6	33	20	2	1*	0
2- (0.9-)	11	10	10	7	30	20	4	2†	0
2½- (1.23-)	19	14	27	34	45	33	20	9	1
3- (1.36-)	25	21	40	37	63	52	37	17	1
3½- (1.6-)	32	31	41	37	73	60	49	11	2
4- (1.8-)	32	10	60	25	92	65	37	5	2
4½- (2.0-)	23	14	50	24	73	62	32	11	0
5-5½ (2.26-2.5)	23	6	74	20	7	65	30	2	0
Total	204	110	193	82		205	53	8	139

* This child was not seen, but was reported as normal by parents.

† These two children were examined. One was seen at the age of 1 year; its mental development was average, but it was under weight. The other child was near the average weight for its age (4 years), but it had Little's disease and a marked degree of mental deficiency (I.Q. 67½).

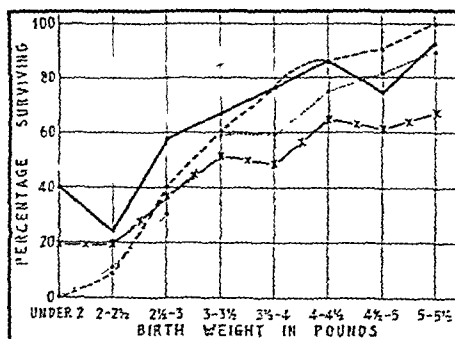


Chart showing survival rates of immature babies

Proportion surviving the first month: —, Duchess of York Babies' Hospital, Manchester, 1926-38; ---, City of Birmingham Maternity Home, 1931-43.

Proportion surviving the first year: . . . , Duchess of York Babies' Hospital, Manchester, 1926-38; . . . , Warwicks, 1942 and 1943.

Birth weights are given in metric terms in Table I.

The effect of *birth weight* is shown in Table I. This suggests that the child's chances of survival vary directly with the birth weight; the critical birth weight appears to be between 3 and 3½ lb. (1.36 and 1.6 kg.); below this figure the chances of survival diminish rapidly. This is in accordance with the findings of other workers; in the accompanying *Chart* the rates of survival of the Manchester babies are shown graphically; on the same chart the figures obtained for Birmingham by Crosse (1945) and for Warwickshire by Brockington (1944) are plotted. In all curves there is a steeper fall at the 3-3½ lb. level. The effect of *sex* on prognosis is also shown in Table I. It will be seen that the male infant does not stand immaturity as well as the female; but it must be remembered that the average male weighs more than the average female at birth, so that in comparing males with females of the same weight we may be comparing individuals of different degrees of immaturity. The

TABLE II.—Age at Death; Children Admitted for Prematurity to the Duchess of York Babies' Hospital, 1926-38

Age	No. of Deaths	Birth Weight*							
		1-2 lb.	2-2½ lb.	2½-3 lb.	3-3½ lb.	3½-4 lb.	4-4½ lb.	4½-5 lb.	5-5½ lb.
0-1 week	45	6	9	10	10	6	0	4	0
1-3 weeks	47	0	6	10	6	8	8	7	2
3-4 "	23	0	1	3	8	8	0	2	1
4-8 "	44	1	1	5	6	10	6	7	8
2-3 months	18	0	0	2	2	10	2	0	2
3-4 "	11	1	0	3	3	2	2	0	0
4-6 "	2	0	0	0	0	1	1	0	0
6-12 "	2	0	0	0	0	1	1	0	0

* For metric equivalents see Table I.

ages at which the children died are shown in Table II; it will be seen that 60% of the deaths occurred in the first month, and would be reckoned as neonatal deaths.

Ultimate Prognosis

The main studies of the after-histories of immature infants which have been made by other workers are summarized below. The amount of disagreement is disconcerting; the investigators can be ranged in two groups—those who consider that the ultimate prognosis is on the whole good, and those who take a more gloomy view. Among the optimists are Hess, Gesell (1933), Mohr and Bartelme (1930), Levine and Gordon (1942), and Comberg (1927). (With the exception of Comberg's work all these studies were carried out on American children.) Ylppö (1920), Capper (1928), Rosanoff and Inman-Kane (1934), Brander (1937), and Looft, who studied European children, must be ranked with the pessimists.

The disagreement between these groups of workers is probably due in no small measure to differences in the samples died. For example, Hess's extensive observations (250 cases) made on children followed up from his own premature n. These children were seen regularly after "graduation"; they were therefore better supervised than those studied by other workers, who in most cases had not been examined since discharge from hospital, until they were summoned for the investigation in question. Not only did the samples differ but there was great variation in the times and places of the studies. For example, Ylppö carried out his depressing study in 1919, just after the war.

Apart from Illingworth's (1939) work on weights of children who had been immature at birth—he studied out-patients in a children's hospital—there appear to be no observations on the after-history of British children born prematurely.

Method and Scope of Investigation

The work was carried out in Manchester in 1938 and 1939. Three groups of children were studied from the point of view of mental and physical development: (1) children admitted to the Duchess of York Babies' Hospital between 1926 and 1938 on account of immaturity; (2) children immaturally born but admitted to the same hospital for reasons other than immaturity; (3) immature children attending the Manchester child welfare centres. In all, 217 children were followed up.

It was hoped that, in a city the size of Manchester, a large number of immature children would be available for examination; in fact, 1,000 was the target. The follow-up, however,

Summary of Literature

Name, Place of Investigation, and Date	No. of Cases	No. of Children Followed up and Examined	Results and Main Conclusions
Ylppö Germany 1919	668		<i>Prognosis unfavourable.</i> 7.4% of children examined were idiots or imbeciles. 3.1% had Little's disease. They catch up in weight at 4 years. From the point of race hygiene they are not worth saving.
Comberg Germany 1927	97	73	<i>Prognosis favourable.</i> Mental deficiency does not occur in prematurity, even in cerebral haemorrhage; there is no relation between cerebral symptoms in early life and later impairment of intelligence. (Yet 6.8% of her cases were mentally defective, and Terman's figure for unselected school-children is 2.6%.)
Capper Vienna 1928	437	103	<i>Prognosis unfavourable.</i> Of those that survive, the majority are mentally and physically undeveloped. The important cause of death is undeveloped vascular tissue.
Looft France 1931	105	105	<i>Prognosis unfavourable.</i> Among 105 private patients he had 32 "heart conditions," 19 "an"
Mohr and Bartelme Chicago 1930	113	113	<i>Prognosis favourable.</i> Infants compared with full-term siblings; no significant difference in mental development. (Yet 9 had disturbance of reflexes, 9 had strabismus, 14 had "heart conditions," and 3 were mentally retarded.)
Gesell New Haven 1933			<i>Prognosis favourable.</i> Prematurity in itself does not alter marked course of mental development. It carries with it hazards which inflict temporary or permanent penalty. The infant is protected by inherent factors of organic maturation.
Rosanoff and Inman-Kane California 1934	381	146	<i>Prognosis not very favourable.</i> Premature birth is an aetiological factor in mental deficiency, but is not, in itself, a cause of mental deficiency. The damage is caused by cerebral trauma during birth. (10.27% of his cases were mentally defective; I.Q. under 76.)
Hess Chicago 1934	250	250	<i>Prognosis favourable.</i> Boys catch up in weight at 4 years, girls earlier. Children of 4½ lb. (2 kg.) and over gain more rapidly than those under 3½ lb. (1.6 kg.). There is no difference in mental development between prematures and their siblings, except for those injured at birth. Of his 69 cases of intracranial haemorrhage 10 were feeble-minded and 12 were retarded.)
Brander Helsinki 1937	230	230	<i>Prognosis unfavourable.</i> Average I.Q. of prematures lower than that of a non-selected group of children of same age. He says that trauma at birth is more definitely an unfavourable factor than birth weight alone.
Illingworth London 1939	150	150	Compared weights of immaturally born infants with those of normal weight. (Subjects were out-patients of a children's hospital.) 86% of premature series under weight; 34% of control series under weight.
Tow U.S.A. 1942			<i>Prognosis fairly favourable.</i> Majority develop normally but are slow in learning to co-ordinate. Because the premature infant is liable to cerebral
McKee et al. (quoted by Gordon and Levine) U.S.A. 1942			<i>Prognosis favourable.</i> The chances that these infants develop into healthy and fit persons are not appreciably less than those of infants born at term.
Collis and Majekodunmi Dublin 1943	45	38	<i>Prognosis favourable.</i> Premature children will generally grow up normally. (One of his cases had Little's disease, one had right hemiplegia, and 4 had speech defects.)
Bourne London 1943.			The baby of 5 lb. (2.27 kg.) will grow to normal stature in 4 to 5 years; the child of 4 lb. (1.8 kg.) or under will always be small, though it may reach a high grade of mental development.

was disappointing in the extreme: it was surprising how quickly the Mancunians changed their dwelling-places. Reply-paid postcards were sent, advertisements inserted in the Press, and posters put up in shops. The B.B.C. was approached, but could not decide into what type of programme such an appeal would fit. (Capper had a similar experience in Vienna in 1928; he even enlisted the help of the police!) Moreover, the work was interrupted by the onset of the recent war; there was a general scatter to Blackpool, and many children were lost. The study is therefore incomplete.

Scope and Method of Examination

The children's weights and heights were taken and a general physical examination was performed. A medical history was then got from the mother; the children under 3 years of age were tested with the Gesell development schedules, and those of 3 and over with the Binet-Simon (Stanford revision) tests. The results of the Gesell tests were recorded in terms of months below or above average development for age; intelligence quotients were calculated for the older children. In every case the chronological age, and not the conceptional age, was used; the ages were not corrected in any way for prematurity.

The weights were compared with the average weights of children of the same age. A further comparison was made with expected weights. The expected weight of a child at any given age was calculated by subtracting the difference between the birth weight and the average birth weight (taken as 7½ lb = 3.4 kg.) from the average weight for the age. Thus if a 7½-lb. baby is expected to weigh 15 lb (6.8 kg.) at five months, a 5½-lb. (2.5 kg.) baby is expected to weigh 13 lb. (5.9 kg.) at five months. This method of calculating the expected weight is a convenient one, but it assumes that all children, regardless of birth weight, gain at the same rate. This is probably quite an unjustifiable assumption; it is therefore interesting that in this study the children appear to approximate to their expected weights, as calculated by the above methods, while falling below the average weights for their ages (Table III). For example, at 4 years the children are still only 91% of the average weights for their ages, whereas they are 98% of their expected weights. These results do not agree with those of Hess; he says that if age is reckoned from conception the children tend to catch up to the average at the age of 4 years. (This correction of Hess's would give the child at the most the benefit of two months, the conceptional age was avoided in this study because of difficulty in establishing the date of conception.)

It may be argued that the children's weights were compared with standard figures (Holt's), and that possibly the general level of weights of Manchester children might not be so high. When the experiment was designed it was intended to compare the children with full-term children from similar environments. Circumstances, however, made this impossible. In order to find out how nearly the weights of full-term Manchester children approximated to those in the standard tables, averages were taken of the weights of 100 children of each age group up to 5 years. These figures were taken from the records of one of the child welfare clinics. It was found that these averages did not differ greatly from the standard figures; in all cases the Manchester children were a few ounces heavier than would be expected from the tables; if, then, the figures obtained from the immature children had been compared with these Manchester results the percentages of average weight would have been, if anything, slightly lower.

The results of the studies on mental development are given in Tables III and IV. When considering children under 3 years it must be remembered that the Gesell schedules test levels of

TABLE IV—Physical and Mental Development of Children Immaturely Born

Birth Weight*	% of Average Weight for Age	% of Expected Weight for Age	Intelligence Quotient	Developmental Level	No. of Cases
Under 2½ lb	80	92	89	Average	5
2½-3 lb.	85	91	83	~ 3 months	15
3-3½ lb.	86	99	82	~ 2 "	16
3½-4 lb.	86	99	88	~ 2 "	12
4-4½ lb.	91	101	90	~ 2 "	32
4½-5 lb.	90	100	90	~ 3 "	41
5-5½ lb.	90	93	96	~ 1 month	96

* For metric equivalents see Table I.

development, they are therefore not strictly comparable with the Binet-Simon tests, which try to determine with how much intelligence the child has been endowed. It will be seen that the developmental levels of the immature child are, on the whole, not up to the average; it cannot be inferred from this, however, that the children will not catch up. The figures suggest that there is a slowing down of the process of development; this is in agreement with other workers. There is no doubt that standing, walking, and talking are often delayed. (In the Gesell schedules motor characteristics, language, adaptive behaviour, and personal social behaviour are all taken into account.)

The intelligence quotients of the children aged 3 to 6 years inclusive are also given in Table III. The general impression gained is that most of them would not be very brilliant children. Table IV suggests that the higher the birth weight the higher the intelligence quotient is likely to be.

No results of the inquiry into language development are given. The mothers were asked when the children said their first words and when they said sentences, but the mothers' testimonies were considered inaccurate, as they had in many cases only hazy recollections of their children's first efforts at speech. A distinct impression was gained that speech was delayed, this was particularly so in the case of twins and triplets. (The speech delay accounts partly for the low ratings in the Gesell tests in the children under 3.)

Discussion

Do these results contribute anything to the present state of knowledge concerning the ultimate prognosis in immaturity? There are not enough cases to draw any hard-and-fast conclusions, but the tables suggest that in many cases development, both mental and physical, is delayed, that many of the children tend to remain smaller than their fellows—at least up to the age of 6 years—and that most of them will not reach a very high degree of intellectual attainment. But this is very different from Capper's suggestion that they become dull and backward children, and that many of them become candidates for mental hospitals.

The question at stake is: Does prematurity by itself induce a mental and physical retardation? If so, is this permanent? There are four main possibilities with regard to the mental and physical development of the immaturely born child. (1) He may continue to gain at his foetal growth rate until he catches up with the average child for his age. His mental and physical development may then proceed at the same pace as that of his full-time siblings. (2) He may gain very slowly, at a rate less than that of an average child; he may be late in walking and talking. He may, however, catch up eventually in mental or physical development, or in both. (3) His physical or mental development may be retarded, and he may never quite catch up with his fellows. (4) He may develop Little's disease; from this he may partly recover, but it is likely that he will be permanently damaged—he may be feeble-minded or imbecile, and may not learn to walk.

These possibilities will now be considered in more detail.

1. *The Immature Child who Catches Up in the First Year.*—Scammon (1921) is of the opinion that the growth tendency of immatures is in general that of foetuses of the same size and age rather than that of full-term children. He says that, after a short period of retarded growth incident to the adjustment to the extrauterine environment, immatures tend to regain the

TABLE III.—The Relation of Weight to Average Weight and to Expected Weight for Age, and the Intelligence Quotients for Age

Age in Years	No. of Obs.	Percentage of Average Weight for Age	Percentage of Expected Weight for Age	Intelligence Quotient	Developmental Level
1	52	87	102		~ 2 months
2	52	88	100		~ 1 month
3	47	89	97	92	
4	35	91	98	92	
5	25	91	100	93	
6	26	82	86	92	

TREATMENT OF MUSTARD GAS BURNS*

BY

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AND

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The desirability of finding a simple yet demonstrably effective treatment for burns arising from contact with the liquid or vapour form of $\beta\beta'$ -dichloroethyl sulphide led us to consider the problem from the physico-chemical standpoint. A careful study of the literature from 1917 onwards has failed to show any marked advance upon the use of Dakin's solution and bleaching powder (CaOCl_2) except that chloramine-T is regarded as more suitable in view of its stability and its non-irritating action.

Very early in the military history of mustard gas it was recognized that its action was most severe on those parts of the human body prone to perspiration. Inexact references to this fact usually mention that mustard gas is lipid-soluble and that this is the key to the enhanced irritant action. Since human perspiration is an aqueous system, probably an oil-in-water emulsion, the term "lipid solubility" lacks precision. What is certain is that mustard gas is only slightly soluble in water (possibly 0.07% at 10°C) but is quite soluble in various organic solvents (notably ligroin, kerosene, petrol, CCl_4 , CS_2) and in animal oils and fats. Its solubility in vaseline and paraffin wax is only slight.

Our basic assumption was that mustard gas was taken up by the skin, especially where perspiration was present, by adsorption, as distinct from solubility. This would account for its rapid take-up by an aqueous system. Anything that would increase the surface activity of mustard gas should accelerate its take-up and enhance its vesicant action. As will be seen later, this assumption receives confirmation when the surface active material lanolin is used.

Two independent types of adsorption are possible in regard to the take-up of mustard gas by the perspiring skin: (1) adsorption due to the extensive interface presented by the capillary structure of the skin, and (2) adsorption on the fat globules present in perspiration.

For any effective treatment of skin that has been contaminated by mustard gas it is necessary, therefore, to recognize the importance of adsorption as a colloidal phenomenon which can attract mustard gas to a given neutralizing agent. The usual method of swabbing with solvent, followed by an application of a paste of vaseline and bleaching powder (with its essentially short time of contact), and finally by scrubbing with soap and water, has obvious defects when considered from the colloidal point of view.

Swabbing with an organic solvent is recognized as of value. The A.G. Ointment No. 1, however, aims at bringing into intimate chemical reaction two materials which are both insoluble in the common vehicle, vaseline. The limited solubility of mustard gas in vaseline, itself entirely inert chemically and from the capillary-adsorption standpoint, is bad enough, but when this is supposed to lead to a chemical reaction with solid bleaching powder presented as a powder suspended in vaseline the whole basis of the scheme is unsound.

We have used chloramine-T throughout our experiments, with the recognition that its chemical behaviour with mustard gas is quite different from that of bleaching powder. Its permanent stability under our conditions, coupled with its non-irritating action, commended itself. Fundamentally, we have aimed at providing a means of adsorbing and solubilizing mustard gas from the skin and exposing it to the action of chloramine-T both in solution and in suspension at the same time. We have used stable emulsions of carbon tetrachloride and of white spirit in either aqueous or glycerol-saturated solutions of chloramine-T.

An inert emulsifying agent was essential and colloidal aluminium hydrate was chosen.

Experiments were made on rabbits. The back of the animal was shaved and then allowed to rest for 24 hours before applying liquid mustard gas from a platinum loop delivering a drop of about 1 mm diameter. A control drop was always allowed to develop without interruption to serve as a datum for com-

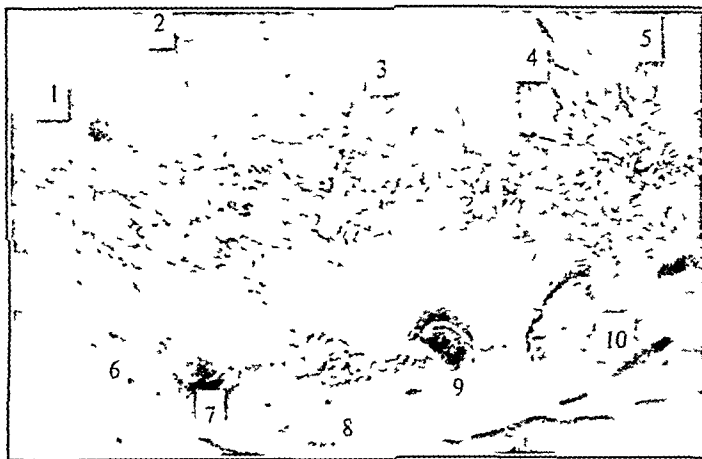


FIG 1—Condition of rabbit's back 14 days after application of emulsion for mustard gas burns

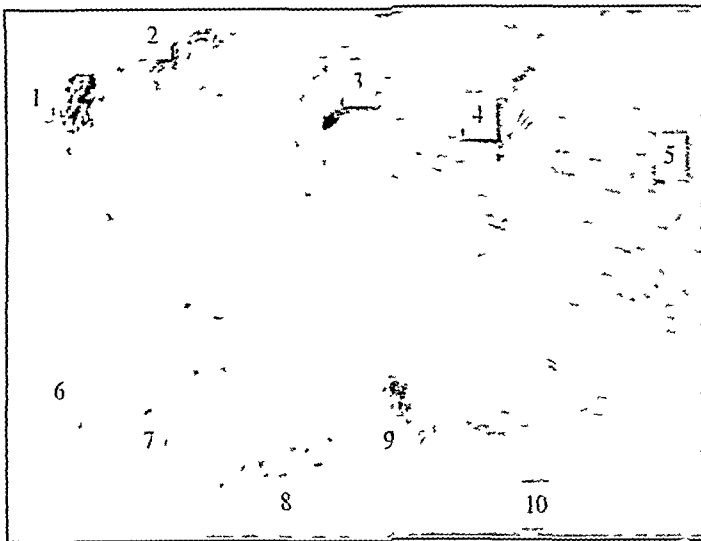


FIG 2—Condition of same rabbit 21 days after application. Note complete healing at sites 6, 7, and 8

* This article was submitted for publication on Jan. 15, 1940 and has not been revised to take into consideration any work published since that date.

parison. The animals were photographed after 14 and 21 days respectively.

Two emulsions may be noted from our series:

(X) Glycerol	100 g.	} A
Chloramine-T	18 g.	
Carbon tetrachloride .. .. .	.. .. .	B

Equal volumes of A and B emulsified. Aluminium hydroxide = 5% of the total emulsion prepared (by weight).

(Y) Water	100 g.	} A
Chloramine-T	10 g.	
White spirit .. .. .	.. .. .	B

80 parts of B were emulsified in 20 parts of A (by volume). Aluminium hydroxide = 5% by weight of the total emulsion prepared.

Both emulsions were of the oil-in-water type. Both contained solid chloramine-T in excess of its saturated solution.

A lanolin paste was also prepared:

(Z) Lanolin	80 g.
Chloramine-T	20 g.

Intimately rubbed to a smooth cream.

Referring now to Figs. 1 and 2, there are ten points where liquid mustard gas was applied, under conditions as follows:

1. Control (undisturbed)
2. Emulsion Y was applied to the site before mustard
3. " X " " " " " " "
4. Lanolin Z " " " " " " " "
5. Emulsion Y " " 2 minutes after the mustard
6. " " " " 5 " " " " "
7. " X " " 2 " " " " "
8. " " " " 5 " " " " "
9. Lanolin Z " " 2 " " " " "
10. " " " " 5 " " " " "

Fig. 1 represents the conditions after 14 days and Fig. 2 after 21 days.

Certain peculiarities are immediately obvious in the general observations which follow.

(a) Lanolin Z has expedited eschar formation much beyond that of the control. (See Fig. 1, sites 4, 9 and 10.)

(b) Prior application of emulsions X and Y shows a course apparently comparable to that of the control. (See Figs. 1 and 2, sites 2 and 3.)

(c) The later the application of the emulsions after applying the mustard drop the better the result. (See Figs. 1 and 2, sites 5, 6, 7, and 8.)

(d) The time factor observed in observation (c) tallies with in observation (a), sites 9 and 10.

Fig. 2, sites 6, 7, and 8, shows complete healing, emulsion being especially effective.

Discussion

The above results point to the action of mustard gas being a surface effect in the first instance.

The failure of emulsions X and Y when applied in advance of the mustard gas, the enhanced effect of lanolin Z, and the unexpected time factor effect shown in sites 5, 6, 7, 8, 9, and 10 all fall into line if a surface action is postulated, coupled with a solubility factor.

It is important to note that in all our experiments there was no rubbing and no washing off, but simply one application of the emulsion or lanolin and then an undisturbed condition. Undoubtedly a washing-off with emulsion would have given even better results and would probably have disguised the peculiar time effects observed.

We believe our results show that there is a threshold or lag period after mustard-gas liquid is applied to the skin, during which time there is the beneficial factor of evaporation of mustard gas from the increased area of its spreading. Accordingly, in sites 5, 6, 7, and 8 we are still in the lag period of skin attack, and, moreover, owing to evaporation the emulsion subsequently applied has less mustard gas to neutralize.

Anything which concentrates mustard gas locally, as by solution, and therefore by inhibiting evaporation, will either speed up skin attack or resist the action of the neutralizing

agent. Lanolin Z—sites 4, 9, and 10—supports this view, mustard gas being soluble in lanolin and chloramine-T being insoluble in it. Thus there is a localized retention of mustard gas on the one hand and inability of the neutralizing agent to act on the other. Moreover, the known capillary-active character of lanolin (considered as a colloidal material) would hasten penetration through the skin.

Similarly, sites 2 and 3, though not showing the increased severity of sites 4, 9, and 10, fall into line on the theoretical arguments advanced. Mustard gas is localized by solubility in the continuous phase of the emulsion and its evaporation is retarded. Even more striking results in this direction might be anticipated had the emulsions been of the opposite phase-type—i.e., water-in-oil. An obvious point requiring investigation which arises out of sites 2 and 3 is the rate of chemical union between mustard gas and chloramine-T when the reaction takes place in solution.

The above experiments also point to the need for an examination of the actual physico-chemical mechanism by which mustard gas attacks the skin surface.

Incidentally, in light of the above, doubt must be expressed as to the wisdom of instilling a lanolin salve into the eye to counteract mustard gas (see R. Lindsay Rea, *British Medical Journal*, 1939, 2, 881).

Prophylaxis

The data thus far led us to consider the character of an effective barrier to mustard gas to be applied before exposure to the gas. Two ointments were prepared:

(O') Glycerol	50 g.
Chloramine-T	18 g.
Zinc oxide	50 g.
(O'') Glycerol	50 g.
Chloramine-T	50 g.
Sodium stearate	2 g.

Ointment O' was rubbed to a smooth cream; O'' was a gel. Both contained chloramine-T in excess of saturated solution.

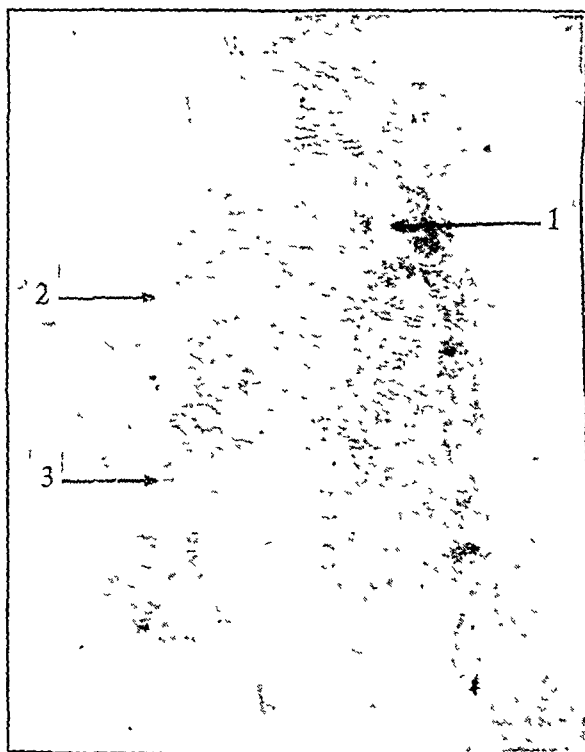


FIG. 3.—Condition of a rabbit's back 8 days after application of ointment as a prophylactic against mustard gas burns.

Referring now to Figs. 3 and 4, site 1 is the control mustard application on the back of a rabbit, 24 hours elapsing after shaving. Sites 2 and 3 had ointment O' and O'', respectively.

rubbed in, and five minutes later the mustard-gas liquid was applied as previously described, using a platinum loop. Nothing further was done except to put a lint jacket over the rabbit's body about 15 minutes after applying mustard gas to site 3. The photographs were taken 8 and 23 days respectively after application of the mustard gas. *The marked superiority of ointment O' is shown in site 2.*

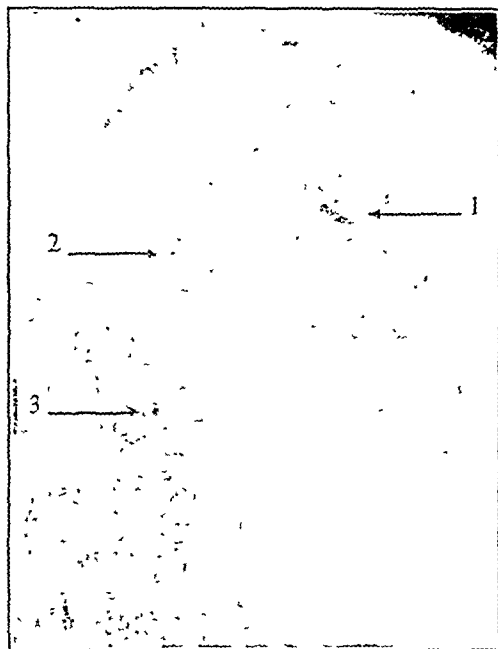


FIG. 4.—Condition of rabbit of Fig. 3 23 days after application of prophylactic ointment. The marked superiority of ointment O' is shown at site 2.

Zinc oxide was chosen because of its known value in the so-called S.R. lacquers (sulphur-resisting lacquers) used in the internal lining of food cans. During thermal processing, especially of meat foods, sulphur compounds liberated from sulphur-bearing proteins interact with tinplate to form the blue-purple sheen of tin sulphide, often observed inside cans on opening. Ordinary plain (transparent) lacquer still permits such staining, whereas the same lacquer containing very small amounts of zinc oxide in suspension completely avoids sulphur-staining.

Research is obviously required into the possible chemical neutralizing effect of ZnO on mustard gas, the ZnO being suspended in an aqueous solution (or emulsion in saturated aqueous solution) of mustard gas. However, the barrier presented by ointment O' is now beyond dispute, whatever the actual mechanism of its action.

At the annual general meeting of the Society for Relief of Widows and Orphans of Medical Men, held on May 8, with Dr. R. A. Young, president, in the chair, one vice-president and eight directors were elected to fill the vacancies in the Court of Directors. The annual report showed that the total membership was 282. During 1945 fifty-five widows received relief amounting to £4,837. Each widow over 65 years of age received £75, and those under 65, £60. In addition a Christmas present of £15 was made to each widow. A legacy of £5,000 from the late Dr. Charles Reid, of Stafford, was invested in 2½% Consolidated stock. The invested capital of the society, which is over £140,000, can never be sold and used as income. Many members joined H.M. Forces during the war, and those who have been demobilized are asked to notify the secretary of their present address. Full particulars of membership, which is open to any registered medical man who, at the time of his election, is resident within a twenty-mile radius of Charing Cross, may be obtained from the secretary (11, Chandos Street, Cavendish Square, W.1).

VOLVULUS OF THE SMALL INTESTINE

BY

W. G. KERR, M.B., Ch.B.

AND

W. H. KIRKALDY-WILLIS, F.R.C.S.Ed.

(From the Native Civil Hospital, Nairobi, Kenya)

Volvulus of the whole or part of the small intestine is said to be exceedingly rare in Europe and America. We have had seven cases—all natives of East Africa—during 1945. Braimbridge, in a personal communication, states that in 25 years of surgical practice in Kenya he has found it the commonest cause of acute intestinal obstruction in the native, occurring in more than half his cases. During 1945 there were 21 admissions with acute intestinal obstruction into the above hospital.

Strangulated inguinal hernia	4
Intussusception (all adolescents or adults)	4
Meckel's diverticulum	1
Bands and adhesions	3
Volvulus of pelvic colon	2
Volvulus of small intestine	7

Symptoms and Signs

The age of an East African is seldom exactly given, for he does not know the year of his birth but only the age group to which he belongs. These patients were variously estimated as being between 20 and 45 years old, and they all complained of abdominal pain, distension, and tympanites. The fact that the majority of cases came to hospital within a few hours of onset indicates the severity of the symptoms. Vomiting, usually regarded as an early and severe symptom, was not a feature, and was recorded in only three of our cases. Rigidity usually masked any visible peristalsis, although this was observed in one case. The abdomen was silent in five. Absolute constipation was not an invariable rule; one of the patients had diarrhoea, and one passed blood and mucus per rectum (he had also partial pelvic colon volvulus). One of the patients (the only female) was eight months pregnant, and her pains were at first thought to be labour pains. In her post-operative convalescence she was delivered of a living child. The following table gives a summary of the seven cases discussed in this report.

Summary of Cases

Case	Sex	Date of Admission	Duration of Symptoms	Interval between Admission and Operation	Type	Result
1	M	4/1/45	12 hours	1 hour	Whole of S.I.	Recovered
2	M	24/1/45	1 hour	2 hours	"	"
3	M	14/7/45	36 hours	4	"	Died
4	F	31/5/45	48	20	Combined S.I. and I.L.	Recovered
5	M	26/7/45	4	18	Independent S.I. and I.L.	"
6	M	6/11/45	4 days	24	Whole of S.I.	"
7	M	12/11/45	11 hours	21	"	"

Operative Findings

A right paramedian incision was employed for preference, and the purple distended bowel could be seen usually even before opening the peritoneum. The bowel prolapsed through the wound and was reduced in all by exteriorization and rotation until the mesentery lay straight. There were no adhesions or other apparent cause within the abdomen for the rotation, except in one case in which two tapeworms, each 4 ft. (120 cm.) long, were found tied together in a massive knot at the upper end of the jejunum. Owing to the gross distension of the intestine it was found impossible to return the bowel without preliminary evacuation of the contents. In all cases, therefore, a lower loop of intestine was opened, and a rubber tube inserted through the ring of the purse-string suture. In some cases emptying was satisfactory, but in others the tube was soon blocked by undigested food and had to be removed to allow the contents to be emptied. This was done by milking the contents gently out through the enterostomy. Some gas was present, but in the main the bowel contained

dark-brown fluid with fragments of undigested food—chiefly maize husks or even whole grain. The bowel was heavy, and manipulations had to be done with care. Such manipulations obviously carried the risk of paralytic ileus, but there was no alternative. After thoroughly emptying the bowel, the enterostomy was closed by a purse-string suture; the small intestine could then be readily returned. The abdomen was not drained.

Two of the cases were complicated by rotation of the caecum and ascending colon as well; in one an accompanying volvulus of the pelvic colon was discovered after reducing the small-intestine volvulus. The gut was viable in all our cases; and it is to be observed that we did not find within the peritoneum the quantities of dark blood-stained fluid said to be so typical (Devlin, 1945.)

The female case is worthy of full description.

Case 4.—She was the only woman in the series and, as already mentioned, was eight months pregnant. An upper abdominal incision was made in the midline. Above the pregnant uterus the caecum was found in the left hypochondrium; the ascending colon had a fully developed mesentery and there was a total volvulus of the whole of the small intestine, caecum, and ascending colon. This was reduced and a colostomy made at the lower part of the ascending colon. A tube which had been inserted was soon blocked by whole maize grains and had to be removed. The consequent spilling of intestinal contents soiled the abdominal wound. An oblique incision was made in the right iliac fossa and a fresh tube, passed through this, was anchored in the colostomy opening with a view to binding the caecum in its normal position. On the thirteenth day the upper abdominal wound burst open, but the bowel did not prolapse, owing partially to the use of a prophylactic corset and partially to the plugging of the abdominal wound by the pregnant uterus. Secondary suture was performed, and on the fifteenth day she was delivered of a healthy male child despite the fact that the presentation was a breech with extended arms.

Post-operative Treatment

There was only one death in our seven cases, though the mortality is usually regarded as high (Grey Turner, 1943). We attribute the success largely to the use of post-operative gastric suction combined with adequate intravenous fluid replacement. One of us had treated four cases in the previous five years in small out-station hospitals; gastric suction was not used, and all the patients died. In the present series a Ryle tube was inserted and suction maintained for up to five days, until there was return of bowel activity as evidenced by auscultation or bowel action. Blood or plasma not being available as yet, we used 5% glucose and 0.45% saline—the latter figure being adopted to reduce the chance of pulmonary oedema from salt retention. During gastric suction the patients received one litre of glucose-saline as a basic daily ration, and one litre for every half-litre of gastric contents aspirated. The remaining litres given during the 24 hours were 5% glucose in triple-distilled water. Five out of the seven cases had sulphonamides given orally or by mouth. Some paralytic ileus was common; one case had a burst abdomen, and one patient—died late—died on the fifth day from peritonitis.

Aetiology

There is no reference to the subject of aetiology in those recorded cases to which we have had access. Salisbury Woods (1945), in describing a recent case, refers to 28 cases collected by Rowlands and Turner (1937), and Hamilton Bailey (1940) quotes two cases. This condition, we believe, may well be associated with the dietary habits of the African native. It is his custom to start the day by drinking up to two pints (1.4 l.) of maize-meal gruel in the early morning, and again at mid-day, and then taking nothing solid until the evening meal. In four of our cases the time onset was definitely known as 7 a.m., 9 a.m., midday, and 4 p.m. This sudden distension of the small intestine by thick liquid causes an overloading of one or two loops, which during exertion may become displaced and start the volvulus (Webber, 1945). The resultant spasmodic peristalsis completes the process. In one of our cases, as mentioned, there were, in addition to masses of recently digested food, two tapeworms knotted together, which may have been the starting-point. In volvulus of the sigmoid colon, chronic distension from constipation is generally considered as the *causa causans*; the process in the small intestine would thus appear to be similar. The evidence that such a

large meal may be responsible is confirmed by the findings of McWatters (1945) in 12 cases in India; he suggests it followed the eating of coarse indigestible food. It is to be noted that we also dealt with four cases of acute intussusception in adults. Such cases have been described in Mohammedans by Morro (quoted by Hamilton Bailey in *Emergency Surgery*), and was at first attributed to hunger pains. It should be noted that during Ramadan, Mohammedans fast from sunrise to sunset; then they feast. The sudden gross overloading of the bowel is probably the responsible factor, as in our cases of volvulus.

Summary

Seven cases of volvulus of the small intestine are presented. The condition is relatively common in the East African native.

Reduction is best carried out by exteriorization, and emptying of the bowel by open enterostomy.

The aetiology is discussed; the practice of the African native of taking large gruel meals is held to be the responsible factor.

There was one death from peritonitis. Post-operative gastric suction and intravenous salines are regarded as life-saving measures and have changed the prognosis.

Our thanks are due to the Director of Medical Services, Kenya, for permission to publish this paper.

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NOTE BY Sir HENEAGE OGILVIE

During two years of service with the East Africa Force in Kenya, Somalia, and Abyssinia I was responsible for the surgery of an army whose soldiers were mostly Africans—men who lived differently and suffered differently from any patients I had handled before. In learning a whole chapter of surgery that was new to me I was helped beyond measure by the unfailing kindness of the officers of the East African Medical Service; the Director of Medical Services, Dr. Paterson; the Chief Surgeon, Mr. Braimbridge; and the Pathologist, Dr. Vint. Mr. Braimbridge, in particular, instructed me in the methods and guided me through the pitfalls of tropical surgery, and during my spells at General Headquarters, Nairobi, demonstrated his methods and allowed me to help him with operations at the native civil hospital. At that hospital I met the writers of this article—two young surgeons who have the care of a number of beds and perform a weekly operating list that would be the envy of those who practise in London. Their report on volvulus has interest beyond the rarity of the condition in literature and the very creditable number of recoveries they record, for it raises the important question of variations in structure of different races—one as yet hardly touched upon by anatomists or anthropologists.

The African as a patient is cheerful but moody, brave in the face of pain or danger, but terrified of the unknown. He contracts most of the diseases of the European, but to many he reacts differently, and to some, such as peptic ulceration and arterial diseases, he seems to be immune. He has a remarkable resistance to wound infection by pyogenic organisms, and a remarkable ability to repair the effects of trauma. He unites fracture rapidly and seldom suffers from non-union—a complication to which the white settler in Africa seems to be particularly prone. His bodily structure is different from that of the European. Some differences are known—that his skin is more pigmented and richer in sweat glands, that his tibia is longer in proportion to his femur, that his cranial vault is thicker. Others are suggested by his reactions to trauma; for instance, the extreme rarity of injuries to the menisci of the knee, though every kind of osseous fracture and ligamentous tear is encountered, suggests some structural differences. Others again, particularly those of the abdominal viscera, are commonly observed but not recorded. South African anatomists have told me that the African small intestine is usually several feet longer than that of the European, and Vint also believes

this to be the case. The appendix is longer, the stomach larger but not otherwise different. The mesentery is either longer or more extensible, for at laparotomy or necropsy the intestines can be lifted more easily to the surface for examination or manipulation. Anomalies of intestinal rotation and fixation are much more common, particularly the persistence of unfixed mesenteries. It is possible that it is in this greater mobility of the alimentary canal rather than in his dietary habits that the reason for the proneness of the African to volvulus is to be found.

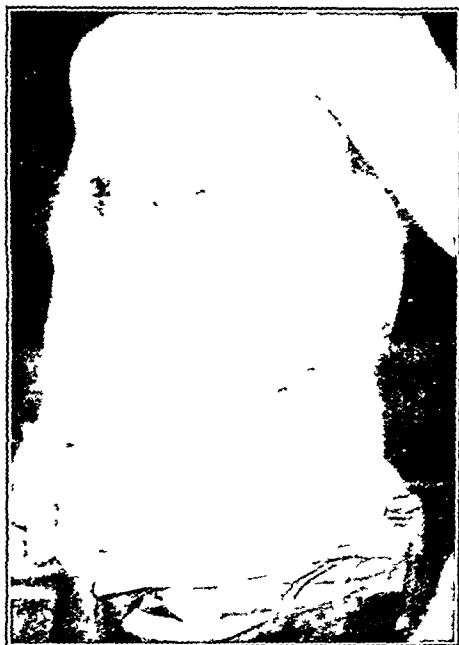
Medical Memoranda

Leukaemic Infiltration of the Site of Herpes Zoster

Leukaemic infiltration of the site of the vesicles of herpes zoster is rare enough to justify the following case record.

CASE REPORT

A ship's engineer aged 52 had had no serious illness until August 1945, when he developed a typical attack of herpes zoster, affecting the tenth dorsal segment on the left side. On admission to hospital it was noted that he had enlargement of the spleen and of the lymphatic glands in the neck and axillae. A blood count confirmed the diagnosis of chronic lymphatic leukaemia. His herpes subsided but raised thickenings were left on the skin and biopsy of one of



them demonstrated leukaemic infiltration. Two months later he was invalided to the United Kingdom and admitted to Rookwood Hospital, Worcester.

On examination his general nutrition was good. The mucous membranes were pale, and large discrete glands of soft consistency were present in the anterior and posterior triangles of the neck, both axillae, and the inguinal regions, the spleen being enlarged to four fingerbreadths below the costal margin. In the distribution of the left tenth dorsal segment the herpes zoster was seen. All the vesicles had healed, but their sites were marked by raised thickenings in the skin of a coppery colour. These are shown in the accompanying photograph. Blood investigations revealed Hb, 78%, red cells, 3,650,000 per cmm, C.I., 1.05, leucocytes 138,700 per cmm (lymphocytes 63%, lymphoblasts 27%, neutrophils 4%, monocytes 1%).

I am indebted to Sir Walter Haward, Director-General of Medical Services, Ministry of Pensions for permission to publish this case.

Worcester

C. H. CATLIN, M.D., M.R.C.P.

Reviews

A CHARTER FOR HEALTH

A Charter for Health. By a Committee of the British Medical Association. (Pp. 95, illustrated 6s.) London: George Allen and Unwin.

This little book has been written by members of a committee of the British Medical Association under the chairmanship of Sir John Boyd Orr. Its purpose is to give to a more intelligent section of the public, especially those interested in social and current political problems, an outline of a representative medical view on promoting better physical and mental health in the people of this country. The basic concept of the writers seems to be that the health of the community is, and will be just as good as the present standards of living and education will allow.

The approach is not to the prevention of specific sicknesses and diseases are seldom mentioned except as illustrative examples, rather the object has been to stress the need for raising the whole economic and social level and improving the physical and mental background of the entire population to a level at which the vast majority can enjoy to the full their span of years without serious risk of breakdown, whether physical or mental. Chapter headings such as 'The Essentials of Health', 'The Role of Medicine', 'The Family', 'The Home', 'Food', 'Occupation', and 'Recreation' indicate the scope of subjects on which the medical profession's beliefs are expressed.

In dealing with all these subjects the writers refer back again and again to the need for the economic stability of the family at a higher level if the growing members are to have a proper background in which to grow up to full and balanced physical and mental stature.

As is inevitable but right the whole emphasis is on the needs of children as opposed to the present generation of adults. Education of girls for their future duties as wives and mothers, education designed to lessen the difficulties of personal relationships and education towards assuming a great responsibility in the community are all stressed. The need for a wider planning of education includes a plea for more recreation without restraint of the child and a lighter burden of lessons and home work for the older child.

Perhaps a little overlapping in subject from chapter to chapter has resulted from the large number of contributors but this fault emphasizes the very importance of the repetition. A feature of the book is the excellent modern photographs which serve as illustrations. The opinions expressed are authoritative and sound. The text is clear and well written. It is to be hoped that it will reach in large numbers the public for whom it was designed.

A TEXTBOOK OF NEUROLOGY

Clinical Neurology. By Bernard J. Alpers, M.D., Sc.D. (Pp. 797, illustrated 85.00.) Philadelphia: F. A. Davis Company, 1945.

Dr. Alpers, professor of that subject in Jefferson Medical College, Philadelphia, has given us an admirable new textbook of neurology. A fairly large book, it is unusual among texts of this sort, for it is both pleasant to read and accurately informative. It is pleasant to read because the author presents his material in a systematic manner, it is well written, there are plenty of good illustrations and diagrams, and the general production is excellent. The first two hundred pages deal with the basis of neurology, and there are chapters with headings such as 'The Interpretation of Neurological Symptoms and Signs', 'The Topical Diagnosis of Nervous Disease' and 'Headache, Vertigo, Coma and Pain' which precede more orthodox chapters in which related groups of diseases are described. Dr. Alpers has used the didactic medium, avoiding references and bibliographies, and he has managed to give a general presentation without that rigidity of description which is found in the smaller texts. In one place he says, for example,

All forms of meningitis have features in common, an understanding of which is helpful in treatment and prognosis, and then he goes on to discuss those features before describing the individual diseases. His book cannot well be used for reference, and it is large by the standard of student textbooks in this country, but it is so pleasant to read that most clinical workers who come into contact with neurological problems will enjoy it and benefit by it.

OPERATIVE ORTHOPAEDICS

Anatomical Atlas of Orthopaedic Operations. By L. S. Michaelis, M.D. (Pp. 67; 73 illustrations. 25s.) London: William Heinemann Medical Books Ltd. 1946.

As an example of post-war medical book production the publishers are to be commended, but we doubt the wisdom of producing, however well it has been done, a sketchy outline of operative orthopaedics much of which is based upon the published writings of well-known authorities. Furthermore, there is a deficiency in matters which are of much greater importance than descriptions of operative procedures. What the young surgeon needs to know is when to do a certain operation and what the results of the various methods have been in the hands of a surgical master. In orthopaedics this has already been well done by Steindler, and we await the same approach by a British master.

Dr. Michaelis betrays parochialism when he states that lumbo-sacral laminectomy for a prolapsed intervertebral disk is becoming the most frequent occasion for orthopaedic surgery of the spine. This may be so in his own hospital, but is not at present universal. The present phase—one might almost say "craze"—for such operative intervention has yet to be proved right. In illustrating the procedure for this operation the author has been betrayed by his illustrator into accepting a very obscure picture (Fig. 55) which is out of proportion. A novel method of illustration is employed throughout and it is good. The absence of labelling anatomical structures gives a better sense of reality, but occasionally it is confusing when the text does not explain; as, for example, in one of the illustrations of an approach to the elbow-joint. Arteries are sometimes red and sometimes purple—which is difficult. It is about time that surgical writers ceased to pander to the conservatives who refuse to recognize an anatomical nomenclature upon which medical men have been educated for at least thirty years. The author should not have accepted Fig. 30, which shows the lower portion of the Smith-Petersen incision for the hip-joint tailing off downward and backward towards the ischial tuberosity, nor would a good teacher have omitted to mention the important landmark to the hip-joint provided by the tendon of the rectus femoris and of its reflected portion. Proof-reading could have been better. Phraseology is sometimes involved. Langdale and Kelham are one person. Brigadier Bristow is of course well enough known not to worry about the correct placing of his initials.

In spite of what the author says, no book can provide "a set of tools." It may provide a guide; but the best guide in operative technique for the would-be orthopaedic surgeon is personal instruction by a master. This book could, with suitable modifications, provide a valuable companion for the rentice.

THE SULPHONAMIDES IN OTO-RHINO-LARYNGOLOGY

Les Sulfamides en Oto-Rhino-Laryngologie. By J. Terracol. (Pp. 184. 140 francs.) Paris: Masson et Cie. 1945.

Prof. Terracol has devoted a whole book of 184 pages to the sulphanilamides and the related chemical compounds. About one-third is given to a general description of their chemistry and clinical application, and the remaining two-thirds to their use in oto-rhino-laryngology. It is not surprising that in the latter two-thirds this has involved the author in much repetition and the quotation of many repetitive papers and case reports, which sometimes obscures the main issue. His real thesis is to be found in the two short chapters in the general section in which he insists on the responsibility involved in prescribing and using these drugs, the need to observe strict standards of dosage, and not to ask of chemotherapy what it cannot perform. The author shows clearly how much harm can be done, particularly in otology, by careless prescribing, inadequate dosage, and lack of clinical supervision during administration. The preparations used in France are apparently more varied and numerous than those now employed in Great Britain, and rubiazol still holds its place in France. Little is now heard of it here, though its great value in the early days of this form of chemotherapy is not forgotten. It is clear that most of the book was composed before France was freed from

the German occupation, though the author had the advantage of studying the nature and uses of these drugs in the relatively unmolested University of Montpellier. His study has been thorough, and exhaustive so far as it goes, and is a valuable guide to the subject, but it is unlikely to exercise any permanent influence, because the subject itself is constantly changing and also because the word penicillin is not to be found in the book.

ON STAVING OFF OLD AGE

Medical Aspects of Growing Old. By A. T. Todd, M.B., M.R.C.P. (Pp. 164. 15s.) Bristol: John Wright and Sons. 1946.

Dr. Todd has long been known as a physician with original ideas. In this book he rightly stresses the importance of postponing the effects of advancing years for as long as possible in a population which is including a greater and greater proportion of elderly people. No one will dispute with him the fact that the prolongation of health and vigour of mind and body into old age depends on the right use of the body and on the disciplining of habits in youth and middle life. The essentials for this purpose consist, in the view of the author, in attention to diet so as to preserve the efficiency of the liver, the assurance of proper oxygenation of the blood and effective return of blood from the capillaries to the heart by breathing and other exercises. The author believes that fats are of no metabolic value in the dietary, though they may be of some benefit as appetizers. He allows butter but eschews milk and cheese. In his view circulatory disturbances are as much or more due to malfunction in the structures concerned with the return journey of blood to the heart, and he points out that clinical emphasis has been concentrated on diseases of the heart and arteries—i.e., on the efferent half of the circulation—but that our knowledge of the afferent half is all too imperfect. He lays stress on nasal sepsis as a cause of pulmonary disease, which he thinks is often mistaken for phthisis, to the great detriment of the patient and the overfilling of our sanatoria. There are sensible chapters on the care of the skin, scalp, and feet, and an interesting discussion on enlargement of the prostate and on chronic vulvitis in old women which he holds responsible for pyelocystitis and partial incontinence.

Dr. Todd is scornful of many traditional opinions and practices, including a great many surgical procedures which he regards, probably rightly, as manifestations of ignorance and failure on the part of the physician. The equating of progeria and Simmonds's disease and of angina pectoris and effort syndrome may astonish many readers, but the book is interesting and stimulating. It is written in non-technical language to allow the layman to read it, and at least it gives concrete practical suggestions which will be of great use to many patients.

Notes on Books

The sulphonamides and penicillin account for more than a third, and drugs used in the treatment of infections account for more than a half, of the abstracts in the 1945 *Year Book of General Therapeutics*. The new weapons against sepsis, venereal disease, and malaria have been of outstanding value during the war, but our armoury is less well stocked to deal with the tasks of peace. We still await an effective oral or delayed-action penicillin which will allow it to be used in the home, and the early promise of streptomycin in tuberculosis appears to have clouded over. Thiouracil is the outstanding triumph in psychosomatic medicine. For rheumatism and dyspepsia, the failing heart and the afflicted mind, there is nothing new to report. The pharmacologists continue their intense preoccupation with drugs affecting the autonomic nervous system, and benadryl, a new antihistamine substance, is of considerable scientific and therapeutic interest. In many ways, then, this able scientific and therapeutic interest. In many ways, then, this yearbook is like a wartime communiqué: the successes are reported, the defeats and losses are left in silence. That is not the fault of the editors, who can only report the year's advances, and this they have done with their usual skill and concision. This yearbook is undoubtedly the handiest account of current progress in therapeutics. It is published in this country by H. K. Lewis and Co. at 18s.

No. 23 of *Proceedings of the University of Otago Medical School* is edited by Prof. J. B. Dawson and published in Dunedin. It comprises ten papers on a variety of subjects, all with one exception reprinted from the *New Zealand Medical Journal*. There are two papers on hydatid disease by Sir Louis Barnett and two nutrition papers—one on New Zealand dietary studies, and the other on haemoglobin levels of a group of school-children in Dunedin.

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THE PLACEMENT OF THE DISABLED

We welcome the appearance of a new journal entitled *Occupational Medicine*, published by the American Medical Association and peacetime successor to *War Medicine*. In the first article in the first issue Harvey and Luongo¹ make a useful contribution to the subject of physical capacity in work, of enhanced importance in England now the Disabled Persons (Employment) Act, 1944, has been passed. Harvey and Luongo stress the fact that the satisfactory placement of the disabled is only part of a much bigger problem—that of assessing the physical and mental capacities of candidates for all jobs. The future of industrial medicine is bound up with its success in aiding managements to select employees for specific types of work, in promoting physical and mental hygiene, and in giving nutritional guidance. Successful placement requires an estimate of physical capacity and an analysis of physical requirements for the job; capacity has to be matched with the job. A characteristic of human beings is their variability, both in health and in disease, and much damage can be inflicted on either the disabled or able-bodied from poor selection and placement—damage which is not physical but psychological.

Of disabled persons approximately 25% have surgical disabilities, 25% neurotic, and 50% medical disabilities, the last 75% are the most difficult to place in industry, because it is more difficult to explain their limitations to the management. The Disabled Persons (Employment) Act, 1944, is a well-conceived idea, and its objects must be attained; but, as Agate² pointed out from first-hand experience, the present working of the Act gives cause for alarm. For many years the larger firms in this country have had good medical and social services which have resulted in the satisfactory placement of disabled persons. If an employee of these firms attends a hospital and is found to have some disablement, it is easy to employ him satisfactorily. But the bulk of industry consists of small firms not large enough to provide these services or sufficient variety of jobs for those variously disabled. To overcome this difficulty the Ministry of Labour has appointed to local Labour Exchanges Disablement Rehabilitation Officers, with the Civil Service rank of third-grade officers. These officers could not be expected to understand the complicated problems they are called upon to solve; they are allowed little responsibility, and a family man who may

have had a long illness cannot afford to wait until a low-gear Civil Service machine has found him a job. He therefore has to find employment for himself which is often unsuitable. It is rare for the Ministry to follow his subsequent history. Agate quotes figures from a heart clinic where some 300 cases were followed up over a period of eighteen months; despite the energetic efforts of physicians and almoners only two-fifths were satisfactorily placed, and most of these were employees of big firms. The proportion adequately placed by Disablement Rehabilitation Officers was under 10%.

Another aspect of the Act needs consideration. The Ministry of Labour has power to direct labour to a firm which employs less than 2% of disabled persons: is the Ministry less concerned with directing labour than with finding work for the disabled? The Act defines a disabled person as one who is substantially handicapped in his work. When it comes to registration both doctors and Ministry officials tend to suggest that a disabled man who has been working in a suitable job for many years as the result either of the good medical services of his firm or of his own initiative is not disabled within the meaning of the Act. Obviously this position is untenable. Nobody would deny that a pilot who has lost both legs yet flies an aeroplane with skill is disabled; so why should it be argued that a man with mitral stenosis who has been found a suitable job in the foreman's office is not disabled? If the purpose of the Act is to be achieved the Ministry of Labour and their local Employment Exchanges will have to work closely with, and act on the advice given by, doctors and the social service department in hospitals. The idea that the work of the Ministry of Labour is confidential while that of the hospital is not must be given up: both are highly confidential to the outside world, but they must share their secrets when both parties are working towards the same end.

Harvey and Luongo analysed 5,100 different jobs in the Federal service and assessed their suitability for several groups of disabled persons: 1,323 were found suited to persons with amputation of the thigh, 1,464 for those with foot amputations, while only 50 were suitable for those with amputation of both legs. It was found that the frequency and severity of accidents were lower than those in an able-bodied group of similar age, experience, and occupational characteristics. But this was not the case in those with congenital and orthopaedic deformities of the upper limbs, though the jobs suitable for them were found to number 834. Apart from deformities of the hip, those with deformities of the lower limbs had the same accident incidence as the able-bodied. Suitable jobs for those with deformities of the leg numbered 1,373, of the foot 1,471, though only 46 were satisfactory for those with deformities of both feet. Two groups of medical patients were studied—those with heart diseases and those with pulmonary tuberculosis. It is recommended that the former should avoid occupations involving sudden spurts with unduly slack intervals of rest; they should have regular hours and favourable conditions of work, and avoid extremes of air pressure and temperature. The patient's capacity for economizing his energy should be considered, and a heavy strain on the lower limbs is more

¹ *Occupational Medicine*, 1945, 1, 1.² *Proc. roy. Soc. Med.*, 1946, 39, 163.

easily tolerated than on the upper. No one liable to vertigo, syncope, or "sudden death" should climb ladders, or work near dangerous machinery or at high altitudes. Dusts induce cough and bronchial congestion, and should be avoided by those with mitral disease; any environment likely to favour infection of the upper respiratory tract should be avoided, as should any occupation likely to cause anxiety or emotional disturbance. 1,268 jobs were found suitable for persons with heart disease; their efficiency and productivity compared favourably with those of normal persons; accident rates were slightly more frequent, but less severe. The person with pulmonary tuberculosis, it is advised, should have a job which does not overtax his working capacity, and conditions which might reactivate the disease or expose other employees to danger should be avoided. Obvious conclusions, perhaps, but they need to be stated. 1,328 jobs were found to be suitable for the tuberculous. These were as efficient as the able-bodied, and their safety record was good; but their rate of absenteeism for sickness was high.

A group of patients with disabilities of sensation were also investigated: 1,269 jobs were found for deaf workers in which they could put up a performance as good as that of the able-bodied, but in some instances the accident rate was higher than that of persons with normal hearing. For those hard of hearing 2,179 jobs were found in which the results of work compared favourably with those attained by the able-bodied; again psychological problems in some cases increased the accident rate. Satisfactory jobs—2,080—were found for those blind in one eye; their performance was good but the accident rate high—believed to be due to fatigue. Such persons must be given jobs which do not endanger others, and care must be taken to protect the remaining eye. Fifty-five suitable jobs were found for the totally blind, and they did as well in them as normal persons.

As Agate has pointed out, medical cases can best be placed by a team of doctors and almoners working together and advising officers of the local Labour Exchanges; but this requires much time, and it will be some time yet before highly trained staff will be available. The alternative is a comprehensive job analysis for all occupations, similar to that carried out by Harvey and Luongo. The Ministry of Labour seems to be relying on the spasmodic efforts of individual firms. This is to be regretted, since it will hold up progress.

FOOD YEAST

The animals that supply us with food do not add directly to the world's supply of food: they only concentrate certain nutrients in an appetizing form. They burn the greater part of the complex compounds built up by the plants they eat, and they excrete the nitrogen of the proteins. This nitrogen may be lost; at best, it must be reincorporated in protein by plants before it can again be used by animals. In return the animals provide a small amount of food which is more appetizing and less bulky than much of the feeding-stuffs, and contains relatively large proportions of the indispensable amino-acids, of vitamins of the B group,

and, in the case of milk, calcium and vitamins A and D. From the point of view of the health of the soil or of mankind the transaction is profitable in the long run. But on a short run and for people living on the margin of subsistence it is wasteful. What they need is some process that will supply the values of meat and milk without waste of calories and loss of nitrogen. Yeasts have virtues not shared by farm animals: they do not use up calories in uneconomic activities; they can make proteins and vitamins out of simple ammonium salts and carbohydrates; they actually add to the supply of protein and vitamins. Brewer's yeast is too bitter to be used, on any scale, as a foodstuff; but *Torulopsis utilis*, which has been studied by Dr. A. C. Thaysen and his colleagues in the Chemical Research Laboratories of the Department of Scientific and Industrial Research, yields a product of delicate flavour which can be eaten alone or added to other foodstuffs. This yeast is fed on molasses and ammonium salts, and returns about 60% of the carbohydrate and almost all the nitrogen in the form of protein. The dried product "food yeast" contains, per 100 g., 43 g. of protein, 2 mg. (or 670 i.u.) of vitamin B₁, 5 mg. of riboflavin, 40 to 45 mg. of nicotinic acid, and 4 to 8 mg. of pyridoxine. The amount recommended for human consumption is 1/4 oz. (7 g.) per day. In some cases this amount, when all was given at one meal, has appeared to cause digestive disturbances, but one person ate 64 g. daily for 4 days without ill effects. The amounts of the chief nutrients of the 7 g. of food yeast may be compared with those of one-third of a pint (190 ml.) of milk and with our present approximate daily consumption.

	Protein (g.)	Vitamin B ₁ (mg.)	Riboflavin (mg.)	Nicotinic Acid (mg.)
Food yeast, 7 g. ..	3	0.14	0.35	3
Milk, 1/3 pint. ..	6	0.075	0.28	0.21
Approx. average daily consumption	70 (animal, 33)	1.4	1.5	13

The chief contributions of food yeast are, therefore, riboflavin and nicotinic acid. In experiments on animals the biological values of the protein used as a supplement to a cereal diet proved about equal to that of casein; alone, it proved inadequate owing to its low content of methionine.¹ Its value as a source of the B vitamins was shown in an experiment² on rats, in which over 80% of the diet was supplied by flour, with a salt mixture, vitamins A and D, and casein to supply an optimum amount of protein. Group A were given ground whole wheat, and Groups B, C, and D white flour of 75% extraction with 5%, 2.5%, and 1.25% of food yeast. These flours would contain (in mg. per 100 g.):

	Vitamin B ₁	Riboflavin	Nicotinic Acid	Pyridoxine
Wholemeal ..	0.33	0.23	4.4	0.33
White + 5% yeast ..	0.205	0.335	2.8	0.52
" + 2.5% " ..	0.155	0.210	1.8	0.35
" + 1.25% " ..	0.130	0.14	1.3	0.27

Group B grew faster, Group C slightly faster, and Group D less fast than Group A.

¹ Klose, A. A., and Tevold, M. L., *Proc. Soc. exp. Biol.*, N.Y., 1944, 56, 98.

² *Food Yeast: A Survey of its Nutritional Value.* Accessory Food Factors Committee, Medical Research Council, H.M. Stationery Office, 1945.

Biscuits containing 8 g. of food yeast were given to children in rural schools²; their weights increased faster than those of children who were given biscuits without yeast, but there was no significant difference between the rates of growth in height. More details than are given in the report are needed before the full significance of these experiments can be assessed. Food yeast has been used in treatment of vitamin B deficiencies. Subjects who were given 7 or 5 g. daily improved or were cured in the course of five or seven weeks, while little change was seen among the controls.

Manufacture of food yeast from molasses and ammonium salts has been started in the West Indies; the yearly output anticipated is of the order of 2,500 tons,³ which would provide 1,000,000 people 1/4 oz. (7 g.) a day for a year. How could this supply be best used? Peoples in Africa, who formerly depended on yeasts in fermented drinks for their supply of B vitamins, suffer from deficiency diseases since they have changed over to more sophisticated food. Food yeast could restore these vitamins, though in a less interesting vehicle. Even the 3 g. of protein would add appreciably to the value of the diets of people who get a large proportion of their calories from cassava. And food yeast could also be used to make up for the deficiencies of polished rice.

Two per cent. of food yeast can be added to white flour without affecting the flavour of bread made from the flour. This suggests a new way of putting back some of the good which is removed in milling white flour. The latest argument in favour of 73% extraction is that hens do not get enough riboflavin if they are not given whole grain; that we cannot have both our pre-war supply of whole eggs and 85% flour. But putting the yeast into debased flour seems a roundabout process. Why not give the hens the food yeast and leave us our 85% flour? A supplement of 5 to 10% to the balancer meal for domestic poultry-keepers is recommended.

Food yeast is not a magic key to the problem of the world's malnutrition. The daily dose recommended supplies only a fraction of some of the nutrients needed, and the amounts that could be made would supply this dose to an even smaller fraction of the people who lack these nutrients. It would not add the calories that are needed to prevent famines, nor increase the fertility of the soil. The long-term solutions are to be found in the wider use of legumes that put nitrogen into the soil, and in the steps proposed by the World Conference on Food and Agriculture—irrigation, prevention or cure of erosion, use of fertilizers, and a gradual change to mixed farming. But food yeast should mitigate some of the present evils and be a useful adjunct in the future. *Torulopsis utilis* is a token of our new position with regard to food and its production—we now know our wants and can state them in figures, which is the first step towards satisfying them. *Torulopsis utilis* var. *major* is a token of our present powers, for this variety, which can be centrifuged down rapidly, owing to its large size, was not found, but was made by treatment with camphor.

SALMONELLA INFECTIONS

A year ago¹ we discussed salmonella infections and their distribution in Nature. A recent paper by Hayes and Freeman² shows the types of salmonella met with in the Army in India. With the exclusion of *Bact. typhosum* from consideration, 548 strains were sent to the Central Military Pathological Laboratory over a period of four years. They were: *Bact. paratyphosum* A 281, *Bact. paratyphosum* B 7, *Bact. paratyphosum* C 110, *Bact. enteritidis* 111, *Bact. enteritidis* var. *dublin* 14, *Bact. typhimurium* 18, miscellaneous 7. The infrequent occurrence of *Bact. paratyphosum* B is remarkable. It is a rather rare salmonella in India, though in Great Britain it has become in recent years the most frequently identified salmonella type.

Infection with *Bact. paratyphosum* A does not reveal any "marked aggregate variation" which cannot be accounted for by the increase in the size of the Army in India over the four-year period. But *Bact. paratyphosum* C and *Bact. enteritidis* infections showed a significant rise. The *Bact. paratyphosum* C strains all contained the Vi antigen of *Bact. typhosum*; in 1944 only seven were isolated from Europeans, the remainder being from Indian patients. Increased infection with this strain may be due to the wartime movements of various people. This strain is not uncommon among the Chinese. *Bact. enteritidis* was isolated direct from the blood of infected persons in 87.5% of cases, and from the faeces in only 4%. Definite septicaemic invasion could be postulated for nearly all these cases, and not the ordinary clinical type with gastrointestinal symptoms without blood invasion. This gastrointestinal type used to be the prevailing, indeed almost the invariable, form in Great Britain up to fifteen or twenty years ago, but over the past few years there have been reports of many cases of salmonella infections resulting in a septicaemia with a high mortality. Usually they appear not in outbreaks but as isolated cases, with no indication as to the source of the infection and without demonstrable relation to other cases. In Hayes and Freeman's series practically all the strains are from cases of septicaemic type. Unfortunately the clinical and epidemiological details of the cases from which the strains were derived were not available to the laboratory. No facts are given to show if most of them were single cases or cases from limited outbreaks, or if any or many of them were associated with outbreaks of ordinary food-poisoning. As might be anticipated from the high proportion of septicaemic cases, the mortality was high (5 to 10%), compared with 1 to 2% for the food-poisoning clinical type.

We know that the septicaemic type of infection with salmonella strains appears to be on the increase in this country, and this increase seems to be even more marked in India. There is some not very clear-cut evidence that persistent high temperatures may affect invasive properties, and it would be of interest to study the relative prevalence of salmonellas associated with septicaemia in countries with high average temperatures. Hayes and Freeman put forward some interesting suggestions to account for this increased invasive quality of *Bact. enteritidis*, such as the acquisition by mutation of a "virulence" antigen analogous to the Vi antigen of *Bact. typhosum*, or by the development of a high degree of host adaptation. In this connexion it should be noted that *Bact. typhimurium* was isolated in only 18 cases, and in most of them from the blood. This is the commonest of all salmonellas as regards its distribution and prevalence. *Bact. enteritidis* (*dublin*) was isolated only on 14 occasions, and it would be useful to know how

³ Food Yeast: A Venture in Practical Nutrition. Colonial Food Yeast, Ltd., 1944.

¹ British Medical Journal, 1945, 1, 451.
² Ind. J. med. Res., 1945, 33, 177.

many of these cases were associated with cattle or were infected by milk. There is still an urgent need for closer co-ordination between clinical, field, and laboratory findings, so that the relation between specific types, the sources and reservoirs of infection, and the clinical manifestations can be established more clearly.

HABITUATION TO STREPTOMYCIN

We continue to hear about streptomycin from American sources before there has been any opportunity to test its therapeutic powers in our own patients. Some of the latest news is disquieting to those who had hoped that it would fill some of the gaps left by penicillin. One of its drawbacks has been pointed out by E. P. Abraham and E. S. Duthie.¹ Streptomycin is a base, and in a medium on the acid side of neutrality its activity falls steeply. So far there is no clinical counterpart to this laboratory observation, but more direct evidence of a weakness in its potentialities comes from authors who have observed a rapidly increasing resistance in bacteria exposed to its influence. By cultivation on media containing increasing concentrations of streptomycin, C. P. Miller and Marjorie Bohnhoff² were able to produce a startling increase in the resistance of gonococci and meningococci, which after only four to six transfers withstood a concentration of 75,000 units per ml.—“the maximum concentration which could conveniently be employed with the supply at our disposal.” By the same method they lifted the resistance of a gonococcus to penicillin to nearly 10 units per ml. Although this was a much more laborious process its results must presumably be taken as a warning against the idea that penicillin will necessarily continue indefinitely to cure nearly every case of gonorrhoea.

C. W. Buggs and his colleagues³ cultivated 212 strains of various species of bacteria from patients before and during treatment with streptomycin. They found not only a wide variation in initial susceptibility in some species but a tendency to the rapid acquisition of resistance. In one patient the concentration of streptomycin inhibiting the growth of a streptococcus responsible for a urinary tract infection was in successive examinations 1, 2, 4, 8, and 256 units. Streptomycin may have to be given in very large doses, ensuring an early lethal effect, if this escape from its influence is not to occur. Possibly because of the high concentration maintained in the bowel, owing to minimal absorption, no such habituation was evident in the studies of Dorothy G. Smith and H. J. Robinson⁴ on the effect of oral streptomycin on the intestinal flora of mice. It clearly excelled streptomycin, sulphasuxidine, and sulphaguanidine in suppressing coliforms, and achieved its effect rapidly. Evidently streptomycin may be of value as an intestinal disinfectant before operation on the colon.

THE SPA IN THE FUTURE HEALTH SERVICE

Ten spas were represented at a conference held by the British Spas Federation in Harrogate at which Lord Horder gave an address and was re-elected president. Pointing to some omissions from the National Health Service Bill, Lord Horder noted the Government's silence about utilization of the British health resort and about the large group of patients suffering from rheumatic diseases. Something would be done, he suggested, in proportion to the standard reached by the health resorts. The standard must have at least two desirable features. The first was linkage with

groups of people who could investigate and carry on research: there must be liaison between the spa and the teaching centre. Secondly, the lay-out at the spa must be such as to cater for the potential or actual patient, with medical control by doctors who were spa-minded—which meant that the doctors should have expert knowledge of what was possible in the spa where they practised. If these two conditions were properly observed, Lord Horder said, then no Minister would dare to neglect the inclusion of British spas in any scheme which he put forward; and by regulation he could contract out certain aspects of national health. He himself would add to the spa some definite amenity for the patient's private life—amusement, and mental and physical recreation. Prof. J. S. Hartfall, of the School of Medicine, Leeds University, advised the spas to plan regionally without delay. They must not forget industrial rheumatism, he said, nor the need for research and for co-ordination with other spa centres and university centres. It seemed clear to him that the reputation of the spas depended upon the quality and repute of their doctors, together with up-to-date facilities for physiotherapy, including hydrotherapy, and hospital facilities for rehabilitation. If these things, and in particular research, were attended to then spa treatment as an established feature of medical therapy would have a place in the future national health service of this country.

G.M.C. ELECTION

In accordance with the Medical Act, 1886, an election of five members of the General Council of Medical Education and Registration of the United Kingdom to represent the registered medical practitioners resident in England and Wales is about to be held. By the appointed day, May 20, the following had been duly nominated as candidates for election: Louis Francis Beccle, South Woodford, London, E.; John Wardle Bone, Luton, Beds; Albert James Clarke, Kentish Town, London, N.W.; Harry Guy Dain, Selly Oak, Birmingham; William Fraser, Currock, Carlisle; Edward Andrew Gregg, London, N.W.; Leslie William Hefferman, West Cross, Swansea; Sir Ernest Kaye Le Fleming, Wimborne, Dorset; William Macleod, Consett, Co. Durham; James Edgar Outhwaite, Yeadon, Leeds; William Walters Sargent, Sutton, Surrey; Gordon Reginald Ward, Sevenoaks, Kent; Noel Everard Waterfield, Little Bookham, Surrey.

At the Annual Representative Meeting of the British Medical Association held in July last the selection of practitioners who will have the support of the Association in the next election of Direct Representatives for England and Wales to the General Medical Council resulted as follows: Dr. J. W. Bone, Dr. H. Guy Dain, Dr. E. A. Gregg, Sir Kaye Le Fleming, Dr. N. E. Waterfield. Their joint election address is published in our *Supplement* this week at page 154.

We regret to announce the death of Dr. T. H. Bryce éméritus professor of anatomy in the University of Glasgow.

The sixth annual general and scientific meeting of the Ophthalmological Society of Australia will be held from Oct. 23 to 26, 1946, at Melbourne. The president of the society, Dr. J. Ringland Anderson (108, Collins Street Melbourne, C.I.), states that practitioners from this country who may be able to attend the meeting will be welcome. The organizing secretary is Dr. W. D. Counsell (85, Spring Street Melbourne, C.I.), to whom communications should be addressed. The Secretary of the B.M.A. will be glad if any member contemplating attendance at the meeting will write to him.

¹ *Lancet*, 1946, 1, 455.

² *J. Amer. med. Ass.*, 1946, 130, 485.

³ *Ibid.*, 1946, 130, 64.

⁴ *J. Bact.*, 1945, 56, 613.

REHABILITATION IN SCOTLAND— ADVISORY COMMITTEE'S REPORT

"Rehabilitation of the sick and injured means the process of restoring them in the greatest measure possible to health, working capacity, and social independence. In that sense it includes all medical and surgical treatment, all assistance of whatever kind given to a patient during his incapacity and, where necessary, his specially arranged reinstatement in an appropriate occupation." This is the broad definition of rehabilitation adopted by a subcommittee, under the chairmanship of Prof. E. P. Cathcart, of the Medical Advisory Committee (Scotland), which is presided over by Sir John Fraser.

The recently issued report of this committee stresses that in all cases where recovery or partial recovery may be expected the rehabilitation of the patient is as much a part of medical responsibility as is the primary treatment. A wider and more judicious use of rehabilitation measures would reduce the duration and degree of the incapacity which patients suffer. Surgical and orthopaedic witnesses who gave evidence before the subcommittee were agreed upon the value of the more remedial as distinct from the diversional forms of occupational therapy, particularly for lesions of the upper limbs. A considerable range of occupational activity has been found useful as part of the programme of re-education and reorientation in the particular types of case which are encountered in the more specialized departments of neurology and plastic surgery. An important recent development is illustrated by schemes such as that which is being carried out in Birmingham by the Austin Motor Company in collaboration with the Birmingham Accident Hospital. A workshop has been established in which, under the supervision of the surgeon, injured workmen are given specially selected jobs of work designed to exercise the injured part. Such a scheme has the twofold advantage that it provides a type of occupational therapy which bridges the gap between medical treatment and full return to industry, and by suitably graduated wage scales it gives an incentive to continued progress.

The Gleneagles Experiment

Since 1943 a special experiment has been in progress which provides a residential rehabilitation centre for patients referred from hospitals and, in some cases, directly from general practitioners. The Fitness Centre at Gleneagles was set up at the request of the Ministry of Fuel and Power and the Miners' Welfare Commission, in the first instance for providing rehabilitation for miners, though its scope has since been extended to a wider range of patients. The Gleneagles project has served as a useful experiment in rehabilitation which has attracted much public attention. The actual medical measures used have undoubtedly proved valuable in increasing physical fitness, and have been studied with interest. Notwithstanding the excellence of the work done by Dr. P. J. Macleod and his staff, however, it has to be recognized that the experiment has not been completely successful, in that all that might have been expected in hastening return to work has not been found possible. The reasons for this are partly the inadequate selection of cases for admission; partly the deterrent effect which the prospect of compensation still has; and partly the special difficulties of the mining industry, including the policy (in the subcommittee's view a mistaken one) of segregating miners.

The report goes on to state that "the final stage in rehabilitation is re-employment, and remunerative work is often the best form of rehabilitation." And in this connexion:

"It seems to us that in future doctors as a whole, whether employed in general practice or in hospitals or in clinics, should have a better knowledge of the conditions under which their patients work, and of the broad principles of industrial medicine. The family doctor will still have most of the responsibility of the return of his patients to work. We believe that his problems and anxieties in this connexion would often be lessened if he took an active interest in the industries within his area and obtained first-hand knowledge of the conditions under which his patients work. We feel sure that industry will welcome doctors who seek in this way to enhance their professional competence."

Fundamental Principles

Before considering the nature and extent of the further facilities required the subcommittee lays down three fundamental principles.

"In the first place there must be, so far as is possible, continuity of supervision during the whole process of primary treatment and rehabilitation. In most surgical and orthopaedic cases, rehabilitation must be started within the first few days in hospital, and should be carried on throughout the whole period of sickness and convalescence. At this early stage the patient has to be educated and encouraged to take an active part in promoting his own recovery. Unless there are clinical indications to the contrary, stress should be laid upon active as opposed to passive forms of treatment.

"The second principle is that the planned programme of increasing activity should continue through convalescence to the point at which the patient is considered fit to resume his normal employment. If it becomes clear that he will be unable to do so, the process of rehabilitation should be designed to enable him to undertake training for some other occupation.

"Thirdly, return to work or entry into a course of training should take place when he is judged to be fit for it. In some instances a brief holiday may be advisable, but occasionally the benefit gained from reconditioning may be lost if the patient is allowed to relax for too long a period before return to work. On the other hand, it may be definitely harmful to set patients to work too soon after discharge from hospital or convalescent home. If their general physical tone is below par they have not been sufficiently prepared by a process of hardening to face the stress of ordinary working life."

Finally, the report recommends the establishment of non-residential centres related to the major general hospitals in the large towns. Each region should have one or more hospitals equipped for the rehabilitation of long-term cases. A smaller number of larger, better equipped, and better organized convalescent hospitals is needed. One large residential centre should be created to deal with about 200 patients. The head of this centre, as of rehabilitation units attached to central or county general hospitals, should be a doctor whose whole time is given to the work. The exact qualifications for such a post cannot be precisely laid down, but a wide knowledge of and an active interest in rehabilitation undoubtedly are essential. These may be found in a surgeon or a physician or an orthopaedic specialist who is prepared to devote himself to rehabilitation as a whole-time task. On the other hand, it may often be of advantage to secure the services of one who has specialized in physical medicine.

In conclusion, it is suggested that for the running of a rehabilitation centre four practical rules should be observed. First, there should be a single medical control. Secondly, the physician or surgeon who refers the patient to the rehabilitation unit must have the fullest opportunity to discuss the appropriate course of treatment with the medical officer in charge. Thirdly, the auxiliary staff must work together as a team under the direction of the medical officer. Lastly, the progress of the individual patients should be reviewed and their rehabilitation programmes adjusted at weekly meetings presided over by the medical officer in charge.

ACHIEVEMENTS OF CHEMICAL RESEARCH

The exhibition of chemical research to be held at the Tea Centre, Lower Regent Street (corner of Jermyn Street), London, S.W., will open on June 5. It is designed to show some of the major achievements of chemical research during the war, and to demonstrate their even greater importance in peacetime. The exhibition is divided into five main sections, each based on a great British chemical discovery.

The section "The Chemist versus Disease" is devoted to the part played by chemical research in combating disease and improving sanitation. Particular emphasis is laid on the sulpha drugs, penicillin, and paludrine, and their significance in chemotherapy is explained. Paludrine is shown in relation to the earlier specifics, quinine and mepacrine. "The Chemist and Your Food" outlines the part played by the chemical industry in modern agriculture. Though this section naturally deals with synthetic fertilizers, it is mainly concerned with the evolution of chemical methods for combating moulds, bacteria, and weeds. Chemical warfare against predatory disease-bearing insects has a section to itself, and the new insecticide "gammexane" is described in detail. The section on "The Chemist and Plastics" centres round "perspex" and polythene. The final section is devoted to "ardil," the wool-like protein fibre made from monkey nuts.

The exhibition is organized by I.C.I. and will open daily from 10.30 a.m. to 8 p.m. (Sundays 2 till 7 p.m.) until June 28 inclusive.

Nova et Vetera

HARVEY AND THE BATTLE OF EDGEHILL

William Harvey is said to have been present at the Battle of Edgehill and, according to the legend, the King entrusted his two young sons, the Prince of Wales and the Duke of York, to the care of that eminent physician. The originator of this yarn was John Aubrey, gossip writer and a charming man, who had only one enemy—himself. He was unreliable, as gossip-mongers have been throughout the ages. The tale originated by Aubrey runs as follows¹:

"When Charles I by reason of the tumults left London, he [Harvey] attended him and was at the fight of Edgehill with him; and during the fight the Prince and Duke of York were committed to his care: he told me that he withdrew with them under a hedge and took out of his pocket a book and read; but he had not read very long before a bullet of a great gun grazed on the ground near him, which made him remove his station."

This anecdote, which has not a shred of evidence to support it, has been repeated by many of Harvey's biographers, and some of them have even elaborated on it. One says that the book he was reading was Fabricius²; another states that Harvey was nearly hit by the cannon-ball; while a third has it that the doctor and the boys had been for a walk and were tired of waiting for the battle to begin, so they sat down in a ditch to pass the time.³ An artist, W. F. Yeames, has depicted the incident in an oil painting, which was reproduced in Ogle's *Harveian Oration* of 1880. This pictures to us the battle in progress in the middle distance. The young princes are crawling up the bank to get as good a view of the fight as possible. The great man himself is seated on the trunk of a fallen tree at the bottom of the ditch, entirely engrossed in the book which he is reading, and he has a second book on his knee. Artistic licence is pardonable in a painter, but is inexcusable in an author such as Eliot Warburton, who is claiming to write history. In his *Memoirs of Prince Rupert* (Vol. 2, p. 17) he writes:

"Whether he [Harvey] was absorbed in the contemplation of his favourite subject [the circulation of the blood], under favourable circumstances or not, is uncertain, but he lay upon the hill side, apparently unconscious of the roar of battle beneath and of bullets plunging into the turf all round him, until he was fairly carried off the field by someone who cared more for him than he did for himself."

How very dramatic, but there is not a word of truth in the whole yarn. If Aubrey's story had stood alone, it would have had to be accepted for want of any other evidence. Fortunately, evidence is available which shows that the young princes were very differently employed that day. First of all, there is the statement of an anonymous writer who, there can be little doubt, was present at the battle, that the cannonade at the start of the fight did little damage, but that a number of cannon-balls fell near to where the King and his children were located,⁴ and this was certainly not in a ditch at some distance from the battle. The story is carried forward by no less a person than the Duke of York himself. He informs us⁵ that the King did not wish to expose his brother and himself to these dangers, and asked first the Duke of Richmond and then the Earl of Dorset to take the boys away from the battlefield. Both these noblemen asked to be excused, as they felt it would be cowardly for them to withdraw while the action was in progress. The King finally gave a direct order to Sir William Howard to remove the children. As they were retiring they were nearly captured by a party of Parliamentary horse, which had come round the left flank of the Royalist infantry. Fortunately, a dressing station had been opened in a barn in this area and a number of Royalist wounded were congregated around it. The enemy cavalry, mistaking these men for a formed body of troops, retired, which gave the princes their chance to escape.

Here are two independent accounts of what happened to the King's sons upon that memorable day; both accounts are in agreement with each other and completely contradict Aubrey's romantic little story.

Sir John Hinton's Account

There is still a further witness, Dr. Hinton, later Sir John Hinton and physician to Charles II. This distinguished doctor had cause to petition His Majesty after the Restoration. In the course of this document Hinton recalls his services at Edgehill, where he appears to have been employed in the intelligence branch of the army and not in the medical one, as might have been expected. He says⁶:

"Your Majesty [Charles II] was unhappily left behind in a large field, at which time I had the honour to attend upon your person, and seeing the sudden and quick march of the enemy towards you, I did with all earnestness most humbly, but at the last somewhat rudely, importune your Highness to avoid the present apparent danger of being killed or taken prisoner, for their horse was by this time come up within half musket-shot in a full body; at which your Highness was pleased to tell me you feared them not and drawing a pistol out of one of your holsters and spanning it, resolved to charge them, but I did prevail with your Highness to quit the place and ride from them in some haste; but one of their troopers being excellently mounted, broke his rank and coming full career towards your Highness, I received his charge and having spent a pistol or two upon each other, I dismounted him in the closing but [he] being armed cap-a-pie, I could do no execution on him with my sword, at which instant Mr. Mathews, a gentleman pensioner, rides in and with a pole-axe immediately decides the business and then overtaking your Highness, you got safe to the royal army."

This extract has been given at length because, if true, it completely demolishes the legend of Harvey acting as the guardian of the princes at the Battle of Edgehill. There appears to be no reason why Hinton's account should not be accepted. It corresponds with the one given by one of the principal actors, the Duke of York. Both agree that the incident took place on the left wing of the Royalist army, that the Prince of Wales ran a grave risk of being cut off by the enemy's horse, and that he was saved only by the fact that they did not charge as a formed body.

Further, dare Hinton have invented such a story? Surely he would not have taken the risk of being exposed as a vulgar liar by his royal master. True, the event had taken place years before, when Charles was only thirteen and his brother James nine. But every incident of his first battle must have been firmly imprinted on his mind. Also, the story can hardly have been invented to flatter Charles II, since it shows him acting rather foolishly and being told so by an older and more experienced man.

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George Owen: Physician to Henry VIII

M. E. P. writes: The account of Dr. George Owen by R. R. J., published on March 23 (p. 436), is interesting. R. R. J. quotes Owen's will (1558), and calls attention to the fact that the testator bequeathed to his sonne William "Godde's blessing and myne." Such an expression occurs in the will (1423) of Robert Hylle of Spaxton, who made a similar bequest to his daughter Elizabeth. Owen's legacy in the time of Philip and Mary to Wolvercot Church would be, I think, for prayers to be sung at intervals for his soul. R. R. J. also refers to Dr. Buttes (ob. 1545), who was after the Reformation the first, I believe, to give the title of "nurse" to one who ministers to the sick.

Henry Schuman, of 20, East 70th Street, New York, announces the founding of a new quarterly periodical, *Journal of the History of Medicine and Allied Sciences*, under the editorship of Dr. George Rosen: annual subscription \$7.50 in the United States, Canada, and Latin America; \$8.50 elsewhere. The first number bears the date January, 1946.

Correspondence

The Health Service Bill

SIR,—Most doctors will share Mr. Attlee's recently expressed conviction that "advance comes through co-operation," but we are certainly put in a difficult position by Mr. Bevan's idea of co-operation, which seems to be to antagonize doctors, local authorities, and voluntary hospitals, as well as a very large section of the public. It is further complicated by the circumstance that his "conciliatory" speech bore little relation to the actual Bill or to reason and facts. I quote only one example. Speaking about Health Centres he said: "It has been described in some places as an experimental idea, but we want it to be more than that." Now a thing which does not yet exist must remain an idea until it does, and anything which has not been thoroughly tried out must remain an experiment until it has. All Mr. Bevan's fluency and rhetoric cannot alter these elementary facts or justify his conclusion that "to the extent that general practitioners can operate through health centres in their own practice, to that extent will be raised the general standard of the medical profession as a whole." A Minister who does not distinguish between verbiage and reasoning, or between hypothesis and fact, can make little appeal to those who have been taught the elements of science and the pursuit of truth, so it is only to be expected that the recent Special Representative Meeting should view many of his proposals with disfavour.

A head-on collision between the Minister and doctors and hospital authorities would, however, be a disaster for the patient whom both parties exist to serve. Some basis of co-operation must be found, and as a contribution to this end I put forward the following suggestions, which doctors and hospitals might accept and which the public conscience might approve more than the wholesale appeal to force contained in the Bill, for an appeal to force is itself a confession of failure to understand or of inability to convince.

During the dislocation of war we have come to realize that there must be some sort of regional planning of the hospital service, but there has been no opportunity for hospitals to re-orientate themselves to this idea, and it must be from seven to ten years before buildings can be provided and the needed personnel trained. It would surely be wiser that instead of creating the chaos and resentment inevitable in the Minister's plan to take over all these institutions, as the Bill proposes; this power should be held in reserve and exercised only after 4 or 5 years in cases where a hospital has failed to fit into the scheme or to equip itself properly with any aid the State may afford. This would bring all the governing authorities into active co-operation in the development and working out of plans. Where interest in the hospital is strong, local support would be stimulated and the hospital would retain its own identity within the ambit of the scheme. Where, however, there was no great local support and the hospital was unable to attain the necessary standard the governors would probably be glad to hand over their institution and all the assets of which they are trustees to the Minister. This would avoid the very dangerous precedent of confiscation which the Bill creates, however much we may wish to shut our eyes to it. It would then only be in the very few cases of inefficiency and deliberate antagonism where powers of compulsory acquisition would have to be used. In this way new hospital facilities would be first provided in the neediest areas, as they ought to be. Advance would come through co-operation, but planning could proceed just as surely as if the hospitals had, in fact, been taken over, and in this more gradual process probably even better plans would emerge.

As regards the doctors, an enormous improvement could be made at once in the scope of their service and in freedom from doctors' bills. School-children, dependants of those at present insured, the old-age pensioners, and public assistance patients, etc., could be catered for immediately on the lines of the National Health Insurance, provided a proper capitation fee was paid. Suitable insurance schemes preserving the right to opt out could be devised for the higher income groups if they wished to use them. Increased mileage allowances would stimulate more doctors to go to the rural areas, while something like the "floating sixpence" might be used to attract doctors

to the less attractive or "under-doctored" localities. Provision could be made for doctors who desired to be full-time medical servants to become so, just as some hospitals might come under the direct control of the Minister, but the essence of the service would be flexibility rather than uniformity, and as more facilities became available they would be made free to all. The service would be a growth instead of an administrative machine. It would elicit the hearty support of all concerned, would cater for the infinitely varied needs of a civilized society, and embody two essentials of health—freedom to choose and freedom for development. Dissatisfied authorities and disgruntled doctors are a poor basis for any health service, however nice it looks on paper, and coercion can never take the place of co-operation in getting a job done well. The patient should not be sacrificed to avoid difficulties in administration.—I am, etc.,

Winsford.

W. N. LEAK.

SIR,—The history and present position of politics as related to the medical profession can be outlined as follows. Some years ago our major national policy makers decided on a comprehensive, centrally controlled, and ultimately totalitarian medical service, with the object of increasing their already great power and as an important step towards the completely planned (totalitarian) State. By means of their established control over national finance they obstructed the normal development by organic growth of our traditional medical system, hoping thereby (and it must be admitted not without success) to bring it into disrepute and so prepare the way for what these planners had in mind. It is noteworthy in this connexion that Mr. Aneurin Bevan has put forth his scheme as an attempt to solve financial difficulties experienced by those concerned with medical development and by the public in gaining access to existing services.

The present strength of these aspirants to powers verging on the absolute can be judged from the fact that all the political parties obediently acted in support of the policy which they had laid down. The Labour Party appears to be the more willing tool, but in actual fact there is no essential difference between the policies of the present Government and the last. Under these circumstances it is not to be wondered at that the executive of the B.M.A. yielded to the strong and continuous pressure from outside rather than to the weak and fitful pressure exerted by its own members. (From time to time the "high-ups" of the B.M.A. expressed admiration for the work of P.E.P.—the most powerful planning and policy-forming organization in the country.)

Thus the stage was set for the dishonourable sham fight which has distinguished medical politics throughout the war period and since. In this "fight" the B.M.A. executive and the "representatives" of the profession play the part of combatant, referee, or negotiator as required. The most extraordinary role was that of the now-played-out negotiator. When the suggestion to negotiate with the Minister of Health was first made one, or two small voices were raised in protest against it. Had those voices been listened to the profession might have been saved the humiliation which Mr. Bevan has poured upon it in full measure. Negotiations indeed. Was the profession up for sale? One had hoped not. In any case its fate had been decided whatever the method of execution subsequently agreed upon. Could anything more nauseating be imagined than to have to accept our "enemy No. 1" in the previous House of Commons as our "great protagonist" in the present House? Is it in support of this sorry scheme of things that members of the B.M.A. are being urged to achieve unity—such unity as inspired the Gadarene swine to rush down a steep place and perish miserably in the waters below?

There can be no doubt that the Bill will go through Parliament substantially as it stands and be placed on the Statute Book. Whether it will ever be put into operation is another matter. That depends on how the doctors act. It cannot be born without our help. Sooner or later we must face the question, Are we going to give that help or not? When threatened with compulsion (as we are), since compulsion cannot change the will, lovers of freedom unwilling to co-operate can do no other than defend their freedom with all their might and understanding. With this object in view it is encouraging to know that there is no difficulty in devising a method by which the conscientious doctor can bind himself conditionally to refuse to co-operate without fear of being let down in the time of temptation by his less scrupulous colleague.

Finally, it is important to remember that one of the fundamental principles of democracy—perhaps the greatest—is the freedom to contract out of any proposition that is put before one. This principle is violated in the Bill as it stands. Are we going to submit without a struggle to the remnants of our true democracy being torn to shreds before our eyes? If we do not realize the danger others do and are taking appropriate action. All over the country patients (which here includes "doctors") are forwarding demands to their Members of Parliament to take active measures to ensure their freedom to contract out of the proposed National Health Service. Can the Government turn a deaf ear to this demand? Air-raid shelters were usually provided with emergency exits; concentration camps, so far as one knows, were not.—I am, etc.,

Beverly, Kent.

E. U. MACWILLIAM.

SIR,—These are three criticisms of the Health Service Bill, favourable or unfavourable according to the political bent of the reader's mind, but in any case factual. (1) It is not a health Bill at all but it is one for organizing the treatment of sickness. (2) Under it, family doctors—the patient's own doctor—are to cease to exist as such and to become medically trained State servants. (3) The hospitals, which are all to become State property, are to be conducted by the Minister through appointees whom he sees fit to nominate. The present trustees, governors, boards of management, and municipal hospital committees are to be superseded. Whether or not their present members will be employed depends in the last resort on the Minister. May I comment on these headings in reverse order?

(3) Piety and the sense of public duty created the voluntary hospitals. St. Bartholomew's, begun 800 years ago by Rahere with his Augustinians, continues to-day, under fundamentally the same inspiration, to render irreplaceable service. "Every patient that enters this hospital is entitled to the best-treatment" was in the "charge" with which each officer, including clerks and dressers (students), was admitted. When Henry VIII dissolved the monasteries, St. Bartholomew's struggled on, sustained by little else than piety and the sense of public duty, till (in 1546) the Lord Mayor's appeal to the King, in the dire need of the sick of London, secured the return of a part of the emoluments. Now, 400 years later, all the voluntary hospitals are faced by dissolution. Re-foundation under the broad arrow is to follow: will it carry with it the same piety and sense of public duty?

To return to (2)—the doctors. The advocates of the Bill say the patient will be able to choose his own, and, except that the remuneration of the doctor will come from public funds, their relationship will be the same as before. Such a statement is blind to the facts and to the genesis of the Bill. The germ of this part of it lay in a remark by Sir William Beveridge in a report that he was not concerned with the medical service but that, with payments so large as those provided for sick beneficiaries under such a scheme, the doctors must be so paid that their certification shall safeguard the funds. What else can that mean but that the doctors are to be Government servants and influenced by considerations other than the patient's condition alone? To which of his two masters is the doctor to cleave and which is he to despise?

Criticism No. (1), which is that the Bill is for the treatment of sickness and not a health Bill at all, is not a mere matter of a word. A health Bill's primary concern should be with the Ministry of Agriculture; for, in the words of Sir Thomas Browne (*Religio Medici*): "'All flesh is grass' is not only metaphorically but literally true, for all those creatures we behold are but the herbs of the field digested into flesh in them, or more remotely carnified in ourselves."

To epitomize the enormous subject of the influence of food quality in making or marring positive health, which, the B.M.A. tells us, should be the primary aim of a national health policy, may I quote a couple of writers 300 years later than old Sir Thomas: "In this purse-proud capitalistic age, soil fertility is our own true capital, and soil health the only sure and lasting prop of public health in its widest and truest sense." So the learned editor of the *Medical Press and Circular* says. And Friend Sykes, in *Humus and the Farmer*, published this month (Faber), says: "The health of the world is in the hands of the farmer. If he refuses to learn to farm properly and to understand the biological condition of his soil, then there is no hope either for the livestock industry of the world or for the future of mankind."

This conviction that soil fertility is the basis of public health, the source and stay of positive health, has for years been the concern of the Cheshire Panel Committee, and in spreading this evangel it has had the support of the Cheshire Insurance Committee. In this activity these bodies felt themselves to be carrying out the spirit of "the National Health Insurance Act . . . for the prevention and cure of sickness." While that Bill was under debate in the House I had a conversation with Mr. Lloyd George at his house at Walton Heath, and urged that if the aim were really prevention the clinical services must begin with the children and their mothers before they were born. He said, "This is only a beginning: that is a campaign for the future." But by instituting a panel system, with free choice and not a salaried service, he did, in fact, preserve the family doctor. The present Bill, instead of simply extending medical benefit to the families as Mr. Lloyd George intended and making provision for the techniques, some needing hospitalization, which modern medicine calls for, and for which the B.M.A. has asked successive Governments, throws down Mr. Lloyd George's work, replaces the family doctor by an official, and the people's hospital by a State institution; and for the grand item of positive health does nothing. The means to that end, at which I have hinted, may seem remote, but I think that the preoccupation with agriculture which Mr. Lloyd George evinced in the closing years of his life was due to the fact that he saw them.

That "the prevention of sickness" and the gift—what greater?—of positive health are within the power of a reawakened agriculture to confer in large and substantial part will seem fantastic to many; but the promise and the records are substantial, and in the *Hansard Reports* of the House of Lords debates on Lord Teviot's motion on Oct. 26, 1943, and the Earl of Portsmouth's on Feb. 2, 1944, the grounds of the claim are sketched by master hands.

That a Bill concerned with health, in name at least, should be laid before our legislators without thought of this alleged main factor, one which has been authoritatively laid before the Upper House, shows us that it is a strange world in which we live.—I am, etc.,

Holmes Chapel.

LIONEL JAS. PICTON.

SIR,—I crave the indulgence of your readers to consider a new aspect of the national health scheme. I am tired of hearing and reading of the principles for which we are fighting—fine though they are. It was the patients who voted at the election; they are therefore, we presume, in favour of the present Bill. They asked for it; let them have it. I venture to suggest that the present system of our profession is finished. Let us therefore face the future united, and demand through our Association the best possible conditions (in a like manner to other unions): (1) good working conditions; (2) reasonable hours—a 48-hour week; (3) double the salaries, now suggested by the Interdepartmental Committee; (4) holidays with pay; (5) retirement at 60 on half-pay.

It is demands of this nature that Mr. Bevan and his party understand. Principles and human feelings are understood only by the few, not the masses. If we fight for these conditions we may save something; if we do not we shall lose all. In conclusion I would add that I have nearly 40 years of medical practice before me, not behind me; and, Sir, I am a Conservative.—I am, etc.,

Southsea.

J. T. FURNIVAL.

A Suggestion for Referendum

SIR,—The Health Bill in its present form appears to give the Minister, or subsequent Ministers, dictatorial powers. Though most dictators of any ideology may start with good intentions, fate and human nature seem to bring about their eventual failure, especially in the more civilized countries. Their bad effects are less obvious among the semi-civilized; in fact they may appear as benefactors, where any stable Government is better than none at all. I must apologize for a rather pontifical statement, but it helps to strengthen my argument.

I suggest that many doctors, whatever their inclinations, will be compelled to undertake some form of State service on economic grounds alone, and that a referendum asking whether one would or would not undertake State service is likely to decrease bargaining power. I feel that a referendum on the following lines would be realistic and would carry weight: Will you join an association (one hopes under the B.M.A.) which will guard your interests in cases of unjust regulations, treatment, pay, etc., and abide by the instructions of this association (or union) when it considers that the policy of the health service is contrary to the general good or the rights of an honourable

profession? This association in very grave instances, might advise its members to cease to collaborate in the administrative part of the health service without interfering with its humanitarian aspects. As the members would probably be suspended by the Minister and the receipt of definite fees against the law, patients might be asked to contribute to a general fund to help to tide the doctors over a difficult period. A general breakdown in a public organization would not be viewed lightly by the administrators responsible, the public, or the medical profession.

This suggestion is made in no mischievous spirit but to support my previous statement that unbalanced dictatorial powers in a highly civilized community usually lead to failure, because, even with the best of intentions, errors of commission or omission cannot be hushed up to the same extent or dealt with in other ways as in less civilized communities—I am, etc.

Westgate-on-Sea

F W G SMITH

Compensation under the Bill

SIR—It appears from the Health Service Bill that compensation will be paid only to those doctors who enter the new service. From the Minister's point of view, no doubt, this is sound because if compensation were paid to all then a large number of doctors would accept their compensation, stay outside the service, and do private practice only. But there must be many doctors who on account of their financial position, their age, the state of their health, or because they do not wish to be bound hand and foot by red tape and regulations would not wish to enter the service, but would like to continue doing private work and so maintain their interest in medicine. Is it fair that if they adopt this course they should forfeit all compensation even if their practices are of the type which contain a large number of people who would take advantage of the service?

I am not suggesting that such doctors should receive full compensation, but I maintain that it is only common justice that they should receive a fair percentage otherwise the Minister either forces them to enter his service or confiscates the major part of their practices—I am, etc.

Stourbridge

GEOFFREY DUDLEY

Buying and Selling of Practices

SIR—The medical profession owes a debt of gratitude to the Negotiating Committee, but I cannot think its avowed desire to continue the custom of buying and selling practices, in the circumstances of the Bill, represents the attitude of a majority of general practitioners. The following appear to me important considerations.

1. The incomes indicated by the Spens Committee are considerably below those earned by good doctors, consequently these doctors will suffer an irrecoverable loss when they come to sell—a loss surely unacceptable to those who have purchased with the aid of insurance companies.

2. What would a practitioner have to sell when the Bill comes into operation? The private portion would scarcely be a transferable asset, and besides, a proper introduction would not seem feasible. The purchase of the National Health Service portion strikes me as hardly a good proposition. In short the capacity to develop a practice will be very limited and the chance of deterioration is inherent in the scheme.

3. Without a corresponding increase in remuneration the interest on capital so invested represents a further reduction of income.

* 4. The powers of even negative direction represent an obstacle to negotiating a sale.

In the light of these considerations I feel we should accept compensation as the only fair method of dealing with the problem but press for its payment on the appointed day—I am, etc.

Southport

S H STEWART

"Democratic Medicine"

SIR—Once upon a time an eminent surgeon demonstrated a case to twelve students and at the end of his remarks he asked each in turn whether operation was indicated. All twelve said that it was not but the surgeon said "Gentlemen you are all wrong. I shall operate at 10 o'clock to-morrow." The patient

who was, one may assume, like Dr P G S Davis (April 20 p 624) a believer in "a more democratic system of treatment sprang from the bed saying "No, you ain't, gimme my trousers, twelve to one is good enough for me."

Perhaps Dr Davis did not mean to advocate a system of treatment on these lines, but his words certainly suggest that he did. And, when a man writes about 'buying and selling of the treatment of patients *en bloc*,' one has little difficulty in assuming that he can believe anything, especially if it be impossible. Is it not true that we spoke of selling the goodwill of general practices? There is nothing else the doctor can sell to his successor. We know that patients tend to go to a house that has been a doctor's for many years, but if the service they receive is not to their liking they soon stop doing so, and if that is not (in a reasonable sense of the much abused word) democratic, it is impossible to conceive of what is so—I am, etc.

London W 1

A PINEY

The Minister and Medical Ethics

SIR—If the speech of the Minister of Health on April 30, on moving the Second Reading of the National Health Service Bill as summarized in the *Times* of May 1, is correctly reported he shows a most lamentable lack of knowledge of the ethics of medical consultation. Does he not know that we ought not to see a patient who is actually under treatment by another practitioner without that practitioner's knowledge? And that a medical man who has seen another's patient in consultation must not accept such a patient as his own except in a consulting capacity? I know only too well that this ethical code has not always been observed by a minority of the profession, but it is in our view a right one and in the interest of patients.

Nothing that Mr Bevan can say or that Parliament can do will make a wrong right. I trust, therefore, that Mr Bevan either will be able to explain how his intentions have been misinterpreted or will abandon what appear to be his present intentions in this matter—I am, etc.

Huddersfield

WM BARCLAY

The Population of India

SIR—Sir John Megaw (March 9, p 343) has once more drawn attention to India's most vital problem—her increasing population. The rapidly increasing millions must be the concern of Government, but it is in the sphere of the individual family that the increasing population is experienced most acutely as a problem and I believe that it is in this field that it can and must be answered.

As a typical example, I can think of a family of five children under 11 years old. The father was in war service sending home Rs 30 (£2 5s) per month. The mother was ill and too weak to look after the children properly. She had hookworm and other intestinal infections and her haemoglobin was 30% approximately. Within a month of the birth of the youngest baby two of the others had died of nutritional oedema. This did not occur during a famine. The usual answer suggested to the population problem is education in contraceptive methods—an answer which rouses a storm of opposition on moral and religious grounds, although in my experience the women of India would have no acute objections. But I am convinced that from a purely medical point of view ordinary contraceptive techniques are quite unsuitable for rural India as hygiene is not in the least understood by the people. I believe that the answer is to be found in changing the social customs.

So far as I can ascertain the present custom among the poorer sections of the community is to have intercourse as often as the husband wants it which may be every night and that is regarded by the womenfolk as 'the nature of man.' But I understand that at least among one section of orthodox Hindus a woman is allowed to sleep with her husband only, at certain times and at other times she had to sleep with her mother-in-law or another female relative. Times when intercourse was allowed included, I believe, the third, fourth and fifth days after the end of the menstrual period, that is a little early but possibly includes the fertile period. Certain phases of the moon were also allowed. As a stimulus to increase of population there is in the Jewish Law a parallel regulation forbidding intercourse for a week after the menstrual period and allowing it during what modern knowledge recognizes as the fertile period.

Now, in the light of knowledge gained in the last few years about time of ovulation and the fertile period, it should be possible to make available for those burdened with too many children the reverse custom. The population can be checked only if the method of control has the sanction of religious and social tradition. If Hindu custom has already recognized that certain parts of a woman's monthly cycle are suitable for intercourse and others are not, it seems probable that there should be no great hindrance to absorbing into social tradition the modern scientific discovery of the fertile period. If a couple have as many children as they are able to feed, it should be possible for the wife to persuade her husband to abstain from intercourse during the probable fertile period each month. As the women of India would welcome this knowledge there should be no difficulty in the spread of such a custom where the circumstances require it.—I am, etc.,

Trivandrum, Travancore.

A. W. MEGAW BROWN.

Suprapubic Drainage of Bladder

SIR,—I have been long in replying to Mr. E. W. Riches's letter (April 13, p. 585). In the meantime I have heard of a number of accidents when blind suprapubic puncture was performed, one of them ending in the patient's death. He says the method aims at avoiding a low fistula, but with exposure of the bladder one can, and I always do, strip the peritoneal reflection upwards, and introduce the tube at the highest point on the bladder so exposed and bring it out at the top angle of the wound. This, I think, achieves the same purpose.

Mr. Riches questions the accuracy of my anatomy when I suggest that a tube introduced as he directs must frequently traverse the peritoneal cavity, and quotes anatomists as saying that with a full bladder (15 oz.—425 ml.) the peritoneal reflection is 3 in. (7.5 cm.) above the symphysis. I too can quote an anatomist. Cunningham (fourth edition p. 1277) writes that with distension of the bladder the peritoneal reflection "comes to lie 1½ in. [3.75 cm.], or even higher, above the upper margin of the symphysis." And this is where I usually find it, though of course it varies and may be almost as low as the symphysis. My incision is about 3 in. (7.5 cm.) long, and I cannot remember a case in which the reflection did not appear in some part of the wound. In the only case I have done since Mr. Riches's letter the bladder was well distended by acute retention from prostatic obstruction, and the reflection was about 1½ in. (3.75 cm.) above the symphysis. From careful survey of the parts it was quite clear that a tube inserted by his method would have traversed free peritoneum.

In the case I described there was no question of a pouch of peritoneum slipping down on each side of the catheter as Riches suggests. The symptoms, in the light of the subsequent findings, clearly showed that the trocar had penetrated free peritoneum when introduced. At the time of the prostatectomy the track of the catheter from the parietal peritoneum to the bladder was surrounded by adherent coils of intestine on all sides, and the peritoneal reflection was quite clear of it and well below—level with the symphysis. Though I can see that Mr. Riches's operation has many good points, I still think exposure of the bladder much safer.—I am, etc.,

Guildford

E. W. SHEAF.

The Use of Tuberculin

SIR,—The subcommittee of the Ministry of Health's Standing Advisory Committee on Tuberculosis has stated categorically its belief that exclusion of the Mantoux-negative reactor from tuberculosis nursing is in the interests neither of the nurses nor of the public. That there is a risk to the individual during the phase of conversion is recognized. The extent and nature of this risk in the convert nursing in the wards of a large general hospital has been studied by Daniels. There is, however, no convincing survey of nurses who acquire tuberculin sensitivity whilst nursing the tuberculous, showing the immediate, and late, results. The report of Edwards analysing his results at Market Drayton should have paved the way for other authorities to publish their own experience. The findings of the subcommittee would have been more convincing if they had been prefaced by these facts. Will the subcommittee or its individual members produce the facts relating to the incidence of primary lesions in staff in sanatoria and tuberculosis wards, showing their course,

how the nurse was dealt with medically and administratively, with a five-year follow-up? I should think that Dr. Watt has these facts, or could get them for all the London County Council sanatoria for a number of years past.

It is also stated in your annotation (April 20, p. 615) that the proportion of tuberculin-negative reactors in the population is increasing, and by implication you use this fact to bolster up the case for the negative reactor's being used for tuberculosis nursing. Roughly stated, the less the hazards of meeting tubercle bacilli the longer the primary infection will be postponed. Sooner or later, however, this must lead to the time when there are in the population a high percentage of susceptibles, and then we can expect an increased incidence of florid tuberculosis.

The nurse and her health must come first no matter how our present staffing difficulties press us. We have already delayed far too long, and an investigation with B.C.G. vaccination should be undertaken forthwith.—I am, etc.,

Carshalton Beeches, Surrey.

H. F. HARWOOD.

SIR,—In the annotation on the use of tuberculin (April 20, p. 615) it is stated that "the newer purified protein derivatives of Siebert and Long," which are "extensively used in the U.S.A., are not at present manufactured in this country, but can be imported." Since this statement ignores paragraph 4. of the report of the subcommittee, which is itself unconsciously misleading, it may be worth while drawing attention to the following points:

1.—P.P.D. tuberculins, both "mammalian" (human strain) and "avian," have been issued from the Veterinary Laboratory of the Ministry of Agriculture at Weybridge for the last four years. The issues of each are expected to reach 100 litres per month during the current year, and since the dose for cattle is 0.15 mg. mammalian P.P.D. as compared with the two human doses of 0.005 mg. and 0.00002 mg., this output could correspond to 30–750 million human doses per month. Expressed in terms of solution of potency equivalent to O.T. the estimate is of the order of 900,000 ml. per annum. This probably exceeds the P.P.D. production in the U.S.A., since the position in respect of man and animals is reversed in the two countries. The Bureau of Animal Industry in America still uses heat-concentrated synthetic-medium tuberculin (similar to synthetic-medium O.T.), and P.P.D. tuberculin is made only on a relatively small scale for use in the human subject.

2.—Paragraph 4 of the subcommittee's report states the fact that Weybridge manufactures P.P.D. for veterinary use, but adds that it could not undertake to issue it in sterile tablets of standard strengths. It should, however, be explained that this is not because of any inherent difficulty. It is merely that there is no veterinary demand for it in that form and that tableting machines are not part of existing equipment. The veterinary demand is for solution ready for immediate injection, in which form it is sufficiently stable to assign an adequately long "expiry date."

3.—Production of P.P.D. tuberculin by the Weybridge technique is simple and cheap, and no more troublesome than production of O.T. P.P.D. can also be easily prepared in the dry powder form, stored indefinitely, and issued in any desired form at any concentration. A single kilogramme of the dry powder is theoretically equivalent to 50,000 million 0.00002-mg. human doses, or 200 million 0.005-mg. doses. Despite the large wastage in discarding used phials or tablets this would presumably cover all medical requirements in the country for many years.

4.—Standardization presents no difficulty. There is no variation in potency of Weybridge P.P.D. tuberculin from batch to batch and issues are on a weight-volume basis. A nitrogen determination is sufficient to define the potency, although in practice biological standardization is always carried out on guinea-pigs as well, using a dry reserve P.P.D. as standard. There is no reason to believe that there is any difference in potency between this reserve standard and Siebert's P.P.D., although there has been no occasion to make direct comparison. So far as an "international standard" is concerned the sensible procedure would seem to be to adopt Siebert's reserve stock P.P.D., upon which American medical experience now rests check this very thoroughly against international O.T. (100 guinea pigs, say, statistically treated) for the sake of linking with past British experience, and against a large reserve stock of British P.P.D. as now used by the Ministry of Agriculture. There would seem to be no need to adhere rigorously to one technique of manufacture of P.P.D. so long as equivalence in potency is assured.

5.—In actual practice the Mantoux test with synthetic-medium O.T. is not likely to differ materially from a similar test with P.P.D. solution of equivalent potency, since the probability of non-specific reactions from alien products present is not great at the high dilutions of O.T. used in the test on the human subject. In veterinary practice the test is carried out at such high concentration that almost neat O.T. would be used and the probability of non-specific reaction

tends to be enhanced. The main advantages are that P.P.D. is cleaner and can be much more easily standardized. The common error of biological standardization in an eight-guinea-pig test is of the order of $\pm 40\%$; of chemical standardization is less than $\pm 0.5\%$. Since a \pm error can be additive, one sample of biologically standardized O.T. may have nearly twice the real potency of another unless a large number of test animals is used.

6.—The veterinary problem of diagnosis of tuberculosis is more complicated than the medical one because of the occurrence of "non-specific infections" in the bovine subject. The most common non-mammalian infection in the bovine subject is that of avian origin, and to facilitate differentiation a "comparative test" is adopted, using both mammalian and avian P.P.D. The next most common is Johne's disease. In veterinary work the "specificity" of a tuberculin, as well as its "potency," has to be considered. The current use of human strain P.P.D. for the bovine subject arises from the history of development of testing and may not be permanent.

Detailed discussion of such points is beyond the scope of this letter, but it may be added that P.P.D.s from six different acid-fast organisms are stocked at Weybridge for research purposes, derived from human strains, bovine strains, and avian strains of *M. tuberculosis*, from B.C.G., Johne's bacillus, and the non-pathogenic *M. phlei*.—I am, etc.,

Westlands.

H. H. GREEN.

Penicillin

SIR.—The announcement in the press that penicillin will soon be on sale to the public in chemists' shops, and that refrigeration will be unnecessary, has been greeted with approval in some quarters. To the venereologist, however, it may become a source of serious difficulty. The indiscriminate use of penicillin cream, or lozenges containing penicillin, may perhaps mask the signs of early syphilis occurring on the genitalia or in the throat and may cause either considerable delay in the diagnosis or failure to diagnose the condition. The possibility of an increase in latent syphilis is thus to be anticipated.

Sir Alexander Fleming said at a meeting of the Society for the Study of Venereal Diseases that the question of "fastness" was very important. It was quite easy to make organisms penicillin-fast. One of the great advantages of penicillin was that it was non-toxic, so that when it became available in larger quantities doctors should not be frightened of using large doses. The question of the development of "fast" organisms through insufficient dosage should not therefore arise (*Brit. J. Vener. Dis.*, Dec., 1944). It now seems to me that this problem may become a serious one and that the benefit gained on one hand may be lost on the other. Presumably it is impossible to continue restriction of a preparation which is harmless and is no longer in short supply. Nevertheless practitioners and the general public should be warned of these dangers.—I am, etc.,

W. NEVILLE MASCALL.

L.C.C. (Whitechapel) Clinic.

Jejunal Diverticulosis

SIR.—I was interested in the short report by Dr. A. Klidjian on jejunal diverticulum (May 4, p. 683). I agree that this condition is relatively rare, although I have come across several examples in operations performed for other lesions. Some years ago I opened an abdomen for general peritonitis of uncertain aetiology and found a perforation of a large jejunal diverticulum, the size of a small pear, the point of rupture being situated at the neck and leading to infection of both the peritoneal cavity and the adjacent mesentery. This diverticulum was one of six, all being confined to one loop of upper jejunum, and complete cure was easily effected by resection of the loop and end-to-end anastomosis.—I am, etc.,

Isleworth

JOHN SCHOLEFIELD.

Transient Non-specific W.R.

SIR.—With reference to the article by Dr. J. H. Waelsch on transient non-specific Wassermann and Kahn reactions in a case of infective hepatitis (March 9, p. 353) the following case might be of some interest.

A 74-year-old miller was admitted on March 7 to the medical department suffering from attacks of pain in the right hypochondrium. He was deeply jaundiced and had a temperature of 102.2°F . (39°C). The urine was dark. His history revealed only "Spanish influenza" in 1918. There was no history of venereal disease. The case was eventually diagnosed as cholelithiasis and septic cholangitis and treated with glucose,

insulin, sulphadiazine, and duodenal lavage. He made an uneventful recovery, the jaundice fading in three weeks. The laboratory investigations do not show any findings of particular interest with the exception of the serological results.

On March 8: W.B.C. 12,300; B.S.R. (Westergren) 100 mm.; urine bilirubin $++$; van den Bergh 8 mg.%; blood sugar 94 mg.%; Takata-Ara negative; blood W.R. $++++$; Kahn $++++$; citochol $++$.

On March 29: W.B.C. 6,000; van den Bergh 1.5 mg.%; urine negative; B.S.R. 45 mm.; blood W.R., Kahn, citochol, negative.—We are, etc.,

I. FRIEDMANN.

F. FOR.

General Hospital, Kosice, Czechoslovakia.

Deafness from Rubella in Pregnancy

SIR.—Replying to Dr. Muriel B. Hall's letter (May 11, p. 737) none of the literature published to date suggests that there is any evidence of rubella damaging the unfertilized germ plasma of an ovum, and so causing the congenital defects attributable to this disease. The pathology causing the abnormalities is obscure, but it is thought that as lens and septa formation occur at the sixth to eighth week in the developing embryo, eye and heart lesions are more likely to occur if the disease is contracted about this time, and that the later the disease occurs in pregnancy the less likelihood will there be of any abnormality.

In an article on congenital defects following rubella in pregnancy (*Clin. J.*, May-June, 1946, p. 102) I reviewed the literature since my contribution to the Royal Society of Medicine (*Proc. roy. Soc. Med.*, 1945, 39, 17), and I endeavoured to stress that in earlier cases multiple lesions were manifest in the babe, whose mother had contracted the disease in the early months of pregnancy, and that as deafness *per se* is not discovered until the child is older, many ailments of the child from birth to the time when deafness is manifest could account for that lesion alone. I feel that Dr. Hall's letter tends to complicate the matter still further. The evidence that some lesions are attributable to the disease, although increasing, is not yet proven, and until a complete survey of many cases for many years is available one should not add to the difficulties of arriving at a true assessment.—I am, etc.,

IVOR HUGHES.

Physical Therapy in Mental Disorder

SIR.—The question of the patient's fear of E.C.T. has been very adequately dealt with by Dr. W. L. Milligan (May 11, p. 735). In support of this I would like to add that on my ward round last week I was surprised to be approached by two voluntary patients with a request that they should be given a course of E.C.T. I was able to satisfy them that we did not consider this form of treatment appropriate for them and that other methods were likely to be more helpful towards their recovery. In both instances I found on inquiry that their request arose from observing the increased contentment and great improvement of three other patients who were undergoing, or had recently undergone, a course of E.C.T. with whom my applicants were in daily contact and had naturally discussed this treatment.

It is, I believe, of the greatest importance that immediately before, during, and after the convulsion until full recovery from the shock has taken place no patient should be allowed to see others. I have been told by patients that in some hospitals this is not invariably done.—I am, etc.,

W. J. T. KIMBER.

St. Albans.

Medical Director, Hill End Hospital.

SIR.—Dr. W. Liddell Milligan wonders if I am against combining E.C.T. with psychotherapy. I am not against any scientifically controlled research in our very difficult specialty, but there must be few types of cases which are usefully amenable to the combined attack. Disorders which are of psycho-social origin—such as reactive depressions, anxiety, and hysterical states—should naturally be treated on psycho-social principles; and disorders such as melancholia, which react best to E.C.T., are not claimed as suitable for analytic treatment except by a few rare enthusiasts. Of course, if by psychotherapy Dr. Milligan merely means a hearty slap on the back with cheerful reassurance, I have no doubt that a good suggestive effect is often produced. Indeed it is possible that a considerable number of the good results (unfortunately only temporary)

which follow E.C.T. are due not to the fits but to suggestive forces.

The comparison between the techniques of pushing the button and injecting pentothal is most inappropriate. The latter is followed by a psychological analysis of one hour; the former is followed by an epileptic fit, coma, and confusion, during which any form of analysis is out of the question. I must repeat my warning of the E.C.T. machine displacing psychotherapy. The optimistic view that psychotherapy will not be neglected, will be "combined with" a course of epileptiform fits, does not hold in practice. I have been asked to examine a number of patients who had received courses of E.C.T. in various mental hospitals, from York to Portsmouth, and I carefully inquired whether they had also been given a systematic course of psychological treatment. The answers have invariably been in the negative.—I am, etc.,

Basingstoke, Hants

I. ATKIN.

* This correspondence is now closed.—ED., B.M.J.

Ocular Decompensation

SIR,—This is a subject in which I have interested myself. It seems not many practising ophthalmologists have worked upon Stutterheim's technique in this country. He advocates 24 consecutive sittings and endeavours to raise, and does raise, the kinetic vergence to 80°. I have found that such a sequence of treatments is utterly impossible for private patients under the conditions of modern days. I have found, however, that by limiting the procedure to 6 sittings one can raise a K.V. of 12° and under to 30° or over, and give gratifying relief of symptoms. I aim at giving 12 sittings and can then usually ascend to the fifties, when the effect seems pretty permanent. An occasional "flip up" may always be given if the K.V. falls too low. The treatment seems nearly always beneficial except in cases of neurasthenia, which is in alignment with Stutterheim's experience: "Neurasthenics are unsuitable for this therapy." From practical work in the consulting room I begin to think that the treatment is really a form of suggestion by which the patient is released from inhibited functions. I would suggest in analogy to the relief from the "stickiness" of a stammer. To say that glasses become unnecessary is too large a claim, though such cases occur. I do not quite accept Stutterheim's "fusion centre" explanation, nor the idea of "decompensation" of the present correspondence. As regards nomenclature "kinetic vergence training," to my mind, meets the case.—I am, etc.,

Hastings

GEOFFREY B. LOWE.

Words and Clear Thinking

SIR,—The daily press and almost every popular periodical annoy us with a rich array of words that have been coined mostly in the circumlocution office. I refer to such ugly monstrosities as "in short supply," "hospitalization," "G.I. brides," "key men," etc., etc., *ad nauseam*. Nevertheless, however unpleasant to the ear they have a certain accuracy of description. One hopes to be free from such gargantuan English when browsing in medical literature.

Alas! no. "In short supply" has, I believe, appeared in the *British Medical Journal*, and "hospitalization" is becoming a pernicious disease. However, there is no inaccuracy of meaning here, but imagine my indescribable depression when reading last week's *Journal* as the ghastly word "decompensation" appeared before me (in an annotation on "Examination of the Tongue," May 4, p. 688). I will say no more but quote Sir Thomas Lewis:

"The use of the term 'compensation' at the bedside conjures up or fosters the belief that, by signs derived from the chest wall, judgment upon a balance between dilatation and hypertrophy can be passed; such a belief is grotesque and, in so far as it is believed, it obstructs diagnosis. It is evident that many use the terms 'compensation' and 'broken compensation,' or its ugly equivalent 'decompensation,' at the bedside, and mean no more than to infer that venous engorgement is absent or present; but that is not what is to be understood. A plain observation is garnished with an assumption and served up in an unrecognizable form; this too prevalent habit is pernicious, for it destroys simple and precise habits of thought. Terms involving unproved hypothesis should be eschewed, and in this instance reference should be to the simple presence or absence of venous congestion. By this directness

cumbersome, needless, and in fact erroneous, assumption is avoided, and simplicity and exactitude of expression are secured. The diagnosis of venous congestion is within the easy reach of all; it is a simple expression of what we see. The diagnosis of 'broken compensation,' in its proper sense, is within the reach of none."

Perhaps in future my enjoyment will not be so rudely interrupted.—I am, etc.,

F. R. ELLIS.

Rectal Cancer in Sisters

SIR,—The article entitled "Carcinoma of the Rectum in Sisters" (May 4, p. 683) attracted our interest and attention. It is our wish not to offer comment on the main burden of Dr. R. E. Rewell's remarks but rather to join issue with him over some comments he makes in his last paragraph on the statistical inferences that may be drawn from the evidence he submits.

The author writes, "On any system of probability it is extremely unlikely that sisters will die of the same condition which has a death rate of only 2.3 out of a population of 335,000." Now, since it is extremely unlikely that anyone will die of this condition, it is tautological to state that it is extremely unlikely that sisters will die of it! On the other hand, it is unsound to infer from his evidence that the probability of sisters figuring among the recorded deaths is small according to any system—whatever this unfamiliar phrase may mean. This probability depends on the actual number of deaths recorded for the period over which statistics are available, and on the "sister rate," or probability that a given woman has a sister. It does not depend directly, as the author seems to suggest, on the death rate from the disease. Neither of the statistics necessary for judging the probability of the relevant hypothesis (namely, that sisters are disposed to figure higher among the recorded deaths than would be expected through the random operations of pure chance) is given by the author.

The paragraph in question continues, "There would appear, therefore, to be statistical support for the contention that the conditions found in these women's colons were in some way connected. . . ." To derive statistical evidence for a hypothesis, as large a sample as possible should be subjected to quantitative examination. The rarity of deaths from the condition under investigation does not render it unnecessary to take such a sample; it simply renders it more difficult and more tedious. The death rate from the condition in no way affects the statistical support which can be derived for the hypothesis, which is concerned solely with those who die from the disease and is independent of the number which do not.

We have avoided, in our remarks, the more technical points which arise in assessing the validity of the hypothesis—such as the necessary tests of significance, estimations of standard errors, and assessment of *a priori* or existence probability of the hypothesis. We have also avoided discussion of the very important difference between probability and statistical theory. We have, however, tried to show the danger of jumping to statistical conclusions despite the lack of the requisite evidence. On the evidence submitted by the author, we could adopt similar lines of argument to his own and arrive at the startling conclusion that girls whose names contain the letter "d" are more likely than others to contract carcinoma of the rectum resulting in death.

We apologize for occupying so much of your space with this matter; but just as it has become axiomatic to recognize the important role which statistics may play in the service of medicine, so is it all the more necessary to guard against the danger of misusing this powerful weapon.—We are, etc.,

P. J. HILTON.

S. M. HILTON.

London, N.W.8

The Future of Nursing

SIR,—At a time when there is a shortage of nurses and the demand greater for the social schemes that are being planned, we seem to be likely to lose even those who have been trained. It is all a question of money. A staff sergeant recently demobilized from the R.A.M.C. and anxious to take up male nursing was informed that no R.A.M.C. experience will count in civil nursing. It will take him three years to qualify. He could now command 72s. a week, and when qualified 90s. a week, but would work for long hours. Being a married man with a

family he has to take an unskilled job as a bus conductor at £5 for a 48 hour week. He told me that even trained male nurses will not be returning to their old profession on those terms. It is exactly the same with the women—I am, etc.

Henford

C M BILLINGTON

Judicial Functions

SIR—The case of Dr Hennessy in which disciplinary action by the General Medical Council resulted in his name being removed from the *Register* and its sequel in the High Court when he was awarded exemplary damages against his accuser before the GMC having particular regard to Mr Justice Charles's remarks on the evidence again gives rise to doubts, which have often been expressed before as to the propriety of the GMC in its present form having any judicial functions at all. Quite recently we heard of another doctor whose name this body thought fit to remove from the *Register* apparently because he failed to visit his patients—surely a matter for action by the patients themselves in the ordinary courts of the land or for the panel committee or other contracting body or, possibly even for the police if the alleged negligence amounted to an offence rather than for a professional tribunal in the first instance.

Further it seems possible if not probable that we may anticipate a State Medical Service the Bill for which contains certain disciplinary clauses that appear to provide for other quasi-judicial tribunals with disciplinary powers—see Section 42—who will have what practically amounts to power to take away a professional man's means of livelihood for under such a service as this Bill provides there would be very little left for the average medical man to do to earn his living in a respectable or legitimate way if he wishes to practise outside the scheme.

The GMC is composed of very senior members of the profession, and is certainly not representative of a cross section of the medical public whose members it has powers to try. Of its 40-odd members only 7 are directly elected by the profession as a whole and by vote, the remainder are appointed.

As regards the tribunals with disciplinary powers contemplated under the Bill goodness knows who will compose them except that they will be appointed by the Minister and presumably, if they wish to hold their jobs they will carry out official or unofficial Ministerial policy, and will accordingly be likely to deal suitably with recalcitrant members of the profession. Some of us may have already had experience of this kind of "justice" during our Service careers.

For these and other obvious reasons it cannot be urged too strongly that medical men should unite on this point, if on no other, that they should be afforded the ordinary rights of British citizens where penal measures or questions affecting personal or professional character are concerned, especially where such proceedings may affect a man's means of livelihood. It is a cardinal principle of British law that a man should have the right to be tried by his peers and in open court according to the ordinary rules relating to evidence and procedure. This would seem to imply in professional cases a jury of doctors roughly equivalent in status to the accused and taken from a cross-section of the medical public, instead of a kind of "Star Chamber" composed of the medical *elite*, or, worse still, what might eventually turn out to be a panel of "yes men" appointed by an unscrupulous Minister to carry out his designs. In the case of Dr Hennessy the GMC by its action removed his source of legitimate livelihood, and did permanent damage to his reputation which no action they may now take could ever erase, and this apparently on evidence which, judging from the judge's remarks could hardly have constituted proof in a legal sense, to say the very least of it. It would seem unlikely, as things are at present, that the injured doctor would have any legal remedy against the GMC for the damage done.

The solution would be that neither the GMC nor any other body should have the right actually to try anybody at all. This right should be the exclusive prerogative of the Crown acting through the ordinary courts of the land. In any case in which the GMC or any other body wishes to take action against a doctor such action should be taken in the ordinary courts and the accused tried in accordance with Common Law and the established rules of evidence and procedure as practised in the courts. After a court has reached an adverse

verdict, the question of sentence, if the matter is a purely professional one, might be left to the GMC or other disciplinary body. Of course in this case the accused would automatically have right of appeal to a higher court against the sentence of the lower one. What is so objectionable about the present and probable future position is the idea of a selected court, appointed by higher authority and with powers of inflicting what amounts to a "professional death sentence" against which there is practically no method of effective appeal to an impartial and disinterested tribunal.

I have no personal knowledge of Dr Hennessy, and this letter is actuated by a desire to ensure justice for medical men on the same terms as are available to other citizens. After spending the last six years in fighting for so-called democracy and a reasonable degree of freedom, it is felt to be the duty of all right thinking people to protest as forcibly as possible against anything savouring of totalitarian methods—I am, etc.

London W. 1

JOHN C NICHOLSON

Paralysis Agitans: A Disclaimer

SIR—May I state the position of the Parkinson's Research Society? The society was formed by near relations of victims of this terrible disease stated to be incurable, to produce funds for research in the hope of finding a method of cure. We naturally turned to the National Hospital for help. Mr Mitchell their secretary became our secretary, and Dr Carmichael joined our committee. Among the doctors circularized was Dr W M Crofton, who wrote to me as follows: "There is no necessity to do any research in Parkinson's disease. The microbial cause of this is completely worked out and a specific method of treatment can always be used. If this is used when first symptoms appear the case is rapidly cured. Even in seriously damaged cases arrest and improvement in symptoms have been amply demonstrated."

Dr Crofton informed me that this form of Parkinsonism was long ago discovered to be one of the sequelae of influenzal encephalitis for which a method of specific treatment had been discovered as long ago as 1918 and a paper published on it in the *British Medical Journal* of 1919. To sufferers who had been informed that the cause and cure were unknown this was a great hope. I asked Dr Crofton to demonstrate cases to the committee. This he did to the satisfaction of the committee and the great interest of two doctors—one from the Northern Hospital where nearly 20 years ago Dr Hill had satisfied himself by the cure of hitherto incurable sequelae. He published his results. Mr Mitchell and Dr Carmichael excused themselves from attendance at this meeting. The National Hospital now repudiates further connexion with this society and says their medical committee cannot endorse these claims which they have not even tested. But respectfully I would point out that the cured sufferers and those who have benefited by the treatment can endorse the claims, at least in so far as the treatment is concerned. We are not a commercial association for the purpose of selling drugs or enriching ourselves or anybody else—we are "incurable" sufferers seeking a cure by whatever means possible, and this we appear to have found. I cannot see that it is in the public interest for a hospital medical committee to issue a disclaimer which is tantamount to a negative of these claims without any test whatever—I am, etc.

E TELLER.

* * We imagine that the reference to the *British Medical Journal* is to a paper by Dr Crofton on "Cause, Prevention, and Treatment of Influenza," published on March 1, 1919 (p 240)—ED, B M J

The final arrangements have now been made for the Health Congress to be held at Blackpool from June 3 to 7 by the Royal Sanitary Institute. Lord Woolton will be installed as president at the inaugural meeting and on the other four days 38 addresses and papers will be presented. The subjects for discussion include the social pathology of rheumatic fever, the future of the special hospital care of children away from their parents, the future of paediatrics care of the aged in health and sickness, the nutritive value of processed foods, pathology in its relation to meat inspection, the tuberculin test and the control of bovine tuberculosis, hygiene of food premises, housing and slum clearance. In addition to these discussions many visits will be paid to places of public health interest.

Obituary

J. W. W. STEPHENS, M.D., F.R.S.

The death of Prof. J. W. W. Stephens, F.R.S., at his home at Ferryside, Carmarthenshire, on May 17 will be a cause of deep regret to those who during the early days of research in tropical medicine collaborated with him, as well as to many who passed through the Liverpool School of Tropical Medicine during the years he was professor at Liverpool and to those who later knew him as president of the Royal Society of Tropical Medicine and Hygiene—a society in the welfare of which he took a great interest.

John William Watson Stephens was born in 1865 at Ferryside. He was educated at Dulwich College and at Gonville and Caius College, Cambridge, and studied medicine at St. Bartholomew's Hospital. After taking his B.A. and qualifying M.B., B.Ch. in 1893 (followed in 1898 by M.D. and D.P.H. in 1894) he spent a number of years in research, holding the Trevor Lawrence studentship in pathology at Bart's 1895–6 and the John Lucas Walker studentship in pathology at the University of Cambridge in 1897, his work at this time being mainly in bacteriology. In 1898 he was appointed a member of the Malaria Commission of the Royal Society and Colonial Office, and from then until 1902 did pioneer work on malaria and blackwater fever, first in Central and West Africa and later in India. At this time, immediately after Sir Ronald Ross's discovery of the mosquito cycle in malaria, practically nothing was known about endemic malaria, and the foundations of our present knowledge on this subject are largely the result of this early work by the Commission. One of the most important problems facing the Commission was the nature of blackwater fever, and to Stephens, more than any other investigator, has been due the now accepted view that it is a consequence of repeated malaria infection. At the time the Commission concluded its work the Liverpool and London Schools of Tropical Medicine had been founded, and shortly after the opening of the former school Stephens was appointed Walter Myer's lecturer in tropical medicine there, and eventually, on retirement of Sir Ronald Ross, to the Alfred Jones Professorship of Tropical Medicine, Liverpool University, an appointment which he held from 1913 to 1928 and during which he contributed greatly to knowledge of tropical medicine. It was Stephens and Fantham who first distinguished and named the important trypanosome *T. rhodesiense*. It was Stephens again who distinguished and named *Plasmodium ovale*, the only malarial parasite other than the three classical species that has been fully established.

During the 1914–18 war Stephens, at the head of a team of research workers, carried out important researches on the treatment of malaria by quinine which largely altered the then existing ideas of methods of administration and were largely the reason for modern views on this subject. At this time, with the rank of lieutenant-col., R.A.M.C., he was consultant in malaria, Scottish, Northern, and Western Commands. For his work he received the Charles Kingsley Medal in 1918, was Membre d'Honneur de la Société Belge de Médecine Tropicale, 1923, was Mary Kingsley Medallist, 1929, Manson Medallist, 1935, and Membre d'Honneur de la Société de Pathologie Exotique, 1936. He was president of the Royal Society of Tropical Medicine and Hygiene, 1927–9, and on his retirement from the professorship at Liverpool was made emeritus professor by the School.

As an investigator Stephens was one of the most critical and exact of any known to the writer in his long experience, and at the same time tireless in arriving at the basic truth in any subject he took up. His differentiation of *T. rhodesiense* and of *P. ovale* from classical examples of critical scientific acumen. As a man Stephens was rather reserved, utterly straight and absolutely incapable of anything but large-minded appreciation of others and their work. He has been the writer's greatest friend since the times spent in the towns and jungles of Africa and India. His chief recreation has been observation of bird life, and latterly, since his retirement, local archaeology, to which he contributed scientifically in one or two papers.

S. R. C.

Dr. W. F. L. DAY died on April 27 at Truro in his 69th year. He had retired, on account of ill-health, from his work as county tuberculosis officer for Cornwall, at the age of 67, during

the last war. He was the youngest son of the late Dr. R. N. Day of Harlow, Essex, and a grandson of Dr. F. N. Day of Chudleigh in Devonshire. Mrs. W. F. L. Day is a daughter of the late Dr. Williams, M.O.H. for Plymouth. These medical associations emphasize and may partly explain his love of his profession, which was very obvious to his patients and his medical colleagues. He was educated at Cheltenham and Caius College, Cambridge. He was a very prominent member of the Cheltenham cricket team and narrowly missed a Blue at Cambridge; later in his life he played for Cornwall on various occasions. In the 1914–18 war he was a member of the R.A.M.C., and when demobilized in 1919 began his duties as assistant county tuberculosis officer at Truro. He took a keen interest in the work of Epsom College and sent both his sons to that school. His elder son, Dr. F. M. Day, is now acting as M.O.H. for the Metropolitan Borough of Hammersmith. Immediately after his death the Cornwall Public Health Committee passed a vote of sympathy with Mrs. Day and family, and the chairman stated that the committee appreciated to the full the valuable work which had been done by Dr. Day as tuberculosis officer, and said that no man could have been more faithful to his work.

The death of Dr. WILLIAM HARRIS BEST occurred at St. Ives, Cornwall, on May 8. He was born at St. Ives in April, 1866, educated at Louth Grammar School, and received his medical training at the London Hospital Medical School, for which he consistently maintained throughout his long life a profound affection. For many years he was engaged in a large general practice in Ilford, and was one of the early founders of the general hospital there before his removal to Bournemouth, when he obtained the M.R.C.P. diploma and practised for many years as a consulting physician. Dr. Best was a former president of the Bournemouth Medical Society; he served in the 1914–18 war, and his skill as a neurologist was well demonstrated on the medical board of the Ministry of Pensions at Southampton during 1920–30 and in the early years of the recent war as consulting physician at the Fairmile E.M.S. Hospital. He excelled in dissecting and unravelling difficult diagnostic problems, and was a very successful, highly esteemed, and conscientious colleague who never spared himself in service and in the acquisition of modern scientific knowledge and developments. His colleagues and patients will gratefully remember withal his sterling high character and his courteous, kindly, and strictly ethical integrity. Dr. Best leaves a widow and two sons to mourn their loss.—W. A.

We regret to announce the death at the early age of 41 of Dr. ARTHUR SEWELL WESSON, physician in charge of the department of physical therapy at University College Hospital and at the Royal Surrey County Hospital, Guildford. He studied medicine at U.C.H., qualified in 1925, and took the M.B., B.S.Lond. in 1926, and the M.D. in 1928. He became a Fellow of the Royal College of Surgeons of England in 1936 and was elected a Fellow of the Royal College of Physicians in 1944. Dr. Wesson's early appointments at U.C.H. were those of house-physician, house-surgeon, and resident medical officer, and he won the Bilton Pollard Fellowship; later he was pathologist at the Queen's Hospital, Birmingham, and deputy medical superintendent of Mile End Hospital. He published a number of papers on rheumatic disorders. During the recent war he served in the R.A.M.C., reaching the rank of lieutenant-colonel; he was released in October, 1945, and mentioned in dispatches. Dr. H. V. Deakin, lately physician to the Falmouth Hospital, sends a personal tribute from which we quote the following extracts: It must be about nineteen years ago when I received an urgent message to take a sick parent to the South of France. U.C.H. came to the rescue, and I received a telephone message to say that a first-class man was being sent down to be my locum. After a very full twenty-four hours with Arthur Wesson I left Falmouth with a light heart and did not return for five weeks. He had endeared himself to everyone; children adored him. His greatest gift was the happiness and joy he brought to others of all ages and in all walks of life. He had all the gifts that go to make that patient-doctor relationship such a firm and happy bond in general practice: a kindly nature, endowed with human sympathy and understanding, together with a delightful charm of manner and a very keen sense of humour. He came down and did several other locums, and "little Wesson," as he was affectionately termed in Falmouth, was well remembered there up to the time I left. After my retirement from practice I returned to London and started to look up old friends this year. I was distressed to hear that he was seriously ill, and then a few lines arrived asking me to call and see him in the private wing of U.C.H. Although so frail in body that same cheerful spirit would not be daunted, and we had several happy talks about old times.

Universities and Colleges

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

THIRD M.B., B.S.—J. B. Walter (with honours and distinguished in pathology), Patience C. Agate, F. Alberts, P. Alwyn-Smith, J. L. Anderson, R. P. Aronson, W. W. Bardiger, A. G. Beaman, D. L. Bennett, P. Blackledge, A. R. Blowers, K. W. Bolt, D. F. V. Brundson, Barbara Burdett, C. B. Burdett-Smith, Olive N. Bywaters, G. B. Chamberlain, D. J. Charles, J. F. Cleobury, M. W. Clough-Ormonston, P. Coling, H. R. Colquhoun, Phyllis M. E. Cook, L. Cudkovic, H. D. Dale, Vera M. Dalley, P. W. Darby, H. J. P. Davies, D. A. Dawson, D. J. Dennison, Phyllis M. De Saram, A. L. de Silva, J. R. Dickson, A. J. Dinn, A. E. Doyle, G. Dutton, J. H. O. Earle, D. R. Edwards, T. H. Elias, W. E. D. Evans, Mary E. G. Feetham, T. R. L. Finnegan, Elspeth M. Frith, O. Garrard, H. S. Gavounis, J. S. L. Gilman, Norah E. Gilchrist, A. A. Glynn, Marjorie Colombi, J. S. Gornill, R. H. Gornill, R. V. H. Goulder, D. S. M. Graham, L. M. Green, D. L. Griffiths, D. D. Hamlyn, Joyce Hanscombe, R. J. Harri, Dorothy A. Harvey, G. C. Haywood, A. G. Hesling, R. C. Hill, J. H. Hobson, H. Hofstadter, C. Hough, G. F. Houston, J. A. Huxbody, K. Hugh-Jones, R. A. Hunter, J. G. P. Hutchison, D. H. Isaac, F. L. Jackson, Ruth Jackson, J. G. H. James, A. M. Johnson, C. L. Joiner, P. H. A. Jonason, D. E. E. Jones, K. L. Jones, N. P. Kalra, D. McK. Kenlake, R. H. N. Lake, T. D. Lambert, J. D. O. Laverne, K. Lawrence, P. A. W. Lee, J. W. Lewis, S. Locket, R. R. H. Lovell, Grace M. Lukose, A. MacL. MacArthur, Janet G. S. McDowall, J. Marks, J. W. B. Matthews, A. J. Merry, J. B. Mitchell, Mary Montgomery Campbell, O. D. Morris, L. E. Mount, A. H. G. Murley, N. G. Nicholson, P. R. North, J. R. Odell, R. Owen, D. J. Paddison, R. A. Parker, J. Parkyn, N. L. Paros, Hilary C. Parton, B. K. Patel, C. M. G. Pearson, Phyllis H. Phelps, G. C. Pollen, R. D. Popham, Helena M. Reckless, Rosemary J. Reynolds, T. N. Sackler, Stella M. Rine, A. P. Roberts, J. C. Rogers, Mary A. Russell, L. S. Sacker, D. E. Savage, P. W. Shepherd, W. J. L. Sladen, B. J. D. Smith, W. R. R. Thornfield, D. A. H. Trynall, Florence M. Vazli, J. J. Wand-Jetley, H. de B. Warren, M. D. Warren, D. A. Watson, R. D. Watson, B. W. Webb, W. R. Welby, E. E. D. S. Wilkinson, A. A. Williams, Jean M. Wilson, W. H. D. Wince, Sophie P. J. Wright.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

At a special meeting of the Royal College of Physicians of London held on May 16, with the President, Lord Moran, in the chair, the following resolutions on the National Health Service Bill were passed:

1. The College acknowledges the urgent necessity for reorganization of the hospital service and approves the principles of the relevant proposals in the National Health Service Bill.
2. Much will depend on the Regional Boards, and the College agrees that the appointment of their members should be determined entirely by their personal fitness for the work.
3. To foster local interest and to encourage initiative the College believes that it is essential to allow hospitals as much independence in administration as is compatible with the regional plan, and for the same reasons it considers that in the case of endowments due account should be taken of the wishes of the donors.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Gift from Australia

The letter printed below enclosing a gift of £1,000 has been received by the President of the Royal College of Surgeons of England, Sir Alfred Webb-Johnson, from the President of the Royal Australasian College of Surgeons, Mr. H. R. G. Poate. This gift is in addition to a donation from the Fellows of the Royal Australasian College resident in New Zealand, and, with the individual contributions of surgeons in the two Dominions, brings the sum given by surgeons in Australia and New Zealand towards the restoration of the Royal College of Surgeons of England to £2,300. This evidence of the loyalty of Fellows of the English College resident at such a distance, and of the attachment of the Fellows of the Australasian College, will be a great encouragement and inspiration to the Council in its efforts to make the Royal College in Lincoln's Inn Fields a still more worthy headquarters of British surgery. Its endeavour will always be to provide full facilities for postgraduate study and research in the scientific departments and the unique museum, which have an imperial value and significance. The letter is dated April 30, 1946, and reads:

Dear Mr. President,

It gives me the very greatest pleasure to forward you the enclosed draft for £1,000 sterling, which represents a gift from members of the Council and Fellows of the Royal Australasian College of Surgeons resident in Australia, towards the cost of rebuilding the Royal College of Surgeons of England. In forwarding this amount, may I say that we all consider it a great privilege to have the opportunity of contributing our mite towards the restoration of the seat of learning to which we owe so much.

We in Australia cannot and never will forget what we owe to the Royal College of Surgeons of England, which has done so much towards raising the standard of surgery throughout the British Empire. I would like also to add that this feeling of Australian surgeons towards the Royal College of Surgeons of England only typifies the feeling which the Australian people generally have for the people of England, who have done so much and suffered so much throughout the present war.

We trust that in the very near future that great seat of learning at Lincoln's Inn Fields will again be restored, and so provide the facilities which we, as members of the British Commonwealth of Nations, have looked to in the years gone by.

At a meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, with Mr. William A. Sewell, President, in the chair, J. D. P. Graham, M.D., was admitted a Fellow of Faculty *qua* Physician.

Medical Notes in Parliament

HEALTH SERVICE BILL

The Standing Committee of the House of Commons resumed on May 15 consideration of the National Health Service Bill, Mr. BOWLES being in the chair. The first day's proceedings were reported in the *Journal* last week (p. 779).

Continuing with Clause 2, which deals with the Central Health Services Council and Standing Advisory Committees, Mr. WILLINK moved to omit the provision that each committee should be set up for the purpose of advising the Minister as well as the Central Council. He wished to be assured that when the Minister received the advice of Standing Advisory Committees that advice would also be made known to the Central Council. It was desirable that the Council should always know what a committee dealing with one particular side of the service was advising the Minister. Mr. BEVAN said he could give Mr. Willink the assurance he wanted. There was no danger of divergent activities. Though in urgent circumstances the Minister might have to act on the advice of a Standing Committee, nevertheless that report would be made known to the Central Council and would form part of the Central Council's annual report. Mr. Willink withdrew his amendment.

WITHHOLDING THE COUNCIL'S REPORT

Mr. MESSER moved an amendment dealing with the provision that the Minister may refrain from laying before Parliament a report, or part of an annual report, from the Central Council if he thought that to do so would be contrary to the public interest. Parliament should know the circumstances of public interest which would make it necessary to refrain from laying such a report. Mr. BEVAN replied that there were few instances in existing legislation where an advisory council had the right, such as this Advisory Council would have, to publish its reports independently of the Minister. At the same time the Minister must be responsible for the report and should be empowered to prevent publication of matters not in the public interest. If the Minister for any unworthy reason—for example, not to cause himself embarrassment—suppressed any part of the report there would be several ways in which these matters could be raised.

Mr. HOPKIN MORRIS said that when a matter came under the Official Secrets Act the Minister was already covered. In the Bill the Minister was given wider powers than in the Official Secrets Act. Sir HUGH LUCAS-TOOTH said that if the report were confidential members of the Council would be precluded from approaching their M.P.s on the subject and the matter could not be raised in the House because no Member could be properly in possession of the information. Mr. BEVAN said he could not accept the amendment because it would overrule the Official Secrets Act. He remarked that where an individual, even a civil servant, took the view that there was a conflict between what he considered the public interest and the obligation he had entered into, he could take the responsibility on himself of making disclosures. The House of Commons had often been made aware of things which individuals thought should be disclosed in the public interest. Sir HENRY MORRIS-JONES felt that the amendment would tie the Minister's hands in certain circumstances.

Dr. CLITHEROW asked whether reports liable to be withheld included reports of medical research. Mr. BEVAN: They might indeed. Dr. CLITHEROW then asked if it was not in the public interest that medical researches should not be disclosed until they had been absolutely covered in every direction. He was thinking of the sulphonamide preparations and those used in gonorrhoea. Owing to the early broadcast of this information the treatment had resulted in making the disease more permanent rather than in cures.

The amendment was negatived.

Mr. RICHARD LAW moved that the Minister should only withhold a report, or part of a report, after consultation with the Central Council. Parliament was setting up a vast compre-

hensive health service which was subject to a number of fundamental defects, and it was important that the Minister should publish the fullest account by the Central Council of how this machine worked. It would give the Central Council a feeling of greater confidence if it knew that the Minister, before exercising the power of suppression, would talk the matter over with the members and get their views. Mr. BEVAN said he could not conceive a more unhappy relationship between a Minister and an important body than the one which would give rise to the situation described by Mr. Law, but if assurances were necessary he was prepared to accept the amendment. The amendment was agreed to.

SERVICES OUTSIDE THE BILL

On the proposal that Clause 2, as amended, stand part of the Bill, Mr. J. S. C. REID pointed out that the definition of the scope of the activities of the Central Council limited that Council to considering questions arising out of the services provided under the Bill. A number of services were not referred to in the Bill—for example, venereal disease—and were provided under other Acts. The Council would be undesirably limited if the words "provided under this Act" remained. Another matter was that an advisory committee should, in the same way as the Central Council, have a power of initiative to advise on a general subject which related to its own branch of medicine. Looking at the text of the Clause he thought this power was by implication excluded. Sir WAVELL WAKEFIELD asked whether the Central Council's annual report might include "a minority report."

Mr. BEVAN replied that if the Central Council wished to include the observations of members who disagreed with the majority it would probably do so. He would make it quite clear that the Standing Committees would have power of initiation. Mr. Reid appeared to suggest that the Central Council ought to advise the Minister on the sort of legislation which he should ask Parliament to pass. Under Clause 1 it was the Minister's duty to promote a health service designed to secure improvement in physical and mental health and the prevention, diagnosis, and treatment of illness. That was comprehensive, and it would be possible for the Council to advise on subjects of that sort. Where it might be limited was in connexion with industrial health services. He hoped such a service would very shortly be included, but to include it and others now would make the scheme administratively indigestible. Parliament ought to see what sort of pattern emerged before embracing an industrial health service. Educational health services would be slowly assimilated by the services under the Bill. One reason why counties and county boroughs were made health authorities was because they were education authorities at the same time, and it was hoped that the school health services would be gradually assimilated. If there was limitation on the powers of the Central Council to advise where departments or authorities were dilatory the Government would remove that limitation, but he doubted whether there was any.

Mr. LINSTED asked whether publication of interim reports of the Central Council would be withheld until the annual report of the Council reached the Minister. Mr. BEVAN replied that the Minister would be free to publish such reports at any time, but there should not be an obligation on him to publish any one.

The clause as amended was approved.

THE APPOINTED DAY

On Clause 3, which deals with hospital and specialist provision, Sir HENRY MORRIS-JONES moved that the appointed day should not be before Jan. 1, 1950. Unless the appointed day was deferred for a reasonable period the Minister would be unable to fulfil his task. Hospital accommodation was promised under this Clause. At present there was a shortage of something like 200,000 beds. A large number of hospitals were antiquated, also their equipment. The shortage of accommodation was likely to continue over the next few years and to be such that the Minister would not be able to provide the services he proposed. Priority was still for housing. In addition the Minister was to provide medical, nursing, and ancillary services on a vast scale—all by Jan. 1, 1948. There was not the medical personnel in this country to run such services. Health centres had to be built or adapted by local authorities. How were these authorities to do this by the appointed day which the Minister had in view?

Mr. BEVAN said that if facilities were bad, as they were in many parts, the sooner they were rationalized and improved the better. It would be disastrous if the National Insurance Scheme came into operation and £30,000,000 were collected from people towards hospital services which the Government was unable to provide. If a long gap occurred before the measure was put into operation the voluntary hospitals would be in a serious financial state. It was already going to be

difficult in the interval for many of them to obtain their normal revenue. The amendment was negatived.

MINISTER'S SOLE RESPONSIBILITY FOR HOSPITALS

Mr. WILLINK moved to alter the proposed duty of the Minister to provide hospital accommodation, etc., and to substitute words ensuring that it would be his duty to "secure the provision by local health authorities or by hospital management committees or boards of governors" of the same services. His amendment dealt with the question whether hospital services were to become the direct responsibility of a Minister of the Crown. The Opposition did not propose any amendment to the earlier subsection of the Bill which gave the Minister power to provide services in accordance with the Act. There was good ground for direct Ministerial responsibility for a national pathological service, but they did not agree that the Minister should be the primary responsible figure for the whole of the hospital services. The Bill made a change of principle which was fraught with great danger. The Minister misconceived the potential capacity of his Department. The amendment was drawn widely so that the bodies responsible for the hospitals might be of various kinds, and the committee was left free to determine in the later stages of the Bill what would be the proper hospital authorities. The real desire was not to change the person who provided the service but to ensure that the service should be planned, organized, and developed with the greatest possible amount of local interest and support.

Mr. BEVAN said that the amendment would completely change the character of the Bill. He agreed that he had overthrown the previous schemes brought forward for hospitals, as they were impracticable and based on a desire to conciliate conflicting interests. Parliament must keep before it the welfare of the patient and not the vested interests of corporate bodies. A great deal of the agitation on this matter was organized by persons who ought to be occupied with their hospital functions. There was no relevance in Mr. Willink's speech unless he had in mind that existing hospital authorities should remain the authorities to provide hospitals. Did Mr. Willink contemplate that voluntary hospital authorities should continue to provide hospitals?

Mr. WILLINK replied that it had never been his idea or that of the Conservative Party that the existing voluntary hospitals should be included in the same lay-out or constitution as they were now. The new authority should be an autonomous but regulated institution fulfilling the same sort of function as a statutory company or a local authority. Certain hospitals should be transferred from minor to major authorities; the smaller counties and county boroughs should cease to be hospital authorities; some voluntary hospitals should cease to be independent self-managing authorities. The vital question was whether they should continue to be autonomous hospitals only controlled by the Minister or whether they should become his servants.

Mr. BEVAN pointed out that Mr. Willink faced the problem of organization not functionally but politically, and sought to reconcile interests instead of organizing the hospital services. If hospital provision was left to autonomous bodies with indirect control there would be no guarantee that they would be able to fulfil their functions, and the only discipline that the Minister could exercise over them would be by withholding a grant. Mr. Willink's principle of indirect control ruptured the implied contract between the Government and the citizen. What the Government scheme did was to impose upon the Minister the duty of providing the service, but it entrusted administration to local members. To whom were voluntary hospitals now responsible? What authority could act on behalf of a complainant? In future there would be the house committee, the management committee, the regional board, and the responsibility of the Minister to Parliament as well as Questions in the House. So far from this service being subject to centralization the administration would be much more human than that which existed in many hospitals now. Mr. Willink's plan would provide, on the one hand, a paper planning authority and, on the other, an executive divorced from it.

Mr. HENRY STRAUSS could not share Mr. Bevan's view that the great hospitals which feared his proposals could be dismissed as mere sectional interests unconcerned with the public interest. He believed those fears were justified. These hospitals were made efficient by a sense of personal responsibility and self-government.

Mr. LIPSON saw objections to the responsibility for actual provision of the hospital services resting with the local authorities. Doctors had a rooted objection to being under control of the local authorities. They preferred the proposals in that Bill to those in the White Paper, very largely because they (the doctors) would not be under the control of the local authority. Dr. STEPHEN TAYLOR agreed with Mr. Lipson. Doctors were

opposed to coming under local authorities because the possibilities of senior appointment were very limited in local authority hospitals. The virtues of voluntary hospitals sprang more from the internal staff arrangements than from their peculiar method of finance. There would be no difficulty under the new arrangements in preserving the voluntary hospital system of staffing. Mr STRUSS's assumption that there was some inherent link between research and the voluntary hospital must be dispelled, an enormous amount of research work had been done in municipal hospitals. Most medical research now was directly financed by the Medical Research Council.

Mr MESSER contended that there was nothing in the machinery of a local government hospital which should make it any different from a voluntary hospital. Lord Moran had testified that municipal hospitals in the sector which he controlled under the E.M.S. were as good as any voluntary hospital. Municipal hospitals had hospital staff committees and all complaints went to them. In the hospitals over which he (Mr MESSER) presided no senior officer had power to discharge a member of the staff. There was no possibility of victimization and no reason for fear. The patients had an opportunity to express their opinions. What was lacking at the present time was a national standard. Mr REID said the centralized system gave a temptation to stick to rules and go slow in introducing new ideas. No Government Department had succeeded in conquering those tendencies and Mr BEVAN would not have greater success.

The amendment was defeated by 29 votes to 13 and the Committee adjourned.

Resuming discussion of Clause 3 on May 16 Mr MESSER moved to insert ambulance services among those to be provided by the Minister at or for the purposes of hospitals. If the local health authority were to be responsible for the ambulance services for hospitals, this would be inefficient and unsatisfactory. Mr KEY said he could give the assurance asked for, "services required at or for the purposes of hospitals" included transport of all kinds. Mrs BRADDOCK said a centrally controlled scheme for transport of patients to hospital would be more satisfactory than that each little local authority should have its own ambulance service. Mr KEY replied that there was need for an ambulance service other than the direct hospital one. The counties and county boroughs were the authorities responsible for providing ambulance services under the Bill. The Government thought it better for the local administrative authority to be responsible rather than the Regional Hospital Board. The amendment was withdrawn.

GENERAL PRACTITIONER SPECIALISTS

Col STODDART-SCOTT moved to insert "consultants" in the subsection which authorized the Minister to provide for the services of specialists at a hospital, a health centre, a clinic, or "if necessary, on medical grounds at the home of the patient." He said certain specialists were not consultants and certain consultants might be said not to be specialists. In some areas general practitioners were called out for consultation to give a second opinion because they had the confidence of their colleagues. They had no specialist qualifications nor would they describe themselves as specialists, but they were consultants. Many specialists who were known as specialist surgeons or physicians preferred to be called consultants rather than specialists. All these people would be required in the future health service.

Mr KEY said there was no definition of specialists in the Bill. Regulations would be made under Clause 62 for deciding the qualifications of the people who were to serve in that capacity. Nothing would be added by putting into Clause 3 the word "consultants." A general practitioner specialist could be included if his qualifications met the requirements set out in the regulation. The Ministry did not wish to bind itself to taking into the specialist service everybody who pleased to call himself a consultant. It might be that in the early stages it would be necessary to use the services of less qualified people whom the Ministry would not wish to include later on. The committee ought not to bind itself to the view that general practitioner specialists were essential for inclusion. In that he believed he would be upheld by the Royal Colleges as well as by opinions expressed in the recent hospital surveys.

Sir HENRY MORRIS JONES said a man might be a specialist in diagnosis but was not a specialist in the accepted sense of that word. Mr WILLINK said one of the vices of English medicine had been a tendency to narrow the specialists and a great decline in the number of people of first rate diagnostic capacity who practised the art of general consultant physician. Mr J. S. C. REID asked if the Government proposed to draw the regulations in such a way that one medical man could at the same time be a part-time specialist or consultant and have status under the scheme of a general practitioner. Dr. MORGAN

said there had been an increase in the number of people tending to become specialists within specialism, but there had been no decline in Great Britain of those physicians, some of whom preferred to be known as specialists and others as consultants, who were general practitioners of high standing with great knowledge of general medicine. Dr CLITHEROW said many people who took higher qualifications were definitely in general practice and might be called specialized practitioners. If such a man with consultant's qualifications practised a specialty the committee should look upon him as a specialist. The amendment was negatived.

OPTICIANS

Dr CLITHEROW moved to insert after the word "specialists" the additional category "ophthalmologists and optical practitioners, either full time or part time." During the Second Reading he had asked what was meant by saying that opticians would have proper professional status. Did Mr KEY mean the optical practitioner with qualifications recognized by the Ophthalmic Benefits Approved Committee? Were ophthalmologists and optical practitioners part of the specialist service? Mr KEY said that in this subsection the term specialist meant specialized medical practitioner and did not include anyone who was not a doctor. Therefore it included the ophthalmologist but the optical practitioner came under the category

medical nursing and other services required at or for the purposes of hospitals. Replying to Dr MORGAN, Mr KEY said there was no doubt that the meaning of specialist under Clause 3 was a registered medical practitioner under the Medical Acts who specialized in a particular subject. Mr BEVAN intended that those at present qualified under National Health Insurance would be regarded as qualified for the hospital services which were being developed under the present scheme. He could not pledge the Ministry to say that these qualifications would not be changed as the hospital scheme developed. It might be possible to raise the standard of the people employed. It would not be lowered. Dr. Clitherow withdrew his amendment.

Mr MESSER moved to omit the words "on medical grounds" from the provision that the Minister may provide the services of specialists "if necessary on medical grounds at the home of the patient." Mr KEY said the intention of the words was to ensure that if a specialist was called to a patient's home he went there because there was a need for him and not because of some whim on the part of the patient. If the patient's own doctor said it was necessary for the specialist to come to the home then the specialist went on medical grounds and could only be called there on those grounds. Mr WILLINK said the drafting should be looked at again to make it clear to people that whether they had a second opinion or not depended on the general practitioner. The amendment was defeated by 23 to 17.

REGIONAL PLANNING

Mr WILLINK moved to insert a proviso that "in considering the accommodation and services required as aforesaid the Minister shall have regard to plans prepared and recommended by each Regional Board for its respective area and to the advice thereon of the Central Council." Mr Willink said that in the Bill the functions of the Regional Boards were administrative and not concerned with planning. The Minister should be instructed by Parliament to have regard to plans prepared and recommended by Regional Boards, he should not be the sole person to decide whether the plans were appropriate. On many questions concerning the regional plans the advice of the Central Council should be taken. Mr KEY pointed out that the hospital service was to be a growing service and not circumscribed by a paper plan. Development schemes would result from discussions between the Regional Boards, the Minister, and the Boards of Governors of the teaching hospitals. These would not be included in some formal document. The Ministry wished to avoid an unnecessary number of schemes on paper. Detailed business was not the duty of the Central Council. The Government asked it for advice on special things, not for interference in the development of the service.

Mr BEVAN said the Ministry wished to get its plans into operation quickly so that the service could start on the agreed date. To set up 16 or 20 Regional Boards would take time, and the Ministry of Health would have to hold off until 16 or 20 plans had been conceived in the Regional Boards. These plans would then go to the Central Council, which was an inappropriate body, being largely specialist and medical. That seemed to him the wrong way of setting about the task, because the Government wished to see some common features in all the regions from the beginning—for example, the 1,000-bedded hospital under its management committee. The Ministry wanted consultations with the Regional Boards as they were preparing their plans so that the Minister could accept those plans and put them into operation right away. The first thing he pro-

posed to do immediately Parliament gave him authority was to have the Regional Boards appointed, and the second was to ask those boards at once to prepare draft plans.

The amendment was withdrawn.

Mr. WILLINK moved an amendment to make an inquiry into the subsection of Clause 3 which provided for regulations being made by the Minister "in respect of the supply, as part of the hospital and specialist services, of any medical appliance." Mr. BEVAN replied that by the use of the word "medical" the Ministry was not trying to limit anything. It was dealing with medicine. It was not intended to place any limitation upon the provision of appliances necessary to repair any physical defects or to amplify any physical faculty. He was prepared to accept the amendment.

The committee agreed to the amendment and to a consequential one removing the word "medical" a little later.

In the provision that regulations may provide for payment by the Minister of travelling expenses incurred by a patient availing himself of hospital and specialist services, Mr. WILLINK moved to provide for payment of expenses which needed to be incurred in the future. Mr. BEVAN said it was not necessary to alter the wording to make it clear that expenses where necessary could be paid before they were incurred. But he was prepared to accept the amendment, and it was agreed to.

DEFINITION OF A SPECIALIST

Later, Mr. BEVAN said the service which Parliament had decided to provide was the service which the medical profession declared to be necessary. He must accept examinations and people must pass the examinations before the State could give that kind of service. He could not promise that a State service would be able to give any of those forms of treatment which were being given by general practitioners not qualified in the normal way. He could not say whether homœopathic institutions would be in or out. If they were brought in it would be to provide their own particular form of treatment. The committee might leave them outside when it came to other parts of the Bill and discussed in what ways hospitals would be brought in. The test would be an empirical one of the requirements of the hospital services in a given area. He (Mr. Bevan) conceded it to be vital that the general practitioner should be encouraged to visit his patients in hospital. This business of taking a patient away from the general practitioner, handing him over to the hospital, and then back from the hospital to the general practitioner was wholly bad. The Government wished to encourage the general practitioner to identify himself more with the hospital service and to visit his patients. Many voluntary hospitals stopped the general practitioner from doing this. But it was another matter when the general practitioner claimed to be a specialist. He could not say in the Bill that such a general practitioner should be treated as a specialist, nor that because a general practitioner had one or two successes with a particular ailment he could thereby call himself a specialist. The medical profession had laid down no definition, but he was going to put that duty upon them because some definition was necessary. Clause 62 required him to make provision with respect to the qualifications, remuneration, and conditions of service of any officers employed by any body constituted under this Bill.

Mr. SOMERVILLE HASTINGS asked whether the definition of a specialist would be changeable. In the early stages certain general practitioners might have to be brought in as specialists.

BEVAN said he proposed to ask the appropriate body—the Central Advisory Medical Committee first, because the Central Council would not be established for some time and he would have to act hurriedly—what body they considered ought to advise him for the purposes of this scheme. Definitions must always be regarded as liable to alteration as the service grew. In the meantime, many general practitioners who had shown by qualification and experience that they could be described as specialists could be used for that purpose until the specialist service had been properly established.

Mr. WILLINK asked whether the Minister would also consult knowledgeable people on whether "consultants" would not be a more appropriate word than "specialists." Sir H. MORRIS-JONES asked whether the Minister made any difference between consultant and specialist. Mr. BEVAN replied that if the Ministry was going to pay, as it probably would have to pay, a higher sum for consultants they wanted a genuine second opinion and not a second opinion on the same level. Therefore it was necessary to have some objective definition of what was a consultant; whether the word used was specialist or consultant did not seem to matter. He would have thought that dental services were an essential part of the equipment of the hospitals. Unfortunately, dentists were very short and the Ministry would have to take emergency steps to train them.

Clause 3 as amended was then ordered to stand part of the Bill and the committee adjourned.

Ophthalmic Hospitals Amalgamation

In the House of Lords on May 8 the Royal London Ophthalmic Hospital, Royal Westminster Ophthalmic Hospital, and Central London Ophthalmic Hospital (Amalgamation, etc.) Bill was read a first time. In the House of Commons on the same day a report was received from the Standing Orders Committee that the Standing Orders ought to be dispensed with and that the parties should be permitted to proceed with this Bill.

Distribution of Penicillin

Answering Dr. Clitherow on May 9, Mr. WILLIAM LEONARD said the Ministry of Supply had not completed its arrangements for the distribution of penicillin. Discussions with the Pharmaceutical Society were taking place. No control order had so far been made.

Blood Transfusion: Inadequate Supplies

Sir WAVELL WAKEFIELD inquired on May 9 whether the Minister of Health was satisfied that he had adequate supplies of blood for transfusion purposes, or what steps he was taking to ensure that a sufficient number of donors were available. Mr. BEVAN said the Emergency Blood Transfusion Service had difficulty in recent months in obtaining adequate supplies of blood. He had arranged for a film on this subject to be shown in cinemas and for local campaigns during the summer months throughout the country to encourage people to give blood. The need was as urgent now as it was in wartime. He hoped those who had helped would continue to do so, and that new helpers would enrol when an appeal was made in their locality.

Maternity Accommodation in Greater London.—Mr. ERNEST DAVIES on May 9 asked the Minister of Health to provide additional accommodation for maternity cases in the Greater London area, including Middlesex, in view of the suspension of the L.C.C. evacuation scheme. Mr. BEVAN replied that the scheme mentioned was still operating, though it was not able to meet all the demands made on it. Additional maternity accommodation was being provided in Greater London where the building stringency permitted and the necessary midwives and domestics could be found. More beds were already available than could be staffed.

Chiropody as Health Service.—Answering Mr. Moody on May 9, Mr. BEVAN stated that the National Health Service would provide treatment for foot complaints as for other disabilities. There would be a place for chiropodists in the new arrangements. Details would be settled in the process of bringing the service into operation.

Medical News

A general meeting of the Medical Society for the Study of Venereal Diseases will be held to-day (Saturday, May 25) at 11, Chandos Street, W., at 2.30 p.m., when papers will be read by Dr. Robert Lees and Dr. D. J. Campbell on "Venereal Diseases Overseas."

A joint meeting of the Colour Group and the Medical Group of the Royal Photographic Society will be held at the Gaumont British Film Theatre, 142, Wardour Street, W.1, on Tuesday, May 28, at 6 p.m., at which eight Disney Health Education Films will be shown. These films were made under the auspices of the Office of Inter-American Affairs to teach the elements of health to primitive peoples.

A members' meeting of the Eugenics Society will be held at the rooms of the Royal Society (Burlington House, Piccadilly, W.) on Tuesday, May 28, at 4.45 p.m., for a discussion on "Eugenically Desirable Types." The annual general meeting of the society will be held at 4 p.m. the same day.

After the annual general meeting of the Nutrition Panel of the Society of Chemical Industry on Wednesday, May 29, in the rooms of the Chemical Society, Burlington House, W., a scientific meeting will be held at 6.45 p.m., when papers on the nutritive value (a) of vinegar, pickles, and condiments, (b) of margarine and edible fats, (c) of nuts, (d) of meat extracts will be read and discussed.

A meeting of the Overseas Association of the Medical Women's Federation will be held at B.M.A. House, Tavistock Square, W.C., on Thursday, May 30, at 2.30 p.m. Tea will be served after the meeting.

Circumstances have made it necessary to alter the arrangements for the annual dinner of the Ophthalmological Society of the United Kingdom on May 30. Instead of as announced, on the programme, the dinner will be held at 7.30 p.m. at the Royal College of Surgeons, Lincoln's Inn Fields, W.C.

A clinical meeting of the London Association of the Medical Women's Federation will be held at the South London Hospital, Clapham Common, S.W.4, on Saturday, June 1, at 2.30 p.m., when cases will be shewn by the staff of the hospital.

The Chemical Society and the University of Oxford Alembic Club have arranged a joint meeting to discuss the chemistry of anti-bacterial substances. It will be held at the Physical Chemistry Laboratory, South Parks Road, Oxford, on Thursday, June 6, at 2 p.m., when papers will be contributed by Sir Robert Robinson FRS, Mr J. M. G. Pryce and Prof. C. N. Hinshelwood, FRS, Dr D. D. Woods and Dr E. B. Chain. Fellows of the Society wishing to attend should write at once to Mr F. M. Brewer, Inorganic Chemistry Laboratory, South Parks Road, Oxford.

The Medical Society of the L.C.C. Service will hold two general meetings in June. The first, on Thursday, June 6, will be in the form of a visit to the Roffey Park Rehabilitation Centre in Sussex, when members will make a tour of the centre. The other meeting of the Society will be held at the County Hall S.E. on Wednesday, June 26, at 4.30 p.m., when a discussion on 'Dental Disease in its Relation to Ill Health' will be opened by Mr Ritchie Young.

The annual meeting of the Royal Medical Benevolent Fund will be held at 5 p.m. on Wednesday, June 12, at the Medical Society of London, 11, Chandos Street, Cavendish Square W., when the financial statement for 1945 will be presented and the officers, committee and honorary auditors will be elected for the current year.

The Scottish Council for Health Education announces three residential summer schools on the general theme of 'healthy living' to be held at St Andrews and Edinburgh this summer. Particulars from the secretary, 3, Castle Street, Edinburgh, 2.

Dr J. A. L. Vaughan Jones, honorary secretary of the Leeds Division of the B.M.A., and joint honorary secretary of the Joint Council for Industrial Medicine, has been appointed a Justice of the Peace for Leeds.

Dr E. B. Chain, a leading member of the team of scientists working at Oxford on penicillin, is leaving for Paris on May 28 to lecture on penicillin in the series by eminent British scientists arranged with the help of the British Council at the Palais de la Découverte. He will also lecture on 'The Chemistry of Penicillin' to the French Biochemical Society.

A one-day conference to discuss problems connected with industrial information services was convened by the Association of Special Libraries and Information Bureaux and held in Manchester on May 8. About 100 members and guests attended. It is hoped that a printed record of the proceedings will be available in due course from Aslib, 52, Bloomsbury Street, London W.C.1.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales there was a sharp rise in the incidence of whooping-cough, notifications being 478 in excess of the preceding week's total. A rise was reported for dysentery 49, and falls for scarlet fever 109 and measles 82.

The largest increases in whooping-cough were those of Yorkshire West Riding 70, Middlesex 67, Staffordshire 54, Surrey 46, London 42, Lancashire 42. A small decline in measles was recorded in most areas, notably Essex 35, and the only marked exception to the general trend was a rise of 71 in Lancashire. The decrease in scarlet fever was largely contributed by London and Lancashire, where the cases were 39 and 36 fewer than in the preceding week. The largest variations in the incidence of diphtheria were an increase in Warwickshire 14 and a decrease in Lancashire 28.

The principal returns of dysentery were those of London 31, Lancashire 28, Surrey 25, Middlesex 19, Lincolnshire 12, Gloucestershire 10.

In Scotland a very large increase occurred in the incidence of measles, from 354 to 1,059. Rises were also recorded for whooping-cough 61 and scarlet fever 14. Notifications of diphtheria declined by 13. The totals for dysentery have been almost constant during the past three weeks, varying only between 60 and 63.

In Eire the notifications of measles increased by 20 and the cases of diphtheria declined by 8. The incidence of diarrhoea and enteritis remained unchanged at 42.

In Northern Ireland the cases of scarlet fever were 13 and whooping cough 18 above the total for the preceding week.

Infantile Paralysis in Australia

The outbreak of infantile paralysis in New South Wales continues to spread. 357 cases have been reported this year.

Week Ending May 11

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,022, whooping-cough 2,180, diphtheria 368, measles 2,570, acute pneumonia 445, cerebrospinal fever 61, dysentery 137, paratyphoid 1, typhoid 9, smallpox 2.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 4.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under the Infectious Diseases Act, for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases, a blank space denotes disease not notifiable or no return available.

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	50	10	27	—	1	50	7	20	1	1
Deaths	—	1	1	—	—	—	1	—	—	—
Diphtheria	67	32	91	34	—	64	14	93	73	8
Deaths	—	—	—	—	—	9	—	3	1	1
Dysentery	212	31	61	—	—	469	61	173	1	1
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica	—	—	—	—	—	—	—	—	—	—
Deaths	1	—	1	—	—	1	—	2	—	—
Erysipelas	—	—	40	10	6	—	1	26	10	5
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	55	4	12	42	9	61	8	10	16	5
Deaths	—	—	—	—	—	—	—	—	—	—
Measles*	2,711	10,66	10,59	9	2	13,139	81	3,55	68	21
Deaths	3	—	4	—	—	12	2	3	1	1
Ophthalmia neonatorum	98	7	14	—	—	62	5	14	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	6	—	—	—	—	7	—	2(B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia influenza (from influenza)	610	41	5	3	1	518	27	5	2	—
Deaths	14	1	2	—	—	10	1	1	—	—
Pneumonia primary	—	39	197	2	—	—	22	17	2	8
Deaths	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute	2	1	—	—	—	1	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Polymyelitis acute	3	—	—	—	1	7	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	1	21	—	—	—	2	14	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia†	168	11	20	1	—	116	11	19	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	945	68	161	21	32	1,511	70	205	9	50
Deaths	—	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough*	2,147	160	137	3	2	1,050	46	149	52	23
Deaths	13	4	1	2	—	5	—	3	—	—
Deaths (0-1 year) Infant mortality rate (per 1,000 live births)	357	35	64	29	19	326	39	6	40	20
Deaths (excluding still births) Annual death rate (per 1,000 persons living)	4,600	673	591	212	140	4,250	565	559	244	170
Live births	8,581	1,220	1,033	471	31	6,376	668	854	399	216
Annual rate per 1,000 persons living	—	—	20.8	30.2	—	—	—	17.1	25.7	—
Stillbirths	264	34	35	—	—	190	11	35	—	—
Rate per 1,000 total births (including stillborn)	—	—	3	—	—	—	—	39	—	—

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary fever for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

Letters, Notes, and Answers

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ANY QUESTIONS?

Remedies for Herpes Zoster

Q.—*I am told that contramine has been found specific for herpes, the first injection relieving pain. Can you give me further details?*

A.—Contramine, which is diethyl-ammonium diethyl-dithiocarbamate, has been used for many infections, toxæmias, and states of shock. I am unfamiliar with its use in herpes and could not find a reference to it in the indexes covering the last few years. I presume the question refers to herpes zoster and not to herpes febrilis. Many remedies have been prescribed, but none has stood the test of time. The fact is that the clinical course of herpes zoster is so variable that one may easily obtain a short series of apparently highly successful responses to any form of therapy, but the broader test is likely to be disappointing. Some believe that daily injections of 0.5 ml. of pituitrin are successful in relieving pain and promote a rapid and satisfactory resolution. Intravenous injections of 10 ml. of 20% sodium iodide have also been recommended, and, more recently, injections of whole blood beneath the area of the eruption and about the corresponding posterior root ganglion have been said to be quickly effective. To the critical observer it is evident that there is no specific remedy yet for zoster or for herpes febrilis. Since both diseases are undoubtedly due to viruses, a specific would have to be a lethal or inhibiting agent for these infections, and contramine or, indeed, any of the remedies mentioned have no claims to be such agents.

Chronic Facial Spasm

Q.—*A woman of 58 has intolerable discomfort from blepharospasm, risus sardonius, and choking feelings. Phenobarbitone has little, if any, effect. What is the treatment?*

A.—The aetiology of spasms such as those described is uncertain. The commonest variety is a spasm confined to the orbicularis oculi, synchronous on the two sides. The closure of the eyes is much more prolonged than in the common blinking tic of childhood, and the spasm may be practically continuous. The disorder is seen particularly in elderly women. Rarely, as in the case reported, other muscles of the face and those of the tongue and pharynx are also involved. The condition is sometimes regarded as a neurosis, but the writer's belief is that it is organic in origin. In the absence of post-mortem examination, however, the matter cannot be settled, and there is no clue to the site of the lesion if it is organic. Psychological treatment is usually quite ineffective and physical treatment is not much more helpful. Other barbiturates should be tried and will usually produce some diminution in the severity of the spasm.

Testicular Functional Levels

Q.—*Does an undescended testis atrophy after puberty? Does this apply to one in the inguinal canal and/or to one that is outside the external ring but not in the scrotum? Would the function of the testis be normal outside the abdominal cavity but not in the scrotum, or at which site could the organ function normally?*

A.—Abnormality of the undescended testicle may be histologically evident as early as 3 years of age (Cooper), but it is usually only after puberty that any difference can be observed between undescended and normal testicles (Wangensteen).

After puberty the scrotal testicle develops rapidly, whereas the undescended one does not. Moreover, atrophy and degeneration of the tubules occur progressively as age advances (Vines; Pace and Cabot). The further from the scrotum the testicle lies, the more likely is degeneration to appear (Cooper). It is likely at any level, but Cooper quotes the case of a man of 60 whose testicle, situated at the external ring, showed some spermatogenesis. It is commonly believed that only the germinal tissue is affected. This is usually true, but signs of androgenic deficiency are not very uncommon in cryptorchids. The whole subject has recently been admirably reviewed by Bishop.

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Pethidine in Midwifery

Q.—*How should pethidine hydrochloride be used in midwifery? Is it justifiable to give, say, potassium bromide and chloral early in the first stage and then pethidine later?*

A.—The drug now known as pethidine in this country was introduced in Germany in 1939, under the name "dolantin," as a synthetic substitute for morphine. In the United States and Canada it is "demerol." Pethidine has now been extensively tried for analgesia in labour. Its chief advantage lies in the almost complete absence of toxicity to mother or foetus even with large doses. Doses of up to 650 mg. have been given in labour with no demonstrable ill effect, except that some patients have complained of slight giddiness or light-headedness. In labour pethidine exerts a satisfactory analgesic effect in a higher proportion of cases, though there is some individual variation in different mothers. There is no amnesic effect unless it is combined with scopolamine.

It is often unnecessary to give pethidine in the very early stages of labour, but there is no reason why it should not be injected as soon as the pains become distressing. An initial dose of 100 mg. may be given intramuscularly, and this may be usefully supplemented with 2 dr. (7 ml.) of syrup of chloral (22 gr., or 14 g., of chloral hydrate) by mouth twenty minutes later. The pethidine may be repeated as often as is necessary to maintain analgesia, even within one hour. If amnesia is required scopolamine should be given as well, but this is not free from danger—owing to a possible effect on the foetus.

Satisfactory results have been claimed from combining pethidine with other analgesics and sedatives, such as heroin, paraldehyde, and the barbiturates. Pethidine alone, or combined with chloral, is often sufficient for the conduct of normal labour, though in many cases, and especially in primigravidae, the analgesia is insufficient for the latter part of the first stage and for the second stage. Here gas-and-air or some other inhalational anaesthesia may be needed.

D.D.T. for Scabies

Q.—*Can D.D.T. be used to treat scabies?*

A.—D.D.T. is not recommended for treating scabies. This substance is an efficient insecticide and has given remarkable results against mosquitoes, flies, lice, bugs, etc. It is much less effective against arachnids (i.e., ticks, mites, etc.). Although the itch mite can be killed with D.D.T., several applications of any such preparation are required to cure scabies, whereas much quicker results can easily be obtained with other preparations (e.g., benzyl benzoate). Finally, it must be remembered that D.D.T. can be toxic to man, and that though when properly used as an insecticide it is not dangerous, rubbing it into the skin (particularly in an oily solution) may easily give trouble.

Amidopyrine and Agranulocytosis

Q.—*Can certain commonly used drugs containing small doses of amidopyrine cause agranulocytosis? If so, why is the use of such drugs not discouraged?*

A.—Agranulocytosis is relatively rare, and it is therefore understandable that there is little opportunity to study its relation to the dose of the substance which causes it. Thus we do not know if a patient who has been taking 0.6 g. amidopyrine (10 gr.) daily and has developed agranulocytosis would also

have developed it had he taken only 0.12 g. (2 gr.) daily. Recent observations on agranulocytosis after thiouracil have shown that the percentage of patients who develop agranulocytosis when taking a small dose daily is just as high as the percentage of those who develop it when taking a large dose. This suggests that the size of the dose is not the important thing, and that a susceptible person will develop it when taking even a small dose. Little more can be said.

In reply to the second part of the question there is no body in this country which is entrusted with the duty of encouraging or discouraging the use of drugs. Textbooks of pharmacology are available to all, and the medical man generally prefers to form his own opinion after reading them.

Chronic Pancreatitis

Q.—What are the characteristic changes in chronic pancreatitis (1) in the pancreatic juice, (2) in the x-ray appearances of the stomach and duodenum?

A.—The change in the pancreatic juice is a diminution in the active enzymes, particularly in the fat-splitting enzymes. As regards changes in the x-ray appearances of the stomach and duodenum, I should myself place no faith in these, apart from the possibility that deformity might be produced by the increase in size of the pancreas. Radiologists take a different view but I remain sceptical.

Peanut Butter Vitamins and Calories

Q.—What are the vitamin content and calorific value of peanut butter and of arachis oil?

A.—Peanut butter is presumably made by the maceration of the roasted nuts, which are also known as arachis nuts, earth nuts, ground nuts, or monkey nuts. Recent food tables authorized by the Medical Research Council give the vitamin B₁ content of the roasted nuts as 240 microgrammes per 100 g., which may be compared with 363 µg. for Manitoba wholemeal flour. According to Rose, vitamins of the B₂ complex are present, but no adequate analysis has come to our notice. Vitamins C and D are absent. The presence of vitamin A has been reported by some workers, but at the most there can only be traces of carotene associated with the non-oily fraction of the nuts. The roasted nuts contain 49% of oil, and have the high calorific value of 5.84 cal. per g.

Arachis oil, expressed from fresh nuts, is devoid of vitamins A and D, and is, indeed, often used in nutritional experiments as a constituent for basal diets free from the former vitamin. Vitamin E, however, is present in amounts up to 0.13 mg. per g., which is about one-tenth of the concentration in wheat-germ oil. The oil also contains linoleic acid and other highly unsaturated acids, which according to one group of workers make up nearly 25% of the oil. Although the necessity for these "essential fatty acids" as dietary ingredients has been clearly demonstrated in experimental animals, we are still awaiting, as also in the case of vitamin E, adequate proof of their importance for the human being. Arachis oil, in common with other fats, has a high calorific value of about 9.0 cal. per g.

Nervous Regulation of Acid-Base Balance

Q.—How is nervous activity affected by disturbances of the acid-base equilibrium? What is the part played by the nervous system in its regulation?

A.—Changes in hydrogen-ion concentration affect the excitability of the nervous system. An increase in acidity reduces excitability, while a decrease enhances excitability. These effects can be demonstrated on isolated nerve; in an experimental animal the reflex time for the knee-jerk can be shown to be increased by an injection of ammonium chloride and decreased by sodium bicarbonate. The convulsive activity of certain drugs is modified also, in the sense stated above, by acid or alkali. Hyperventilation tetany, where a shift towards the alkaline side of neutrality is caused by the "blowing off" of carbon dioxide, is a striking example of tetany associated with various types of alkalosis.

It is suggested that these effects of altered acid-base balance may be caused by changes in the ionic balance, particularly in the proportion of ionized to un-ionized calcium. An increase in the concentration of calcium ions causes a reduction in excitability and vice versa. In alkalosis the ratio of ionized to

un-ionized calcium may diminish without any reduction in the total calcium concentration.

In the body there are three lines of defence against disturbance in the acid-base equilibrium: the buffer reactions of the blood, the regulation of the breathing, and the ability of the kidney to adjust the reaction of the urine. The nervous system is, of course, concerned with the second of these, the respiratory centre being acted upon directly by the blood and receiving impulses from the chemoreceptors of the carotid and aortic bodies. For instance, a disturbance of the acid-base balance towards the acid side is compensated by increased respiratory activity, which reduces the carbon dioxide tension of the blood.

Lipoid Pneumonia

Q.—Does the instillation of oily nasal drops cause lipoid pneumonia? How long does it take for this to happen, and can it be prevented?

A.—Inhalation of animal and mineral oils into the lungs over a prolonged period may cause "lipoid pneumonia" with areas of consolidation, the alveoli being filled with macrophage cells containing oil droplets. Leucocytic infiltration, fibroblastic proliferation, and finally fibrosis occur. Cod-liver oil is the most common cause in infants; liquid paraffin by nasal instillations or even when taken by mouth in adults. Vegetable oils, such as poppy-seed oil, olive oil, etc., appear to be innocuous.

A brief description of lipoid pneumonia together with references to the literature is given in *Recent Advances in Pathology* by Hadfield and Garrod (J. and A. Churchill, 4th edition, 1942). Prolonged nasal instillation of liquid paraffin or other mineral oils—e.g., for longer than a few weeks at a time—should be avoided.

Oestrogens for Prostatic Cancer

Q.—Is dienoestrol recommended for the treatment of carcinoma of the prostate with secondary deposits in most of the bones of the limbs? I started with a daily dose of 0.3 mg. and increased this to 1.8 mg., whereupon the pains in the limbs, which had been diminishing, increased.

A.—The beneficial effects of oestrogens on carcinoma of the prostate are usually more marked on the prostate itself than on the metastases. Secondary deposits in lymphatic glands may disappear, as may those in the lungs. The effect on bony metastases does appear, from radiological evidence, to be a sclerosing one, but actual disappearance of the lesions is of doubtful occurrence. Determination of the requisite dose of oestrogen is assisted by regular estimations of the serum acid phosphatase, and if the response to dienoestrol is not good it might be worth while reverting to stilboestrol and increasing the dose up to 15 mg. daily. It is not likely that the increased dose is responsible for the worsening of the pain. If oestrogens fail to relieve bone and joint pain a course of deep x-ray therapy may do so; it is, in fact, more likely to be successful.

Causes of Pain in the Legs

Q.—A woman of 45 has severe burning pains in the calves, radiating down to the plantar surfaces of the heels. The pain comes on about two hours after rising and is worse as the weather becomes warmer. She is free from pain in the cold winter months. There are no arteriosclerotic changes. Pethidine gives partial relief. Would sympathectomy help?

A.—The problem here is whether the pain is due to a peripheral neuritis or to a vascular affection. Is there any evidence of alcoholism, or of diabetes? If the pain is neuritic in origin physiotherapy and preparations of vitamin B are indicated, coupled with the usual analgesic remedies. If the pain is of vascular origin vasodilator drugs might help—e.g., "doryl" (Merck) 2 tablets twice or thrice daily; "priscor" (Ciba) 1 tablet thrice daily; or "moryl" (Savory and Moore) 1 or 2 tablets three times a day. Buerger's exercises might be worth trying. Sympathectomy certainly comes up for discussion, but it is necessary to prove that some defect of peripheral circulation actually exists. Ekbohm's "asthenia crurum dolorosa" (*Acta med. scand.*, 1945, 118, 197) also comes into the picture as regards the differential diagnosis. It must be remembered that in peripheral vascular disorders local treatment with cold may prove of greater clinical and physiological benefit than measures aimed at increasing the circulation.

INCOME TAX

Car Expenses

B. R.'s demobilization leave expired on April 3, 1946. He bought a car for £575 on March 28 and began work as an assistant in general practice on June 1. What car allowances can he claim? (It is assumed that his agreement requires him to own and use a car at his own expense.)

He can claim an "initial allowance" (at 20%) and "depreciation allowance" (at 25% per annum) for the period from June 1, 1946, to April 5, 1947. Some difficulty may be experienced in determining the amount on which these allowances should be calculated—assuming that the car was used privately before June 1. A reasonable basis would seem to be to take the starting figure at £575 less 20% depreciation for two months—i.e., £575—(2/12 of 1/5 of £575)=£556. The usual running costs, etc., should also be claimed.

Accommodation of Assistant

F. W. inquires what is the position where accommodation (but not board) is provided for an assistant, but not in the principal's residence?

The matter is not entirely free from doubt, but in our view if the principal engages the rooms and is liable to pay the rent for them he can deduct the rent as a professional expense, but the amount is not chargeable to tax as income of the assistant. If, on the other hand, the assistant is liable to pay the rent but the principal pays it for him, the amount would represent income of the assistant.

Pension: Earned Income Relief

P. B. has retired on a pension from a local authority and tax is deducted under the PAYE system. He inquires as to the "earned income relief".

The "personal" allowances are given by the operation of the Code Number, and P. B. will presumably have received a notice giving him particulars of the allowances being effected in that way. The earned income relief applies to all income coming under "PAYE" and is given automatically by the tax deduction tables. Since the relief varies with the amount of the income it could not be given, as "allowances" are given, in specific sums.

LETTERS, NOTES, ETC.

Balanitis

X. Z. writes: As an elderly surgeon, retired from the staff of a teaching hospital, I should like to add a note to the reply to question under this heading in the issue of the *Journal* of April 27 (p. 671). Balanitis causes physical irritation and mental anxiety. It recurs at intervals. Many years ago I had found local applications useless. As your contributor says, "ordinary personal hygiene and keeping the affected area dry are all that is necessary." The problem is how to achieve this. Circumcision would do so, but the following simple measure renders operation unnecessary. The prepuce is retracted and the patient is shown how to wrap some turns of 1 in. (2.5 cm.) gauze around the glans and the retracted prepuce; the end of the gauze is slit with scissors and tied in a bow knot. The area becomes comfortable at once, but sometimes it is not easy to retain the gauze in position, and when the gauze comes adrift friction with the clothes is rather uncomfortable. The bow knot makes reapplication easy. It is convenient for the patient to carry a roll of 1 in. gauze in his pocket. Only sufficient gauze is needed to keep the prepuce retracted and to protect the glans from friction. For the first few days comfort demands that the gauze be reapplied soon after it has slipped, but very soon the intervals between reapplication are lengthened until, in a shorter time than it would have taken a circumcision to heal, it is found that the glans is no longer sensitive to friction with the clothes, the secretion has dried, the prepuce remains retracted, and no further attack occurs.

Dr. Troup of Pretoria

MISS FRIDA TROUP, B.A., and DR. ADRIANUS PUPER write from Box 5783, Johannesburg: We have collaborated to compile a life of Dr. J. MacD. Troup of Pretoria (whose death last year was recorded in your columns) for private circulation. There must be many among his colleagues, and possibly still some of his university contemporaries, with whom we are not in personal contact, who would like to have a copy. We therefore beg your assistance in making this known. The story is told mainly by contemporary letters, and there is an authentic ring to the account of life as a small boy in Scotland, and later at St. Andrews and Cambridge Universities and King's College Hospital. After Dr. Troup migrated to this country his letters to his brother, Sir Edward Troup of the Home Office, form an interesting contemporary record of everyday life and opinion. Through all emerges implicitly the character of

a man of great character and understanding, who deliberately forsook the youthful promise of professional eminence and shunned fame and wealth for the toil of general practice, preferring its reward of friendship above all other, and gaining, despite himself, an unsought renown. His story is by no means unique in his generation, and this perhaps enhances its interest. We are publishing this book, *Physician and Friend*, by subscription, the subscriber being entitled to one copy for every 30s. paid. Any surplus funds there may be after expenses have been met will be divided between the South African Medical Benevolent Fund and King's College Hospital, of which Dr. Troup was a student and a Governor. Those wanting copies are asked to communicate with us as soon as possible.

Nocturnal Erections

MR. GEOFFREY PARKER (London, W.) writes: I have just read the question and answer (May 4, p. 707) on nocturnal erections. Would you suggest to your writer that he have his patients very carefully urethroscopied. Cystoscopy will reveal nothing, but since I wrote a paper on haemospermia (*Proc. roy. Soc. Med.*) just before I went into the Army I have seen three cases, with very similar symptoms. In two of these a small subepithelial cyst was seen in the prestatic urethra, just distal to the verumontanum, and the third man had a very congested verumontanum. All three appear to have been cured by fulguration of the cysts, which had the effect of bursting them, and also of the congested verumontanum. I do not know what the origin of these cysts may be; they might be retention cysts, following chronic inflammation, or may be congenital in origin.

Dr. H. E. COLLIER (Worcester) writes: Help may be given by (a) regular attention to the bowels and (b) avoiding drinking fluids late in the day. If either of the patients be suffering from a urinary excretory defect (whether due to heart or to kidney), the erections and passage of urine at night may be attributable to the defect. The erections may be "caused by" the full bladder.

Nocturnal Proctalgia

Prof. F. C. PYBUS writes: In 1910 I sent a description of this condition—which I called nocturnal rectalgia—to the *B.M.J.*, but which apparently was not thought worthy of publication. It was a most definite reality, for I became acquainted with it while house-surgeon at the Gordon Hospital, S.W. (in 1909). I could find no account of it in the books on surgery or rectal diseases, and it was apparently unknown to any proctologist with whom I was then in contact. As this rectal pain is sometimes accompanied by priapism it might have been thought to be due to a prostatic lesion, but its occurrence in the female proved this incorrect. Indeed it may affect a whole family, male and female alike. In 1931 I had, through a request in the *B.M.J.*, considerable correspondence with doctors who suffered from it or who had met with it in their practices. I am now, however, able to indicate a means of speedy relief. If the sufferer will start the gastro-colic reflex by taking food or drink (preferably the former) he will find that within a few seconds the pain will disappear as if by magic.

Stethoscopes for the Deaf

Dr. C. H. R. KNOWLES, of Sutton Emergency Hospital (Sutton, Surrey), writes: In the answer to a question on the most efficient type of stethoscope for the use of a deaf doctor (April 20, p. 633) no mention is made of electric stethoscopes. A highly efficient instrument of this type has a piezo-electric crystal microphone, with tone and volume controls, and is fitted into a small portable case. My own deafness is such that with the ordinary varieties of stethoscope (and I have tried them all) I can never hear such sounds as crepitations or an aortic diastolic murmur, and very often I am quite unable to hear the heart sounds or the normal respiratory murmur. With the acquisition of one of these electric stethoscopes, however, all my auscultatory problems have been solved; and my deafness is in this respect perfectly compensated. If the querist would care to communicate with me I should be delighted to give him further details of my experience with this instrument.

A Clean Shave

Dr. WILLIAM MURRAY (Birmingham) writes: Dr. L. Erasmus Ellis (May 4, p. 710) mentions that with seven razor blades and using a different one each day of the week, some of them last for months. I think it is worth noting that I have no difficulty in making one razor blade last a year, by the simple expedient of rubbing it gently every day on the inside of a common glass tumbler filled with hot water. I have used only three blades in the past three years, and all were blades that had previously been discarded as finished.

Precaution when Using Throat Packs: Correction

We hasten to correct a misprint in Dr. H. Parry-Price's note published last week (May 18, p. 786). The fifth sentence should read: The lid of the throat pack tin is painted red, and across it in white letters "THROAT PACK IN."

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PROGRESS IN THE CONTROL OF LEPROSY IN THE BRITISH EMPIRE*

BY

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Late President Medical Board India Office

Before the discovery of improved methods of treating leprosy in 1915-17 little advance in preventive measures had been made since as in Biblical times and in the Middle Ages, compulsory segregation was the only measure in common use. This in practice meant imprisonment—usually for life—such as has never been used in any other chronic disease, but in the case of leprosy it was sanctioned by public opinion on account of the great and usually unjustified dread of the crippling and disfiguring effects seen in advanced cases in the absence of any known effective treatment. Thirty years and less ago compulsory segregation was practically the sole method in use for the control of leprosy in the Dominion of Canada with very few cases in Australia with rather more, and in South Africa with many cases, as well as in the West Indies, British Guiana, Ceylon, Malaya and Fiji. In India it was legalized in all cases showing ulceration but was rarely enforced except in a few large cities. In our tropical African Colonies it was quite impracticable, as it led to every case being hidden.

Failure of Compulsory Segregation

Under favourable European conditions in Norway the provision in 1856 of hospitals or sanatoria for leprosy patients with a minimum of compulsion led to a great reduction of the disease during the next seventy years, but in poor and backward tropical races compulsory segregation has never succeeded in its avowed object of materially reducing the incidence. In Hawaii, French Guiana, and other countries political vagaries handicapped its use. In South Africa the measure was first introduced in 1817 yet the average yearly admissions to the Cape Colony Robbin Island prison-like leper asylum rose steadily from 21 in 1845-52 to 100.7 in 1894-1905. In 1906 American authorities made a characteristically thorough attempt to stamp leprosy out of the Philippine Islands by the compulsory isolation in a newly constructed settlement on remote Culion Island of every case they could discover. In 1930 5,000 cases were segregated, yet the number of yearly admissions remained as high as at first.

Nor is the reason for such repeated failures far to seek, for in South Africa the average duration of the disease when the patients were first tracked down and isolated was six and a half years, and in the Philippines it was eight years. During those long periods other members of their households and close acquaintances had become infected, and they in their turn were successfully hidden for years to infect another series of their relations and neighbours, and so on indefinitely. Truly, even in the early years of the present century the prospects of sufferers from leprosy in the British Empire were gloomy indeed.

Incidence of Leprosy in the British Empire

Another disadvantage of compulsory segregation was that the consequent inevitable hiding of all cases for as long as possible made impracticable even an approximate guess at the magnitude of the leprosy problem in our Empire. In the successive editions of the book on *Leprosy*, by Dr E. Muir and myself I

tabulated all the data for 95 countries of the world that I could discover both in the older literature and in the papers on the subject of the last 24 years during which time I have written extracts of them for the *Tropical Diseases Bulletin*. The following Table shows the known or estimated cases at three periods in India, in British Africa, and other British possessions.

Year	India	Africa	Colonies, etc.	Total
1925	107,513	54,433	3,175	165,121
1930	500,000	502,600	19,422	1,022,022
1946	1,200,000	750,000	50,000	2,000,000

The apparent enormous increase is simply due to the number of early hidden cases found by house-to-house surveys of limited sample areas. Thus, in India, Muir and his Indian assistants found four and a half times as many cases among 2,500,000 persons they examined as had been returned in the same areas at the previous census. A recent estimate has placed the figure at ten times as many, but fortunately only 250,000 of the present total estimate of 1,200,000 are classed as 'highly-infective' cases. Only 14,000 are isolated, about one-third of them uninfected. In Africa about three-fourths of the total estimated cases are in Nigeria. The task of dealing effectively with such numbers is indeed a herculean one. It can never be solved by compulsory segregation of all types of cases as attempted in the past.

Types of Leprosy

There are two very different types of leprosy, which were fully recognized only in the middle of the nineteenth century. The more important is the *nodular*—or *lepromatous*, as it is now called. This is characterized by primary involvement of the skin, in which nodules or thickened patches develop. The forehead face and ears are especially affected, to produce the 'leonine' appearance. The thickened skin contains such enormous numbers of the causative lepra bacilli that they form a considerable proportion of the affected tissues, such as is seen in no other human bacterial disease: they are easily demonstrated by microscopical examination. Both the affected skin and the thickened nasal mucous membrane often ulcerate and discharge myriads of the bacilli, which are frequently sneezed over members of the patient's household or close associates who may thus become infected. These cases run a comparatively rapid course with death usually within eight or ten years of the full development of the disease.

In the *neural* form, on the other hand, the cutaneous tissues show great resistance to invasion by the lepra bacilli, which first involve small superficial nerves, accompanied by patches of discoloured skin with loss of sensation. Lepra bacilli are so scanty that they often cannot be demonstrated in the affected skin, even when that shows some thickening as in the tuberculoid subdivision of the neural types. In more advanced neural cases large nerves of the extremities, especially the ulnar just above the elbow joint, become greatly thickened and damaged by the presence of many lepra bacilli, with the ultimate loss of fingers and toes so familiar in pictures of begging lepers in India and elsewhere. As, however, the bacilli cannot escape from the nerve trunks, neural cases are little if at all

* Abridged version of a paper read before the Dominions and Colonies Section of the Royal Society of Arts. Published by permission of the Society.

infective—a point insufficiently recognized until recently. It is therefore most fortunate that the neural cases are about four times as common as the lepromatous; for this greatly simplifies the problem of the control of the disease.

Recent Progress in Treatment and Control

Having now cleared the ground I turn to the discovery of a method of treatment which enables a large proportion of early cases to be freed from their symptoms; but it is of very little value in the advanced stages seen in nearly all cases in leper asylums. In my Edinburgh University Cameron Prize Lecture in 1929 I showed that no previous treatment had ever cleared up the symptoms of any appreciable proportion of cases. The only remedy that had for long retained a reputation for retarding in slight degree the progress of cases was the ancient Indian chaulmoogra oils, given orally in spite of their nauseating properties. The several varieties of this class of oils consist mainly of fatty acids of peculiar chemical constitution. In 1879 Moss separated the lower-melting-point ones under the name of gynocardic acid; in 1904–7 Wellcome research chemists showed that the main constituents were chaulmoogric and hydnocarpic acids.

Between 1899 and 1910 I carried out occasional trials of treatment and attempted to cultivate the bacillus, but made no progress until I gave gynocardic acid orally, which proved more effective and less nauseating than the whole oil. One medical man I thus treated was cleared of a widespread leprosy rash within a year and showed no active symptoms during the remaining twenty years of his life. In 1912 I endeavoured, unsuccessfully, to obtain a soluble compound of gynocardic acid for trial by injection; but after Dr. Victor Heiser, founder of the Cullion leper settlement, had visited me in Calcutta in 1915 and urged me to take up further work on the treatment of leprosy, I made another effort, and with the help of Dr. C. L. Bose, professor of chemistry, Calcutta, prepared a soluble sodium salt or soap in the form of gynocardate of soda. In 1916 I published preliminary notes on its use by subcutaneous and by intravenous injection. In 1917 I was able to record 26 cases, with a number of convincing colour plates or photos before and after treatment. In cases treated within three years of the onset of symptoms 50% had been cleared up; but only 25% of cases of from three to fifteen years' duration recovered. At the end of four and a half years, out of 51 cases treated for three months or more 41% had cleared up, another 40% had greatly improved, and only one advanced nodular case showed improvement. On the other hand, in very advanced cases, as seen in the Calcutta Leper Asylum, none had cleared up and only slight improvement was seen in some of them. In 1918 my results were confirmed by Dr. E. Muir and others in India; in 1919 Dean and Hollman confirmed them in Hawaii; and they used ethyl chaulmoograte on the same principle with success. A little later Muir, when a whole-time leprosy worker in Calcutta, found that pure hydnocarpus oil could be injected with an antiseptic with good results. The principle I introduced of injecting suitable preparations of these oils, in place of oral administration, has been very generally adopted throughout the civilized world. At the Dichpald Leper Hospital in India, where only fairly early cases were admitted, 90% were cleared of their symptoms; very similar results have been obtained by Dr. Moiser in Southern Rhodesia.

A Dilemma

I was now on the horns of the following dilemma. The improved treatment was of material value only in comparatively early cases of leprosy. The method of control of the disease in general operation was compulsory segregation. Under that system early cases suitable for treatment were all hidden for fear of imprisonment for life. Nothing less than a complete revolution in our two-thousand-year-old conceptions regarding the control of leprosy was therefore required before good use could be made of the improved method of treatment. How was that to be brought about?

Epidemiological Investigations

Early in 1920 I returned to England on sick leave, at the end of which I was superannuated from my life's work in India, just a quarter of a century ago. This enabled me to

spend nearly all of my time during three years, 1921–4, on a comprehensive study of the vast literature on leprosy of the previous 60 years or so, with a view to finding out the conditions under which leprosy cases arose and how to discover and treat them in the early amenable stages of their disease. I thus arrived at certain conclusions, on which I formulated a policy for the gradual control of leprosy wherever it could be carried out efficiently. These conclusions were not altogether new in so far that, as ever in the progress of medicine, they had been pointed out by someone or other with greater insight than his contemporaries. But the facts in question had not then been at all generally accepted; much less had they been acted upon, as the following account will show.

Conditions under which Leprosy is Contracted

The incubation or latent period of several years between infection and the appearance of the first symptoms makes it very difficult to trace the source of infection. An analysis of 700 cases I collected from the literature furnished the following data. In nearly one-fifth infection followed the close contact of conjugal or cohabiting relationship between a diseased and a healthy person. In another two-fifths it was due to living, usually for years, in the same house as a case of leprosy, including 9% sleeping in the same bed with a case. In another fifth infection occurred while in attendance on a leprosy patient—nearly always while living in the same house, for infections of attendants working in well-organized leper asylums with due precautions are very rare. In nearly all of the remaining fifth there was a clear history of close and prolonged association with a leprosy case. In seven of the few remaining cases direct inoculation of the disease had taken place while operating on a leper or through the now obsolete arm-to-arm vaccination in a tropical country. The latter cases are important, as proving that the disease is inoculable; for they support the view, now generally held, that lepra bacilli gain access to the human skin through abrasions or insect-bites during close association with an infective type of the disease. A case of a doctor infecting himself experimentally by inoculation has recently been recorded; this leaves no doubt on the point.

Infectivity of the Lepromatous and the Neural Types

In 113 of the 700 cases I collected the type of case from which infection was derived was recorded. In no fewer than 107, or 94.7%, it was a lepromatous case; this type is therefore five times as infectious as the neural type. Moreover, advanced neural cases may occasionally develop lepromatous lesions and become mixed cases; such may account for the few recorded infections from neural cases.

How far was that all-important fact recognized and acted on even 25 years ago? In 1922 I recorded a preliminary account of the epidemiological researches now being described (*British Medical Journal*, 1922, 1, 987). About three years later I heard from the Medical Secretary to the Government of South Africa that he was thus led to order a bacteriological examination of the 2,501 leprosy patients immured in prison-like asylums to determine how many of them were actually infective. This showed 603, a little later raised to over 800, to be uninfected neural ones, who had been segregated quite unnecessarily. They were accordingly released, with the happy result that very soon patients with early leprosy, who had become aware that an effective treatment was available for them (though the South African authorities had denied its value when they had only advanced unamenable cases in their asylum), flocked voluntarily to the new type of agricultural colonies which were now being supplied in South Africa, as advocated by me in 1920. It was then, and I believe still is, illegal for private practitioners to treat a case of leprosy; that was permissible only in Government leper institutions, except very rarely under home isolation.

Twenty-five years after the release of the uninfected cases I charted the data from the yearly South African reports. The total known cases had risen from 2,501 to 6,769 as the result of patients coming forward in the early stages. No fewer than 4,502, or 66% of that total, had passed through the agricultural colonies and had been discharged recovered; 61% of these had been free from active symptoms for over five years, so can be considered clinically cured. Nearly all the new admissions

of native patients are voluntary ones attracted by treatment the effectiveness of which is now generally acknowledged. That result is a great tribute to the value of the new method of control.

Children and Adolescents most Susceptible

An analysis of over 4,000 cases from four countries, in which data were available to enable the ages and the probable date of infection to be calculated, is tabulated on p. 71 of *Leprosy*. It establishes the important fact that approximately 50% of infections occur before the age of 20 years and 75% by the age of 30. After the latter age susceptibility is much less. Prof. Ehlers, in Iceland, as early as 1897 had recognized the great importance of prohibiting home isolation of leprosy patients if there were any children living in the house. As far back as 1890 missionaries in India had shown that a large proportion of the children brought up by leper parents became infected; but they nearly all remained free from the disease if maintained in a separate block of the same institution. This disproved the hereditary theory of the origin of the disease, which had been erroneously supported in 1863 by a Committee of the Royal College of Physicians of London. But how far was this crucial fact generally known and acted on 30 years ago?

Several thousand leprosy subjects lived a family life at Culion and scores of children were born to them. Two series of published data proved that 40% of those brought up by their parents for seven to ten years became infected from them! This has, of course, since been remedied.

I have therefore for several decades urged that the protection of children from infection is the key to the solution of the problem; this is now generally acknowledged. Moreover, house-to-house surveys in India, recorded by Drs. Muir and Cochran, have revealed that when young children live with a highly infective lepromatous case an average of two children per house were found to show early signs of the disease.

Incubation or Latent Period

Data which I worked out from Culion records showed the incubation or latent period between infection and the appearance of the first symptoms to average three and a half years. A further series which I collected from older literature, comprising 84 cases, showed an average period of two years eight and a half months. Moreover, in 81% of the series the period did not exceed five years, and it was scarcely ever over ten years. The old idea that it is frequently much longer is due to the early insidiously developing symptoms having for long been overlooked.

Plan for Control and Eventual Reduction of Incidence

The above conclusions form the essential basis of the plan I put forward in 1922 for the control of leprosy. The fact that some 80% of infections result from healthy persons, mostly children, residing, usually for years, in the same house as a previous case, indicates the necessity for the minute examination of every person living in the house of any newly discovered case, in order to find early cases amenable to treatment. If the newly discovered case is an infective lepromatous one the patient should be induced to enter an agricultural colony both for his own sake, to obtain treatment under the continued close supervision of an expert, and for the sake of his children and other relatives. Compulsion is now rarely required to induce him to do so; the real difficulty is the cost of providing accommodation for those willing to avail themselves of it. In India many have to be provided locally with at least a sleeping-place away from their households. If an infective patient cannot be removed from his home any children should be sent to healthy relatives. But that is not enough; for already infected members of his household will be liable to develop their first symptoms within the next five to ten years. They should all be carefully examined at least every six months for early amenable symptoms of the disease over a period of five or, better, ten years, and out-patient treatment at the nearest dispensary provided at a very low cost. The examination of school-children is another useful method of finding early cases.

Wherever that plan could be put into operation over a period of ten years the leprosy problem would be nearly solved, for the following reasons. The removal of the infective cases

to colonies would prevent further infections among the household and other close contacts. Those already infected would be discovered in a very early stage, and some 90% of them would be cleared of their symptoms and prevented from going on to an infective stage. The few who did so would be sent to colonies, and at the end of ten years scarcely any foci of infection would be left to carry on the disease; for lepromatous cases that have reached a stage unamenable to treatment live only for an average of eight to ten years, as shown by reliable U.S.A. records.

Empire-wide Trials of the New Methods

By far the most difficult task remained—namely, to organize efficient trials of the new methods under varying conditions in the Empire. For this purpose the British Empire Leprosy Relief Association was founded in July, 1923, and has worked ever since in cordial co-operation with the Colonial authorities. The results of those trials remain to be described. B.E.L.R.A., 167, Victoria Street, S.W.1, has recently published a pamphlet by me on the foundation and first 21 years of its work.

Nauru Island Epidemic

Leprosy was introduced into this small South Pacific island while under German rule, when in 1912 a leprosy woman was admitted from the Gilbert Islands. By 1920 she had infected three of the indigenous islanders, and the disease, helped by the depressing influence of an influenza epidemic and dietetic deficiencies, spread so rapidly that when in 1925, on my advice, all the indigenous population was carefully examined every month, 368 cases, or 30% of the people, were found to be infected. My plan was put into operation; 189 cases, already considered to be in an infective stage, were isolated on one side of the island and treated. The remaining uninfected ones were treated as out-patients and continued at work. Three years later Dr. Bray reported a decline of 40% in those still showing symptoms of leprosy. In 1933 Dr. Grant recorded a decline of nearly two-thirds of the total cases. The last available report—that for 1937 by Dr. T. M. Clouston—recorded that the total cases had been reduced to one-third of the number in 1927 and that approximately two-thirds of the remaining 159 cases were uninfected. By that time the total bacteriologically positive cases that had been isolated amounted to 284, and the early negative out-patient ones to 191, making a total in all of 477. There remained only 57 segregated infective cases (one-fifth of the total) and 102 uninfected clinical cases under treatment. The latter must mostly be cases whose first symptoms had appeared recently after several years' incubation. Only four of 176 originally infective cases had gone on to nodule formation, and during the last six years only five had become infectious skin cases, but not nodular ones; 32 nodular cases, or approximately 11%, had been released after having become bacteriologically negative.

This one of the worst epidemics ever known in proportion to the population involved had been brought under complete control. The conditions were, however, particularly favourable, with full authority over the people in a small area. Whether the disease would have been stamped out in time by this plan will never be known, for during the recent war the Japanese seized the island, and with their usual barbarity drowned the remaining patients.

Anglo-Egyptian Sudan Outbreak

A much more serious and difficult problem arose when yearly surveys for sleeping sickness cases in the humid Equatorial Province of the Sudan led to the discovery of many leprosy cases in a large area inaccessible during the rainy season. The P.M.O., Dr. Aikry, consulted me about it and arranged for the enumeration of the cases at the next annual survey, when 6,500 were found. Of these, 4,800 classed as infective were moved during 1927-30 with their families to large agricultural colonies on available and accessible vacant land, where provision was made for their regular examination and treatment. By 1934 7,075 cases had been admitted to the new settlements. As they had mostly been found in an early stage of their disease, no fewer than 3,679, or 52%, had already been cleared of their symptoms. Moreover, continued annual surveys showed that very few new cases were appearing in the originally heavily infected area from which they had been removed. The 1936 report stated that leprosy in the Sudan was well under control; doubtless much still remains to be done in that country as a whole.

British Guiana

The next step was to try to induce our smaller leprosy-infected colonies to relax their rigid compulsory segregation laws to allow early uninfected cases to be treated at out-patient dispensaries, at very small cost. West Indian tours by two successive B.E.L.R.A. secretaries failed to obtain even a trial of this obvious measure except in British Guiana. That Colonial Government accepted a B.E.L.R.A.

offer to provide funds for the construction of three leprosy clinics on condition that the suggested amendment of the law was made. In 1923 the only known cases were 267 advanced ones in the Manaiika Leper Institution. When the three clinics (later increased to 15) were opened and surveys made, so many infective cases were discovered or came forward voluntarily for admission to Manaiika that by 1932 747 were in residence. At the end of 15 years' work Dr. Rose recorded that 71.2% of regularly treated cases had had their disease arrested, but only 16.7% of those not submitting to regular treatment showed improvement. In 1941 there were 400 cases in the settlement—a decline of 46% since 1932—and 500 more were attending clinics, out of an estimated total of 1,000 in the colony. As the number of yearly discovered new cases had fallen, Dr. Muir reported that "there is good reason to believe that this decline in notifications is the result of an actual decrease of leprosy in the colony."

Ceylon

In 1921 there were 577 advanced leprosy cases under compulsory segregation. In 1930 our medical secretary, Dr. Cochrane, was consulted by the Government, and on his advice modern methods of control were introduced and the rigid provisions of the 1910 Leprosy Ordinance suspended. During the next two years surveys and propaganda and the establishment of clinics for early cases were carried out and new settlements on modern lines provided. Arrangements were also made for the repeated examination of contacts of all known cases to detect infections from them in an early amenable stage of the disease. By 1939 the known cases had risen to 3,618, 70% of which had been discovered by surveys. The number of isolated infective cases had risen to 1,031, but from 1941 onwards the yearly number of new cases declined and a start had been made in reducing the disease in the island.

Nigeria

Nigeria has the largest number of lepers in our Empire except India, with a high proportion of infective cases, and so presents a very difficult problem, on which the home committee of B.E.L.R.A. has largely concentrated its efforts. After Mr. Oldrieve's visit in 1926 a special leprosy officer was appointed, but the slump caused him to be axed in 1931, when nearly 6,000 cases were already under treatment. In 1926 Dr. Macdonald opened a large settlement at Itu, which in 1943 had some 2,400 inmates. Another, under Dr. Money, was opened in 1936 at Old River, which recently had 1,187 resident cases, and over 13,000 were being treated at a large number of satellite clinics. A third settlement, at Uzuakold under Dr. Davey, recently had 1,255 resident cases and 11,548 being treated at 43 outlying clinics. More important still, in this area a large proportion of the advanced infective cases were voluntarily isolated, with treatment, in 34 leper villages built at the cost of the chiefs. That these measures are already proving effective is shown by the fact that during a third house-to-house survey of 7,000 people of one tribe not a single unisolated advanced case was found; but 40 very early ones were detected, which should nearly all clear up with out-patient treatment. With continued frequent surveys, followed by treatment of all discovered early cases, there should be a rapid decline of the disease in such an area. Sir Bernard Bourdillon, when Governor of Nigeria, visited the Old River and Uzuakold leprosy settlements, and was so struck with the promising results already obtained that he procured a grant of £258,000 from the Colonial Development Fund, spread over five years, to enable the Nigerian Government to take over the work from the medical missionaries in charge and to extend it to other tribes, who were clamouring for similar help. This will allow B.E.L.R.A. to extend its pioneer work to other African colonies, until they too are educated up to taking over the control of leprosy in their territories.

B.E.L.R.A. may therefore fairly claim to have demonstrated the value of the recently introduced methods of treatment and prevention of leprosy under very varying conditions in widely separated portions of the British Empire. The more efficiently and extensively they can be put into operation the more rapid will be the decline in the incidence of the disease during the next two or three decades, imperfect though they may still be.

Need for Further Research on Treatment

It only remains to point out the need for continued research with a view to finding a treatment which will be effective in advanced lepromatous cases of leprosy. The triumphs of chemotherapy in recent years in discovering such potent remedies as the sulphonamides and penicillin encourage the hope of a real cure for leprosy being found before very long. Penicillin has so far shown no promise in this disease, but the intravenous use of the sulphone compounds promin and diasone in leprosy by Americans in Louisiana and by Muir in Trinidad has already yielded improved though still inadequate results

in lepromatous cases. Other such drugs are already available for trial—a slow and difficult operation on account of the long and variable course of the disease. It is hoped shortly to provide for an experienced whole-time research worker, who will have unlimited clinical material; success will greatly facilitate and hasten the eradication of leprosy from our Empire.

THERAPEUTIC ACTION OF DIFFERENT PENICILLINS ON SPIROCHAETA RECURRENTIS INFECTIONS IN MICE

BY

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(With a grant from the Medical Research Council)

AND

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It is now well established that there are a number of distinct but very similar penicillins, all characterized by a high degree of activity against certain pathogenic bacteria, combined with remarkable freedom from toxic effect on the host. Penicillins I, II, and III of Great Britain are recognized to be the same as penicillins F, G, and X, respectively, of the United States,^{1,2} and still further types have been identified. Preparations normally issued for therapeutic purposes contain a considerably higher proportion of penicillin II than of the other forms; yields from deep vat cultures are said to consist almost entirely of penicillin II, while those obtained from shallow surface cultures in flasks, although mainly comprising penicillin II, generally include moderate but varying proportions of penicillin III.³

Chemically these penicillins all have the same central structure, differing only in a side group,² and they vary somewhat in their selective potency against bacteria. For example, measured in Oxford units, although penicillin III is equally as effective as penicillin II against strains of *Staphylococcus aureus* and *Bacillus subtilis*, it was found to be two to eight times more effective than penicillin II against strains of streptococcus, pneumococcus, meningococcus, and gonococcus *in vitro*.^{4,5} This superiority seemed to be borne out in the treatment of gonorrhoea with penicillin III and II respectively.^{3,4} We refer to this work again below.

Crystalline penicillin II has a potency of about 1,650 units per mg., and crystalline penicillin III about 900 units per mg. Preparations normally issued for parenteral injection in clinical practice have fallen far short of these concentrations, and the Therapeutic Substances Act allows a potency as low as 150 units of undifferentiated penicillin per mg.,⁶ although earlier batches released by British producers contained two to four times this amount. More recently, some batches have been of the order of 1,000 units per mg., and it is expected that this standard of potency will become general.

An important contribution by Dunham and Rake⁷ has suggested that crystalline penicillin II is considerably less effective than partially purified preparations against *Spirochaeta pallida*. They worked with the Nichols strain of rabbit syphilis, and found that the spirochaetes were immobilized *in vitro* much more readily by impure preparations than by crystalline penicillin II; in fact, they were able to remove from the penicillin of partially purified samples a substance capable of immobilizing spirochaetes and resistant to the influence of penicillinase for eleven days at 37° C. Spirochaetes exposed to 1,100 units per ml. of certain partially purified preparations were non-infectious on intratesticular injection in rabbits, while spirochaetes exposed under similar conditions to 8,800 units per ml. of crystalline penicillin II gave rise to a specific orchitis.

In the experiments summarized below we have compared (a) partially purified penicillin as issued for parenteral injection, (b) crystalline penicillin II, and (c) crystalline penicillin III, in respect of their therapeutic action on *Spirochaeta recurrentis* infections in mice. It was trials against such infections (and those of *Spirillum minus*) which had previously led us to suggest that penicillin might be effective against human syphilis,⁸ as was in fact substantiated by Mahoney *et al.*⁹

Present Experiments

Mice were infected with *Spirochaeta recurrentis* by intra-peritoneal inoculation, and were then treated subcutaneously two days later, when wet blood films showed about 1 to 20 parasites per microscope field (oc. 4, obj. 1/6). The preparations of penicillin used were: (a) samples from eight batches of partially purified sodium penicillin of British manufacture, potency varying from 258 to 475 units per mg., as issued for parenteral use clinically, obtained through the Penicillin Clinical Trials Committee of the Medical Research Council; (b) two batches of crystalline sodium penicillin II, each of potency 1,600 units per mg., kindly supplied by Glaxo Laboratories Ltd.; and (c) two small quantities of crystalline sodium penicillin III, potency 680 and 635 units per mg. respectively, also supplied by Glaxo Laboratories. The penicillin preparations were dissolved in normal saline in concentrations such that treatment should be by 0.2 ml per 20 g of body weight.

Results and Discussion

Treatment was regarded as effective if the blood was cleared of parasites 24 hours later. The results obtained from individual batches did not differ significantly from one another.

Results of Treating *Spirochaeta recurrentis* Infections in Mice with Different Penicillin Preparations

Oxford Units Per 20-g. Mouse, Subcutaneously	Partially Purified Penicillin, as for Clinical Use	Crystalline Penicillin II	Crystalline Penicillin III
2,500 {	105 (94%) 112	47 (95%) 60	17 (49%) 35
1,000 {	51 (56%) 91	12 (52%) 23	13 (3%) 13
500 {	35 (30%) 118	15 (28%) 54	0 (0%) 27
250 {	0 (0%) 20	0 (0%) 8	0 (0%) 7

The denominator shows the number of mice treated, the numerator the number in which the blood was clear of parasites 24 hours later

within each of the three categories of penicillin preparations under trial, and aggregate findings for each of these three types of preparation are therefore summarized in the accompanying Table, from which the following arises

Crystalline Penicillin II—The partially purified preparations were not found to be more effective than the specimens of crystalline penicillin II, since the proportions of mice which responded to treatment, in these two groups, did not differ significantly at respective dose-levels. This is in line with the findings of Richardson *et al.*,¹⁰ working also with *S. recurrentis* (*Borrelia novyi*) infections in mice, but adopting somewhat different criteria of therapeutic efficacy. They also found no significant differences between the action of crystalline penicillin II and partially purified preparations (about 900 units per mg.—i.e. containing much less impurity than ours)

If Dunham and Rake's conclusions, quoted above, be applicable to human syphilis, the status of penicillin in the treatment of that disease will tend to deteriorate in the future as methods of purification become more and more refined and as batches released for clinical use accordingly become more and more free from impurities. It will then become increasingly necessary to investigate the anaspirochaetal properties of by-products in the manufacture of penicillin. If, on the other hand, the results of the experiments here recorded are a reliable index to the position in human syphilis, then the release of penicillin preparations of a higher and higher grade of purity presents no threat to the position of penicillin as a remedy for syphilis

Crystalline Penicillin III—This preparation proved to be substantially less effective than the other forms of penicillin tested. Thus, only 49% of 35 mice treated with 2,500 units of penicillin III responded favourably, as compared with 94% of 172 mice treated with the same dose of the other preparations. Applying the formula $\sqrt{(p_1 \times q_1)/n_1 + (p_2 \times q_2)/n_2}$ (see Bradford Hill¹¹), the difference between these proportions (45%) is 5.2 times its standard error (8.6). This means that, other factors being equal, the chances of such a difference arising merely through errors of random sampling are as little as 1 in several millions. The

difference is therefore highly significant statistically, and this is reinforced by the fact that at lower doses—1,000 and 500 units—penicillin III was practically ineffective whilst the other preparations produced a favourable response in a fair proportion of cases.

Again assuming that these results afford an index to the position in human syphilis, certain implications follow. As mentioned above, penicillin III has been found to exercise greater activity than the more easily obtainable penicillin II, or than partially purified preparations, against a number of bacteria, including the gonococcus.¹² It is stated to have the additional advantages of giving rise to higher and more sustained blood levels than these other forms of penicillin, after intramuscular injection of comparable doses.¹³ If these claims are fully confirmed it is likely that much effort will be directed towards improving methods of production and increasing supplies of penicillin III. While this will favour the campaign against gonorrhoea it will not have the same effect in regard to syphilis

It will be fortunate if it can be substantiated that, as the present work suggests, the more easily and more copiously produced form of penicillin—i.e., penicillin II—is also the more active against syphilis, since this disease demands such high aggregate dosage—perhaps twenty times or more for the average case of early syphilis than for the average case of uncomplicated gonococcal urethritis

Summary

Of the various identified forms of penicillin, that known as penicillin II in Great Britain (i.e., penicillin G in U.S.A.) appears in much greater proportion than any of the others, in batches ordinarily prepared for therapeutic use. Reports of other workers have suggested that crystalline samples of this form of penicillin may be less effective against syphilis than partially purified preparations, such as are normally issued for parenteral injection in clinical practice. If this be the case, then the status of penicillin in the treatment of syphilis stands in danger of deteriorating as production methods improve, with consequent release of batches of a higher and higher grade of purity. However, in so far as trials against *Spirochaeta recurrentis* infections in mice may be an index to the situation, the present experiments do not reveal any superiority of partially purified preparations over crystalline penicillin II.

Penicillin III (penicillin X of U.S.A.) is stated to be significantly more active than penicillin II, or than ordinary partially purified preparations of penicillin, against certain strains of streptococcus, pneumococcus, meningococcus, and gonococcus *in vitro*. It is also believed to have given better results than these other forms of penicillin in the treatment of gonorrhoea. The present experiments show, however, that it is substantially less effective than the other forms in the treatment of *Spirochaeta recurrentis* infections in mice.

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The National Association for the Prevention of Tuberculosis has started a new quarterly magazine, *Health Horizon*, for the average reader. This periodical, edited by Dr. Harley Williams, will be by no means confined to tuberculosis. Its emphasis is upon ideas potentially useful in improving the health of the individual; and its aim is to give authoritative information, readably presented, to lay people not only in Great Britain but throughout the Empire, particularly the smaller Colonies. The price is 5s a year or 1s 6d a copy, and it is published by N.A.P.T., Tavistock House, Tavistock Square, London, W.C.1. The April number includes an article by Sir Harold Scott, F.R.S., on "Risks from our Animal Friends"; another on "D.D.T. and Health in the Tropics," by Mr. V. B. Wigglesworth, F.R.S.; and another on "Food Yeast," by Mr. L. D. Galloway. Dr. Douglas Guthrie writes on Arabian medicine; and there are also unsigned articles on paludrine (the new drug for malaria) and on mass miniature radiography.

NEUROGENIC ILEUS*

BY

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Intestinal obstruction may be mechanical, vascular, or neurogenic in origin, and this paper is a consideration of the aetiology of ileus due to neuro-muscular imbalance. This aetiology will be discussed under three main headings: (1) intestinal movements and conduction, and their alteration in neurogenic ileus; (2) the sites of action of stimuli producing such alterations; (3) the factors giving rise to such stimuli in clinical practice.

Intestinal Movements

The two main purposes of intestinal movements are the passage of the intestinal contents from one segment to the next and the mixing of those contents, together with their application to the walls of the lumen so that absorption may be facilitated. Movements are brought about by contractions of the circular and longitudinal muscles of the bowel acting either separately or in conjunction with one another, and these contractions may or may not be associated with relaxation of the adjacent musculature. The common segmentation movements of the small intestine are brought about by localized contractions of its circular muscle occurring in rapid succession in adjacent areas, while pendulum movements, if such occur alone, are due to localized contractions of its longitudinal muscle. Contraction and relaxation of long segments of the intestine are produced by periodic alterations in tone in which contraction of both the circular and the longitudinal muscle leads to a decrease in the diameter and length of the affected area, and vice versa, during relaxation in the phase of diminished tone. These rhythmic segmentation and pendular movements are well suited for the mixing of intestinal contents, but they also tend to propel these contents in a caudal direction. Flatus and fluids are readily moved in that direction by increases of tone, though the effect on solids is negligible.

Peristalsis is the main cause of the movement of the contents in the small intestine, and the peristaltic rush formed by it consists of two factors—the muscular wave of contraction, and the movement of the fluid column produced by that contraction. Either factor may continue without the other through a relatively non-responsive segment of intestine and initiate a further peristaltic rush lower down the bowel, or both may fade out in a non-responsive area, which is usually an area of increased or rapidly altering tone. Peristalsis not only takes place out in areas of altered tone but may be initiated in areas of increased tone which appear during the cyclic activity of the bowel quite apart from the contents of the intestine in that area. The most common normal stimulus to intestinal peristalsis appears to arise as a wave in the duodenum, which starts just before a gastric contraction has reached the pyloric region, though peristalsis may arise in any part of the small intestine. In the common experimental animals and in man peristalsis normally passes in a caudal direction except in the first part of the duodenum and in the terminal ileum, where reverse peristalsis may be encountered.

The contents of the large intestine in man appear to be propelled by mass peristaltic movements. These usually arise in the caecum, often in response to the gastro-colic reflex, and push the intestinal contents into the transverse colon. This loading of the transverse colon may at appropriate times lead to a similar mass movement into the pelvic colon and rectum and so to the defaecation reflex and the emptying of the excretory part of the bowel.

It is apparent that the conduction produced by these movements is essentially unidirectional.

Gradients Theory of Polarity

This property of conduction in a caudal direction is known as the polarity of the bowel. Many theories have been proposed to account for this universally inherent property, which

causes the transmission of waves, fluids, and solids more readily in one direction than in another. The standard teaching is the so-called law of the intestine, which implies that excitation of any part of the gut produces contraction on the oral side and relaxation on the caudal side, so propelling its contents downwards. This conception cannot now be accepted, as peristalsis is very rarely initiated and practically never occurs in the manner suggested. This is undoubtedly fortunate, otherwise, as has been remarked, we should all be afflicted with intractable diarrhoea. However, Alvarez (1939) observed in the small intestine that there were definitely decreasing gradations in the activity, tonus, irritability, and rate of rhythmic contraction in passing from the duodenum to the lower ileum, and by analogy with the functional differences of the components of the cardiac musculature, which control the spread of a wave of contraction through the heart, he evolved the theory of gradients to account for the polarity of the bowel. Alvarez has established by an immense amount of work that gradients exist in the bowel for many of the common properties of its neuro-muscular mechanism and that these gradients decrease with the descent of the alimentary tract. He has been unable to show any basic gradient such as an anatomical or metabolic one which accounts for all the others; in fact, he has found that the gradients of tone, rhythmicity, etc., do not always vary together, so that one gradient may be flattened or reversed while the others remain normal. In those conditions in which there is reversal of certain gradients the polarity of the bowel is not fundamentally affected, so that his theory, though intimately connected with the polarity of the bowel, does not completely explain it. In fact, the explanation of polarity may be in the arrangement of the protein molecules themselves, so that there is a chemical and electric gradient ranging through them in a given direction and hence through the structure of an organ in the same direction (Ross Harrison, 1937, quoted by Alvarez). However, the observed facts in his theory of gradients do give the only physiological basis for certain alterations in the neuro-muscular balance of the intestine.

Flattened-gradients Theory of Neurogenic Ileus

Various factors alter the different gradients of the intestine, and these alterations may affect the whole or part of the intestine. The irritation of local inflammatory lesions has been shown to increase the rate of contraction and often to alter the tonus of the affected area. This may be due to an increase of the local metabolic rate from a local rise of temperature or through an alteration in the local blood supply, as intestinal activity is directly proportional to the blood flow through its musculature in perfusion experiments. Local or general effects upon the intestinal gradients may also be produced by the action of toxins and drugs, and there is no reason to doubt that nervous stimuli reaching the bowel may produce similar effects. In fact, Alvarez has shown that "any stimulation which raises the tonus, the activity, and the irritability of a segment of the bowel tends to slow the progress of waves and material approaching this segment on the oral side and to hurry the progress of material leaving it on the caudal side." I think that experimental and clinical evidence shows the converse is

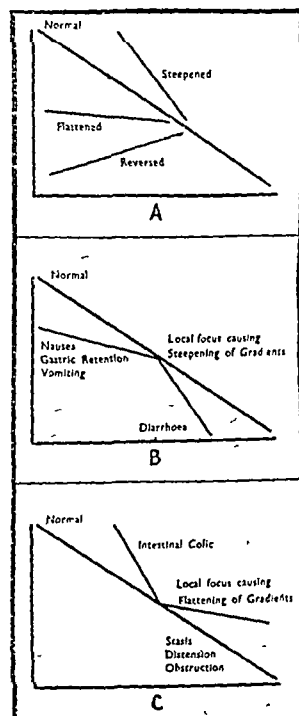


FIG. 1.—Diagrams illustrating the theory of intestinal gradients. A, Possible alteration of gradients which may affect part or all of the intestine. (After Alvarez.) B, Effect of local steepening of gradients. (After Alvarez.) C, Effect of local flattening of gradients. (J. T. C.)

* Being part of an Arris and Gale Lecture delivered to the Royal College of Surgeons, May 11, 1945.

equally true: that any stimulation which flattens or reverses the gradients of a segment of bowel tends to increase the activity of the segment on the oral side and depress it on the caudal side for a variable distance (see accompanying diagram of theory of gradients).

That this local flattening of gradients does occur in man is shown by the following case reports as well as by experimental evidence to be presented later.

Case 1 (No. 166726).—A married nurse aged 26 was sent to see me by her private doctor. She had had attacks of abdominal pain for the past couple of years, with complete freedom between them for as long as three months. Attacks started with intestinal colic and cramp-like pain in the umbilical region, and the pain radiated through to the back. Sickness gave relief. The attacks lasted about 48 hours, and the patient had to go to bed on account of the pain. She suffered from nausea, flatulence, and constipation, but there were periods of complete freedom and no qualitative dyspepsia. Her menstrual history was satisfactory and there were no urinary symptoms. The patient was painfully shy, and admitted to a typical history of anal fissure of the same duration as her abdominal pain only after my finding it by rectal examination. An x-ray film of the abdomen, taken on account of the repeated vomiting, showed gaseous distension of a loop of upper jejunum, indicating some degree of local stasis. The N.P.N. was 28 mg. per 100 ml. Laparotomy (Jan. 12, 1944) under ether anaesthesia showed nothing abnormal, and a normal appendix was removed. The anal fissure was excised. The patient has remained symptomless for nearly two years.

Case 2 (No. 179471).—A female munition worker aged 22, married, was admitted complaining of severe continuous pain in the left iliac fossa for the past 12 hours, together with dysuria and frequency. She had suffered from mild attacks of intermittent intestinal colic in the same region, together with nausea and frequent vomiting, for the last three weeks. The bowel action was normal, and her menstrual history showed that the last period had been missed. On examination there was a tender cystic swelling in the lower abdomen about 3 in. (7.5 cm.) in diameter. An x-ray film taken on account of the repeated vomiting showed a distended loop of jejunum, and barium stopped in that loop for the 20 minutes during which it was being observed (see accompanying skiagram). Laparotomy was performed

no obvious barium. Below this area the gut was active, and was contracted to about 1 cm. in diameter. Skiagrams taken 24 hours after operation showed no abnormality, and the patient has remained symptomless. The N.P.N. was 25 mg. per 100 ml., and the fasting blood sugar 0.09%.

This local or general flattening of intestinal gradients, with its alterations in the motor function of the bowel, gives a satisfactory explanation of the mechanism of neurogenic ileus. In acute neurogenic intestinal obstruction these deviations are seen producing their maximum effect; but this is rare, though lesser degrees of ileus are extremely common.

The response of the gut, whether local or general, spastic or "paralytic" in nature, depends on the stimulus and its own condition when the stimulus is applied. It is known that a local stimulus usually produces a local effect in altering the gradients of the bowel, but there is little to indicate whether the result will be spastic or "paralytic" in nature or a combination of the two forms, though it seems certain that anoxia always produces spasm of the area involved, as also does degeneration of the ganglion cells of the myenteric plexus. Some stimuli lead to relative paralysis with distension—a distension which may terminate gradually or abruptly at its caudal end by passing into bowel of more normal size. It should be remembered, however, that the term "paralytic ileus" is a misnomer, as the bowel wall can almost always be made to contract in this condition by appropriate stimuli, this being so even when advanced diffuse peritonitis is present; so that "distensive ileus" is a better term.

The above explanation of the pathogenesis of neurogenic ileus infers that the type, spastic or distensive, the extent in length of the bowel involved, and the length of time the bowel remains in ileus are due to the stimuli and the condition of the bowel at the time of reception of those stimuli. So-called passive ileus is really an advanced stage of distensive ileus where venous stasis is marked and intramural strangulation is imminent, so causing lack of response, and corresponds to the addition of vascular obstruction upon a neurogenic ileus.

Levels in the Neuro-muscular Mechanism at which Ileus may Arise

It remains now to discuss the levels in the neuro-muscular mechanism of the bowel at which this imbalance may arise.

The work of Cannon and Murphy (1906, 1907) suggested that two distinct levels were involved, as they found that section of the splanchnic nerves stopped ileus due to the crushing of a testicle, but had no effect upon that produced by direct handling of the gut. Ochsner and his associates (1930a, 1930b, 1935), however, maintained that the giving of a spinal analgesic or a splanchnic block relieved the distension produced by handling the gut or by chemical peritonitis, and they introduced the treatment of so-called "paralytic ileus" by these methods. My clinical experience seemed to be at variance with this conclusion, hence the following series of experiments were carried out.

First of all confirmation was obtained of the value of spinal analgesia in the release of neurogenic ileus which had been produced by iodine irritation of the peritoneal surface of an area of bowel in dogs anaesthetized with a C.-E. mixture. The second step was to endeavour to induce neurogenic ileus in a dog while under spinal analgesia. It was found that 60 mg. of novocain injected intrathecally gave an excellent analgesia which reached well up the thorax and lasted several hours. Various forms of chemical peritonitis proved unsatisfactory owing to damage to the bowel wall or its blood supply, and the attempted production of bacterial peritonitis was also a failure, as in the event of its occurrence it was impossible to localize without gross trauma to the bowel wall, which vitiated the whole experiment.

After numerous trials it was found that the injection of several millilitres of methylated spirit between the leaves of the mesentery near the bowel margin produced a localized ileus in which the affected bowel distended and became filled with gas and led to a damming back of the intestinal contents on the oral side for varying periods up to several hours. These injections produced this result in all the ten dogs used, and was repeated several times in some of the dogs. In no case



FIG. 2.—Skiagram of Case 2. Note loop of upper jejunum retaining the barium meal.

under spinal analgesia (nupercaine 14 ml. 1/1500). The findings were: (1) Torsion of a serous cyst of the left ovary; this was removed. (2) Pregnant uterus, about 7 weeks. (3) The upper jejunum for about the first 18 in. (45 cm.) was dilated to a diameter of over 3 cm. This part, which showed active segmentation, was followed by 12 in. (30 cm.) of bowel which was inactive, which was about 2 cm. in diameter, and which reacted poorly to stimuli. It contained

could the effect be attributed to any alteration in the vascular supply of the area, so far as could be observed. It is interesting to note that in cats the same procedure carried out under intraperitoneal nembutal analgesia also leads to neurogenic ileus, but that in young animals it is often of a spastic rather than a distensive type.

These results have been confirmed in man, and the following is a typical example.

Case 3 (No. 168011).—A man aged 59 was admitted with some months' history of bowel irregularity. A spinal analgesic of 13 ml. of nupercaine 1/1500 was given without any premedication, and an operable carcinoma of the pelvi-rectal junction, not causing obvious obstruction, was found. A left inguinal colostomy was performed, then some 24 in. (60 cm.) of lower ileum was withdrawn and placed on moist saline towels. Vigorous intestinal movements were present except in the last few inches before the ileo-caecal sphincter. Some 2 ml. of 70% alcohol was injected between the leaves of the mesentery 18 in. (45 cm.) above the caecum; it caused a local whitening of the area of mesentery involved, but there was no visible alteration in the blood vessels of the area. Starting about two minutes after the injection, the adjacent intestine distended until it was nearly twice the diameter of the bowel above, and intestinal movements faded out as they entered it. The bowel below the 6 in. (15 cm.) involved by the distension showed marked decrease in movements, and normal movements were found only some 14 in. (35 cm.) below the upper limit of the distension. A local contraction could be produced at any point by direct stimulation. The condition persisted unchanged for the 20 minutes during which it was being observed before closure of the abdomen. Similar observations have been made on other patients, but it is interesting to note that in young adults investigated during an interval appendicectomy the reaction of the bowel was variable. Sometimes an area of spasm was produced; at other times distension occurred; while on occasions there was no obvious reaction.

These observations lend support to the flattened-gradients theory of neurogenic ileus and also make it reasonable to suppose that the so-called sympathetic inhibition of motor activity is not its only cause, but that ileus can arise from stimuli affecting the muscular or intrinsic nervous mechanism of the bowel.

Factors giving Rise to Neurogenic Ileus in Clinical Practice

So far we have discussed the mechanism of neurogenic ileus and the sites of action of stimuli producing it. Finally, it remains to mention the factors giving rise to such stimuli in clinical practice

- Traumatic**—(1) Local (a) intraperitoneal; (b) extraperitoneal.
(2) Remote
Infective—(1) Peritoneal: (a) local; (b) diffuse. (2) Extra-peritoneal. (a) intra-abdominal; (b) extra-abdominal.
Toxaemic—(1) Local. (2) General.
Idiopathic

This classification needs but little comment. Mild degrees of traumatic ileus occur after every laparotomy and recover spontaneously but occasionally the ileus persists, and when flatus has not been passed for 60 hours after an operation the condition is arbitrarily spoken of as "paralytic ileus." In a few cases the distension increases to such an extent that active measures have to be taken to alleviate the condition for fear of the possibility of intramural strangulation and to relieve pressure on the cardiovascular and respiratory systems. It is important to realize that neurogenic ileus in these cases either is a local condition, which if unrelieved may spread, especially if venous stasis occurs in the affected loops, or becomes a local condition after recovery from the initial post-operative general loss of tone and movement; and it is for this reason that the patient suffers from "windy pains" which, though not so severe, resemble those of mechanical obstruction. Retroperitoneal haemorrhage and injury to the lumbar vertebrae are also well-known causes. Ileus is well recognized as occurring in pneumonia, meningitis, and typhoid, as well as in intraperitoneal infections. Equally well recognized are the toxæmias of lead and of renal dysfunction, and ileus may occur in the latter with a rising or a falling N.P.N. Probably some idiopathic cases will on further investigation be found to be of reflex origin, possibly from atypical peptic ulcers situated distal to the duodenal cap, while others appear to be associated with hyperglycaemic attacks unassociated with glycosuria or renal failure.

Conclusions

Neurogenic ileus is due to a local or general flattening of intestinal gradients.

It may be spastic or distensive in type, and the factors producing it may affect the extrinsic nerves or act directly upon the neuro-muscular mechanism of the bowel.

The symptomatology is in accordance with the factor causing the ileus and the type of ileus, plus the site of the obstruction, the degree of obstruction, and the length of bowel involved.

So-called passive ileus is a distensive ileus in which venous stasis has become so marked that a vascular intramural obstruction complicates a neurogenic ileus.

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THE DIETS OF FAMILIES WITH CHILDREN IN 1941

BY

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The tables given in *Food Consumption Levels* (H.M.S.O., 1944) show that there were considerable differences in the consumption of foods and nutrients during the war compared with pre-war and also in the different war years. From the point of view of food supplies 1941 was the most difficult year. It was also a time of transition between pre-war, when there was no food rationing and few welfare food schemes, and the later years of the war, when there were an extensive rationing system and a relatively highly developed system of welfare schemes and priority allowances. The following information, derived from a dietary survey in 1941, is of interest because it relates to that difficult transition period.

Collection and Analysis of Data.—The survey was made by the Ministries of Food and of Health in 1941. The original plan was to re-survey those families surveyed previously in the Carnegie (1937-8, unpublished), West Riding (County Council of the West Riding of Yorkshire, 1939), and London (Bransby and Bransby, 1940) studies. As the large majority of the families could not be traced a random selection of families living in working-class districts of London, Preston, West Riding, Smethwick, Oxford, Glasgow, Aberdeen and district, and rural parts of Somerset was taken. Data were collected from approximately 100 families in each locality, except Oxford, where the sample was 152 families. The survey was limited to families with children, as only such families had been included in the previous surveys. The field work lasted from March to December, 1941, and the precise weighing technique (Cathcart, 1931-2) was used for collecting the information from housewives. The composition of the diets has in the main been calculated from *Nutritive Values of Wartime Foods* (M.R.C. War Memo. No. 14, 1945). The League of Nations standards of nutrient requirements (Magee, 1943) have been used to assess the nutritional adequacy of the diets.

Changes in Economic Conditions.—Although the survey was made early in the war, considerable economic changes had already taken place since pre-war. Earnings increased by 29.9%, 42.4%, and 46% in July, 1940, July, 1941, and January, 1942, respectively, compared with October, 1938 (Ministry of Labour and National Service, 1942), and the price of food, according to the Food Index, rose by about 25% between March/August, 1939, and March/December, 1941. Such changes make comparison between the present data and pre-war food consumption data hazardous, and consequently is not attempted here.

Food Rationing and Allowances.—During the survey period the ration allowances per head weekly were: bacon, 4 oz.

(113 g.); sugar, 8 oz. (227 g.), with a short period of 12 oz. (340 g.); meat, 1s. to 1s. 2d. (holders of a child's ration book, half these amounts); for about the first two months cheese was unrationed, and for the rest of the survey period the ration was 1-3 oz. (28-85 g.); butter and margarine, 6-7 oz. (170-198 g.), cooking fat, 2-3 oz. (57-85 g.). Preserves were rationed at 8-16 oz. (227-454 g.) per month. The milk-in-schools scheme and the national milk scheme were in operation, but the welfare vitamin schemes were not. The school meals service was operating only to a very limited extent. The distribution of national household milk and the "points" rationing scheme began during the last month of the survey. Margarine was fortified at the rate of 450 i.u. of vitamin A and 30 i.u. of vitamin D per oz. (28.35 g.) Although national bread (85% extraction flour) was on sale its consumption was small, the great bulk of the flour used during the survey period being about 75% extraction

Results of Survey

Family Constitution.—Table I shows the average composition of families, grouped according to food expenditure per head. An important feature is the fall in the number of children per family with increasing food expenditure per head.

TABLE I—Average Family Composition according to Food Expenditure per Head Weekly

Group	1	2	3	4	5	6
Food Expenditure per Head Weekly	Under 5s	5s-7s	7s-9s	9s-11s	11s-13s	13s and Over
Children	4.6	3.3	2.5	1.8	1.4	1.0
Adults	2.3	2.6	2.7	2.7	2.5	2.3
Total persons	6.9	5.9	5.2	4.5	3.9	3.3
No. of families	70	199	275	174	87	44
% of families in sample	8	24	32	20	10	5

Consumption of Foods.—Table II shows the consumption of foods per head weekly for the various food expenditure groups.

TABLE II—Consumption of Foods per Head Weekly

Group	1	2	3	4	5	6	
Food Expenditure per Head Weekly	Under 5s.	5s-7s	7s-9s	9s-11s	11s-13s.	13s and Over	
Milk*	pt	2.9	3.2	3.7	4.0	4.5	5.7
Cheese	oz	0.8	1.3	1.6	2.0	1.9	2.4
Butter	oz.	1.2	2.0	2.3	3.0	3.0	2.7
Margarine	oz.	5.3	4.2	4.2	4.0	3.9	4.6
Lard, suet, and fats	oz	0.8	0.8	1.3	2.0	1.9	2.8
Eggs	No.	0.7	0.8	1.3	2.0	1.9	2.7
Meat and offals	oz	7.6	10.5	13.7	17.4	16.2	22.0
Sausages, meat pies, etc.	oz	4.2	4.8	5.6	6.2	6.2	8.3
Bacon and ham	oz	1.6	3.0	3.3	4.1	4.8	4.2
Fish	oz	1.6	2.1	3.9	4.8	6.0	9.4
Potatoes	oz.	55.6	58.2	58.1	57.0	56.9	54.9
Vegetables—fresh	oz	8.6	14.0	16.9	22.8	29.3	36.9
" —canned	oz	0.7	1.2	1.2	1.2	2.1	1.5
" —dried	oz	1.5	0.8	0.7	0.5	0.7	0.2
Fruit—fresh	oz.	0.5	2.2	4.6	8.1	11.1	19.4
" —canned	oz.	0.1	0.3	0.6	0.7	1.3	1.4
" —dried	oz.	0.3	0.4	0.6	0.8	1.2	1.7
Bread, etc. (as flour)	oz.	55.3	64.7	63.0	64.1	66.8	72.8
Oats and oatmeal	oz	4.1	2.4	2.1	3.8	1.6	1.3
Other farinaceous foods	oz	1.9	2.8	3.1	4.1	5.6	6.6
Sugar	oz.	8.1	8.2	8.4	8.8	9.5	9.4
Spreads such as jam, etc.	oz	2.6	3.2	3.6	4.5	5.8	6.3
Cocoa and patent drinks	oz	0.3	0.4	0.5	1.3	1.7	1.7

* As liquid milk equivalent: consists almost entirely of liquid milk. (1 pt = 568 ml., 1 oz = 28.35 g.)

The most noteworthy feature of Table II is the increase in the consumption of most foods with increasing expenditure per head. The only exceptions are margarine, potatoes, and oatmeal, although the increases in the consumption of total fats and sugar are relatively small. For the protective foods the differences are considerable. Comparison of the data of the "under 5s" group with those in the "13s. and over" group shows that consumption in the latter exceeded that in the former by 90% for milk in all forms, 200% for cheese, 290% for eggs, 160% for meat, bacon, and offals (due partly to the large proportion of children in the "under 5s." expenditure group), 490% for fish, 215% for vegetables, and 1,700% for fruit.

Of the total liquid milk supply of the households 56%, 51%, 42%, 29%, 28%, and 13% was obtained under the national milk scheme and the milk-in-schools scheme in the under 5s., 5s.-7s., 7s.-9s., 9s.-11s., 11s.-13s., and over 13s. food expenditure groups respectively. It must be pointed out that some of the above differences are due to the higher proportion of children in the lower food expenditure groups.

Nutrient Intakes.—Table III shows the nutrients obtained per head daily from the diets listed in Table II, and Table IV the percentages these represent of requirements according to League of Nations standards. In both Tables III and IV allowances have been made for cooking losses of vitamins (M.R.C. War Memo No 14, 1945).

TABLE III—Intake of Nutrients per Head Daily

Food Expenditure per Head Weekly	Prot. (g)	Fat (g)	Carb. (g)	Calcs. (mg)	Calc. (mg)	Iron (mg)	Vit. A (i.u.)	Vit. B (i.u.)	Ascorbic Acid (mg)
1 Under 5s	57	55	270	1,803	430	8	2,062	214	15
2 5s-7s	63	63	287	1,967	493	9	1,828	237	20
3 7s-9s	68	75	292	2,115	556	10	2,620	257	23
4 9s-11s	77	87	319	2,367	634	12	2,950	277	30
5 11s-13s	80	88	341	2,476	701	13	3,353	286	34
6 13s and over	92	105	360	2,733	875	14	3,591	313	40

TABLE IV—Nutrient Intakes Expressed as Percentages of Requirements according to League of Nations Standards

Food Expenditure per Head Weekly	Protein (g)	Calcs	Calcium (mg)	Iron (mg)	Vit. A (i.u.)	Vit. B ₁ (i.u.)	Ascorbic Acid (mg)
1 Under 5s	95	88	37	82	70	81	51
2 5s-7s	100	89	44	89	62	87	61
3 7s-9s	106	93	51	96	89	94	73
4 9s-11s	115	98	59	115	99	93	100
5 11s-13s	123	102	69	127	112	103	113
6 13s and over	136	109	86	137	129	110	133

For all nutrients the adequacy of intake increased with increasing food expenditure per head. The most severe deficiencies according to the standards adopted were in calcium, vitamin A, and ascorbic acid, although for the food expenditure groups of under about 9s. per head weekly there was a deficient intake of all nutrients except protein. The intakes of animal protein were about 17 g., 21 g., 26 g., 31 g., 33 g., and 43 g. per head daily in the groups with weekly per head food expenditures of under 5s., 5s.-7s., 7s.-9s., 9s.-11s., 11s.-13s., and 13s. and over respectively, these representing 29%, 33%, 38%, 40%, 41%, and 46% of the total protein intakes. In all groups about 70% of the total vitamin potency of the diets came from preformed vitamin A. It is instructive to observe that in the lower food expenditure groups the average intakes of ascorbic acid were only about 15 to 20 mg. daily.

Consuming Habits

During the survey the housewives recorded the meals eaten by the members of their families, and these data were analysed to show the meals eaten by mother, father, other adults, adolescents aged 14 to 18 years, and children aged 2 to 14 years. The object of the analyses was to compare consuming habits of the families in the various food expenditure groups and to determine whether the diet of any group was so monotonous as to be a danger to morale. The meals consumed were grouped into:

Drink Only.—Tea, coffee, cocoa, or other beverage without any other food.

Bread and Spread.—Bread with butter, margarine, dripping, jam, treacle, fish paste, or any other such spread.

Cereal.—Oatmeal, porridge, cornflakes, or any other such cereal food.

Cooked Meal.—Any such meal as eggs, bacon, sausage, cooked meat, or vegetables, or cooked food eaten cold.

Pudding.—The commonly accepted meaning.

Pie Meal.—Meals consisting of meat or fish pies.

Meat Sandwich.—Bread with filling of cold cooked meat, sausage, canned meat, or similar food.

Table V shows the percentages of the persons eating the above meals in each of the six food expenditure groups. The

"drink alone" figures have been omitted from the breakfast, dinner, and tea sections of Table V, for in no food expenditure group did these meals consist to any extent of drink alone.

In the discussion below the food expenditure groups are referred to by numbers: (1) = under 5s.; (2) = 5s.-7s.; (3) = 7s.-9s.; (4) = 9s.-11s.; (5) = 11s.-13s.; and (6) = 13s. and over.

Breakfast.—"Bread and spread" was taken by 71-93% in Group 1, this being progressively reduced to 15-30% in Group 6. Cereals were taken by 20-30% in almost all groups. In Group 1, 5-8% had a cooked meal, increasing progressively to 31-58% in Group 6; the

The principal differences shown by the above analyses are that as food expenditure increased so there was (1) a decrease in the frequency of "bread and spread" for breakfast, dinner, tea, and supper, of cooked meals for dinner, and of drink alone for supper; and (2) an increase in the frequency of cooked meals for breakfast, cooked meals and pudding for dinner, cake for tea, and cooked meals or sandwich for supper. The variations between the different individuals of the family were not so marked, and occurred mainly at breakfast and tea.

Comparison of Food Expenditure Groups.—Table VI shows the number of "drink alone" or "bread and spread" meals

TABLE V.—Percentage Frequency of Various Types of Meals

Food Expenditure Group:	Mother						Father						Other Adults						14-18 Years						2-14 Years					
	1*	2*	3*	4*	5*	6*	1*	2*	3*	4*	5*	6*	1*	2*	3*	4*	5*	6*	1*	2*	3*	4*	5*	6*	1*	2*	3*	4*	5*	6*
Breakfast:																														
Bread and spread	76	53	41	40	34	30	71	43	34	29	8	15	93	49	35	30	26	22	73	53	37	33	20	17	73	49	39	34	25	17
Cereal	18	21	25	19	24	19	22	23	23	19	29	20	0	19	21	20	25	20	20	19	27	20	39	17	22	28	34	32	38	33
Cooked meal	6	22	26	35	35	42	6	28	34	46	46	53	7	32	32	43	35	51	8	25	31	36	40	58	5	19	21	30	31	31
Cooked meal and cereal ..	0	3	7	3	5	8	1	5	8	5	6	8	0	1	12	6	13	7	0	2	5	9	1	5	1	3	6	3	5	18
Dinner:																														
Bread and spread	7	9	4	6	4	3	10	7	5	8	4	2	2	7	6	8	4	1	0	12	4	10	5	0	7	11	4	7	4	2
Cooked meal	65	58	47	36	32	28	64	62	49	40	29	38	75	66	43	40	33	26	77	61	58	37	35	30	67	56	47	35	32	25
Cooked meal and pudding ..	23	29	47	55	61	65	21	28	44	49	65	67	18	23	50	50	62	67	10	23	35	51	53	69	22	29	47	53	61	70
Pie meal	4	4	2	3	3	4	4	3	2	3	2	3	5	4	2	2	1	5	3	4	2	3	7	2	2	3	2	3	4	3
Tea:																														
Bread and spread	43	34	21	15	19	10	46	30	19	12	14	6	36	38	16	11	19	6	47	26	20	13	15	6	41	32	19	13	17	10
Cake	17	31	42	56	50	52	15	29	37	46	47	45	7	33	43	57	48	56	13	27	31	50	55	58	19	31	42	53	52	53
Cooked meal	38	33	35	28	29	37	36	40	43	40	38	46	49	28	40	31	31	37	39	44	44	36	29	34	38	34	37	33	29	36
Pie meal	2	2	2	1	1	2	3	2	2	2	2	3	7	1	2	0	1	1	1	2	4	1	0	2	2	2	2	2	1	2
Supper:																														
Drink	20	20	14	11	10	7	22	17	18	10	7	6	19	18	9	7	9	10	15	18	10	13	4	11	22	20	14	15	15	8
Bread and spread	66	51	49	44	41	41	57	44	38	40	39	39	71	38	47	32	33	33	69	57	63	46	45	35	70	59	60	56	49	51
Cooked meal	8	10	15	16	21	17	13	14	19	23	24	29	6	9	15	25	26	28	12	9	12	15	22	19	5	7	10	11	15	17
Meat sandwich	6	19	22	26	26	31	7	24	26	25	28	31	3	33	30	32	31	24	3	16	15	23	29	32	2	14	16	17	21	21
Pie meal	0	1	1	3	1	4	0	1	1	2	1	4	0	1	1	1	1	5	0	1	1	3	0	2	0	1	0	2	0	3

1* = under 5s.; 2* = 5s.-7s.; 3* = 7s.-9s.; 4* = 9s.-11s.; 5* = 11s.-13s.; 6* = 13s. and over.

greatest difference was between the two lowest groups. Cooked meals and cereals were seldom consumed in Group 1 and infrequently in other groups. In Group 1 6-8%, and in Group 6 49-63%, took a cooked meal or a cooked meal with cereal. Considering the types of meals taken by individuals, the frequency of "bread and spread" was the same—73-76%—in Group 1 by father, mother, adolescents, and children. The frequency fell for all persons to Group 6, but father tended to have it slightly less often and mother more often than the remainder. Thus in Group 6 the frequency of "bread and spread" taken by mother, father, adolescents, and children was 30%, 15%, 17%, and 17% respectively. Cereals were taken somewhat more often by children. Cooked meals with or without cereals were taken most often by father and other adults, and then by adolescents.

Dinner.—"Bread and spread" was consumed by 0-10% in Group 1 and 7-12% in Group 2, but only by 0-3% in Group 6. Cooked meals were taken by 64-77% in Group 1, this being progressively reduced to 25-30% in Group 6. There was a reverse trend in cooked meals and puddings—10-23% in Group 1 and 65-70% in Group 6. Thus 85-93% in Group 1 and 93-99% in Group 6, of all persons, had a cooked meal with or without pudding for dinner. The frequency of "bread and spread," cooked meals, and cooked meals with pudding did not vary much between persons.

Tea.—In Group 1 "bread and spread" was consumed by 36-47%, this being reduced progressively to 6-10% in Group 6. On the other hand, cake for tea became more frequent from Group 1, where it was taken by 7-19%, to Group 6, where it was taken by 45-58%. The frequency of cooked meals was fairly constant in all groups—about 30-40%.

There was little variation in the frequency of the taking of "bread and spread" or cake for tea by individuals. Mothers and children took a cooked meal slightly less frequently than did fathers in Groups 4, 5, and 6. Adolescents in Groups 1 to 4 had a cooked meal about as often as adults, but slightly less so in Groups 5 and 6.

Supper.—The frequency of drink alone fell from 15-22% in Group 1 to 6-11% in Group 6, and that of "bread and spread" from 57-71% to 33-51%. In Group 1 a cooked meal was eaten by 5-13%, this being progressively increased to 17-28% in Group 6. Meat sandwich was quite popular, especially in the families with the highest food expenditure: 21-32% in Group 6 and 2-6% in Group 1.

Little difference was observed in the frequency with which various types of meals were taken by individuals, although there was a tendency for children to have drink alone or "bread and spread" more often and a cooked meal less often than other persons.

and the number of cooked meals, with or without puddings, taken daily per head by the persons falling into the various food expenditure groups.

TABLE VI.—Daily Frequency of Various Kinds of Meals according to Food Expenditure per Head

	Under 5s.	5s.-7s.	7s.-9s.	9s.-11s.	11s.-13s.	13s. and Over
Drink alone or bread and spread	2.3	1.6	1.3	1.1	0.9	0.8
Cooked meal	1.4	1.6	1.8	1.8	1.9	2.1

The number of meals consisting of drink alone or of "bread and spread" fell progressively from Group 1 to Group 6, but that of cooked meals rose. Comparison between Groups 1 and 6 shows that the poor families had "bread and spread" or drink alone about three times as frequently as the better-off families. Over one-half of the meals of the former consisted of "bread and spread."

It is apparent that the families of the lower food expenditure groups were receiving a monotonous diet, and this may have been a cause of the low calorie intakes shown in Tables III and IV despite the availability of unrationed foods such as bread and potatoes.

Discussion

Despite rationing and the introduction of the national milk scheme there were wide differences in 1941 in the consumption of foods and the nutritional adequacy and palatability of the diets consumed by families when grouped according to food expenditure per head. Particularly low, according to the standards adopted, were the intakes of calcium, vitamin A, and ascorbic acid; but, despite this, there was no evidence of a prevalence of clinical signs of ascorbic acid deficiency throughout the country. It is emphasized that the position as shown in this survey relates specifically to 1941. Subsequently the control of food distribution developed in a number of respects which must have flattened some of the trends shown in Table II.

Summary

A dietary survey of 849 families was made in 1941 in eight localities in England and Scotland.

The consumption of most foods, and especially protective foods, was considerably greater among families with high than among those with low food expenditure per head. The intake of all nutrients except protein was inadequate among the groups with food expenditures of less than about 9s. per head weekly, and the calcium intake was inadequate among all groups, irrespective of the level of food expenditure. Particularly deficient were the intakes of calcium, vitamin A, and ascorbic acid.

Data are presented on the types of meals eaten by persons of different ages in the various food expenditure groups. A summary cannot succinctly be made, but it is shown that the diets of the poor families were much less varied than those of better-off families.

Thanks are due to the Registrar-General's Department and the medical officers of health of the localities in which the survey was made for help in the selection of the survey sample. The field work was done by Miss Jackson, Miss Hartley, Miss Canney, Mrs. Caffrey, Miss Lloyd Evans, Miss Cooper, Miss Campbell, Mrs. Thompson, and Mrs. Bransby. Thanks are due to the director and staff of the Rowett Research Institute for assistance and for providing the lists of informants in the Carnegie survey. The Ministries of Food and of Health are thanked for permission to publish this paper.

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EXTRA-ORAL NERVE-BLOCK ANALGESIA FOR DENTAL EXTRACTIONS

BY

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AND

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Analgesia of the fifth nerve by the extra-oral approach was first described by Braun in 1905. The technique that we have used in this series was described by Labat in 1922. Although intra-oral nerve block is a daily matter in dental surgery, the external approach has never been popular, chiefly owing to the need for an absolutely aseptic technique, almost impossible to obtain in dental surgery.

The advantages of extra-oral nerve block in dental surgery were impressed upon us by the type of cases on which we were asked to operate; all were patients at the Queen Elizabeth Hospital, Birmingham, the majority of whom were suffering from subacute bacterial endocarditis, the others from congestive heart failure or severe asthma. The patients all had gross dental sepsis, which precluded intra-oral injections, while their condition made general anaesthesia inadvisable. This method proved very satisfactory, and without its use the dental treatment could not have been carried out without subjecting the patient to grave risk.

In order to overcome the acute shortage of hospital beds we used this technique on 21 selected out-patients; they were all co-operative, and indeed preferred the method to a stay in hospital and a general anaesthetic. Other conditions in which extra-oral block is indicated are acute inflammatory conditions of the jaw, fractures of the mandible, and cases in which trismus renders intra-oral injection impossible. When there is oral sepsis any injection within the mouth is dangerous, mainly because the injection of fluid under pressure damages the tissues and renders them more liable to infection. With extra-oral blocks all injections are distant to any possible sepsis.

Premedication

As many of the patients had been ill for a long time, especially those with endocarditis who were having three-hourly intramuscular injections of penicillin, and were apprehensive, adequate premedication was essential. We found that it was not necessary to premedicate as heavily as is customary when the same nerve blocks are used in intranasal surgery. We should like to stress the importance of the tactful handling of the conscious patient, both by the anaesthetist and by the surgeon.

Even heavy premedication will be useless if the patient becomes nervous. The out-patients were not premedicated; they walked into the theatre and had the injection and extractions immediately. Their bearing during the operation and their comments afterwards were very satisfactory. The omission of premedication, however, is practicable only if the patient's temperament is suitable.

Nerve Block

The nerve supply of the upper jaw is from the second or maxillary division of the fifth cranial nerve. The maxillary nerve leaves the skull through the foramen rotundum, crosses the upper part of the pterygo-palatine fossa, and enters the orbit through the inferior orbital fissure. The maxillary nerve is therefore accessible in the pterygo-palatine fossa and can be approached by two routes, both of which we have used in this series: (1) through the incisura of the mandible just below the mid-point of the zygoma (posterior zygomatic approach); (2) through the angle formed by the anterior border of the masseter muscle and the inferior margin of the zygoma (anterior zygomatic approach).

In this series we have used the anterior approach in 35 and the posterior approach in 21 cases. We have found that the anterior approach is easier to perform, reliable, and much more pleasant for the patient. Haematoma of the cheek, which is mentioned as a complication in all the literature, we saw twice, both in the same patient, who at the time complained that she was bruised at the site of her intramuscular injections of penicillin. At the Radcliffe Infirmary, Oxford, where this approach is used as a routine in the E.N.T. department, Dr. W. W. Mushin tells us that a haematoma of the cheek has never been seen. We now use the anterior approach in all cases.

The nerve supply of the lower jaw is from the third or mandibular division of the fifth cranial nerve. The mandibular nerve leaves the skull through the foramen ovale, and after a course of 2 to 3 mm. divides into its various branches. It can therefore be anaesthetized as it leaves the skull, while, for dental extractions only, the inferior alveolar nerve can be anaesthetized just before it enters the mandibular foramen, the lingual nerve being anaesthetized at the same time. The surface marking for the mandibular nerve block is the same as for the posterior approach of the maxillary nerve—namely, through the incisura of the mandible immediately below the zygoma. The site of injection for the inferior alveolar nerve block is 1 cm. behind and below the angle of the mandible. Care must be taken that the analgesic solution is not injected into the insertion of the internal pterygoid muscle.

In this series we have used the mandibular nerve block on 36 and the inferior alveolar block on 20 cases. We have found that the inferior alveolar approach is more pleasant for the patient; it is very reliable and extremely easy to perform. The results have been satisfactory on all occasions, and patients tolerate it better than the mandibular route. As the duration of the operation has not been expected to exceed one hour we have used a 2% solution of procaine with 1:400,000 adrenaline. No solution is injected into the patient unless the aspiration test is negative, so it is essential to use a glass-barrelled syringe.

Comment

Operating conditions given by the extra-oral method of analgesia are good. The duration of analgesia, using procaine, has been up to two hours, and a full hour's operating time can be relied upon. Bleeding has been noticeably less than under a general anaesthetic, although of course the field is not as bloodless as when a local infiltration is used. There have been no complications such as dry socket, necrosis, or tissue-sloughing. Healing has been as quick and uneventful as that after a general anaesthetic.

We have noticed the following minor complications: transient sixth-nerve paralysis; slight facial paralysis in four cases, which passed off within the hour; and temporary swelling of the cheek due to an excessive amount of solution injected. We have already mentioned one case of bruising.

Summary

Dental extractions under extra-oral nerve-block analgesia were performed in 112 cases.

The patients were of the "poor risk" type of out-patients.

The anterior zygomatic approach for the upper jaw and the inferior alveolar nerve block for the lower jaw were found preferable both by the anaesthetist and by the patient.

It should be emphasized that the procedure should be carried out only under absolutely aseptic conditions. The aspiration test must always be negative.

Extra-oral nerve-block analgesia has been found excellent for patients with gross dental sepsis, especially now that the use of penicillin has made it possible to treat the dental sepsis of those patients with subacute infective endocarditis; and also for those with heart failure with orthopnoea and those with asthma.

From the dental point of view there have been no complications, the healing of the tissues being quicker than when local infiltration is used.

Our thanks are due to Mr. Harold Round, M.D.S., for his great help and encouragement, and to Prof. K. D. Wilkinson, who provided us with most of our clinical material. Finally, we acknowledge with gratitude the teachings of the Nuffield Department of Anaesthetics at Oxford.

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Medical Memoranda

Paradoxical Embolism

Paradoxical embolism can occur only if there is direct communication between the auricles or the ventricles. A patent foramen ovale, which is found in a third of all necropsies, is ordinarily a fine slit in the edge of the fossa ovalis, the membrane acting as a flap-valve which is virtually closed during life. A wide opening in the interauricular septum is a rare condition. In both cases the physical signs may be normal. In the case of the flap-valve an embolism could pass from right to left auricle only if the pressure in the right auricle became higher than that in the left. In a recent article Birch (1945) mentioned two ways in which this might occur. A previous embolism lodging in the pulmonary artery might raise the pressure in the right auricle, or the embolism might coil up over the tricuspid valve and block it sufficiently to cause the momentary rise of pressure necessary to open the valve in the foramen ovale and allow that embolus, or emboli following immediately after, to pass into the left auricle. This latter mechanism, first suggested by Porter (1941), seems the most probable explanation of the following case, in which previous monary embolism was excluded by clinical and post-mortem mination.

CASE REPORT

A woman aged 42, seen in consultation with Dr. H. L. Heath, of Evesham, had a subtotal hysterectomy performed for metropathia haemorrhagica on Nov. 15. She made satisfactory progress until six days after the operation, when she was noticed during the night to have developed a left-sided hemiplegia. Examination at the same time revealed evidence of arterial obstruction involving the whole of the right leg. The heart and lungs appeared normal. The circulation gradually returned to the right leg, but she died eight days later. Post-mortem examination showed a slit-like opening at the edge of the fossa ovalis, the membrane forming a flap-valve on the left side of the foramen. The pulmonary arteries and lungs were normal. There was an embolism lightly adherent to the wall of the lower end of the aorta and the proximal inch (2.5 cm.) of the right common iliac artery, and there were several recent infarcts in the right kidney and the spleen.

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Pregnancy in a Uterus Bicornis

With reference to the case of pregnancy in a uterus bicornis in the *British Medical Journal* of Dec. 22, 1945 (p. 894), the following case of a ruptured bicornuate pregnancy may be of interest.

CASE HISTORY

The patient, Mrs. A., aged 24, primigravida, and 38 weeks pregnant, was admitted to the Anlaby Road Hospital, Hull, at 6.45 a.m. on Dec. 11, 1945. At 12 weeks she began to have central abdominal pains, which were colicky in nature, lasting on and off for one month, with also seven days' vaginal bleeding. At the end of the month she passed a small "piece of membrane." On Dec. 10, while being x-rayed lying on her abdomen, she had severe central

abdominal pains, which were colicky and aggravated by movement and she also vomited several times.

On examination (Dec. 11) the tongue was clean; temperature 98.4° F. (36.9° C.); pulse rate 90 per minute; blood pressure 138/98. The uterus by palpation was found to be the size of a 38 weeks pregnancy, with the presentation a breech. The foetal part were easily palpated and the foetal heart was heard easily. She was very tender above McBurney's point, with no rebound sign. There were shifting dullness in both flanks and tenderness in both loins. Per vaginam, the os was closed and there was no bleeding. Two hours later the temperature was 99° F. (37.2° C.) and the pulse rate 104. In view of the rising pulse and temperature a tentative diagnosis of acute appendicitis was made.

Operation.—This was carried out under gas-oxygen and ether anaesthesia. The abdomen was opened through a right paramedian incision and free blood was present in the abdominal cavity. A male child was found with the head lying among small intestine and covered with omentum, while the breech was still partially inside a thin membranous sac, which was seen to be the ruptured right horn of a bicornuate uterus. After delivery of the child the placenta with the right horn was removed. After removal the uterus was almost like a normal one in shape and about 5 in. (12.5 cm.) long, with both tubes and ovaries in the usual position. The abdomen was closed without drainage. The child revived satisfactorily—weight, 6½ lb. (2.95 kg.). Mother and child were discharged three and a half weeks later.

On dissection of the placenta away from the uterine wall the latter was seen to be extremely thin, and it was surprising that rupture had not taken place earlier in the pregnancy.

I am indebted to Dr. N. Gebbie, medical officer of health, Hull, Dr. D. L. McRae Tod, and Mr. C. H. Corbett for permission to publish this case.

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Schönlein-Henoch Purpura with Blood in the Cerebrospinal Fluid

Cases of Schönlein-Henoch purpura with blood in the cerebrospinal fluid are exceedingly rare. Dr. Eli Davis, of St. Andrew's Hospital, L.C.C. (personal communication), informed me that, among 1,100 cases of all kinds of purpura, in only two was there blood in the cerebrospinal fluid. I therefore report the case below, the cause of which, in view of the very high anti-streptolysin titre and previous sore throat, was probably streptococcal.

CASE HISTORY

A child aged 7 was admitted to hospital on July 18, 1944, with a two-weeks history of malaise and sore throat. Three days before admission painful swellings in both knees and elbows appeared.

Examination showed a slender pale girl with temperature 100.5° F. (38.05° C.) and pulse 130. She had a dry and coated tongue with severely injected fauces. The submandibular glands were enlarged and tender. The elbows, wrists, and knee-joints were also very tender, with periarticular swelling, while the shoulders were painful. Full doses of salicylates were given. Next day the temperature rose to 102° F. (38.9° C.) and the pulse to 170. The backs of the hands became swollen and there was an extensive and alarming swelling of the neck. Two days after admission petechiae appeared on the buccal mucous membrane, right shoulder, and both gluteal regions, while the neck swelling further increased, but there was less fever. In the next few days the swelling of the neck began to subside, but new crops of petechiae appeared on the ankles, dorsum of feet, and soles. One week after admission the temperature rose again to 100° F. (37.7° C.) and the child complained of spasms of pain round the umbilicus and passed melaena stools. There was some albuminuria but no haematuria. A few days later the skin of the palms began to peel. The general condition showed some improvement, with fading of the petechiae, though the temperature still remained at 100°. Twelve days after admission she complained of frontal headache and showed slight neck rigidity and a positive Kernig sign. A lumbar puncture revealed marked xanthochromia, a heavy excess of globulin, and a positive indirect van den Bergh test. Although no organisms were seen and the culture remained negative, a course of sulphamezathine was given—without obvious effect. Three days after onset of meningeal symptoms her condition began slowly to improve, and one month after admission the temperature settled and the blood count was normal. The child was discharged quite well on Aug. 30, and has remained well.

Investigations.—July 19: W.B.C., 28,000 per c.mm. (polymorphs 81%, lymphocytes 15%, monocytes 4%). July 22: W.B.C., 14,800 per c.mm. (polymorphs 76%, eosinophils 3%, lymphocytes 16%, monocytes 5%). July 25: W.B.C., 12,800 per c.mm. (polymorphs 81%, eosinophils 2%, lymphocytes 27%); platelets, coagulation time, normal; blood culture, negr swabs, negative to streptococci. Anti-streptolysin titre at height of illness, 1,250 units (normal is 50-150 units); anti-histase, normal (Dr. E. W. Todd). Blood sedimentation rate (Westergren), 70 mm. first hour. July 30: Cerebrospinal fluid.—White cell count, 135 per c.mm. (polymorphs 50%, lymphocytes 48%, endothelial 2%); R.B.C., 600 per c.mm.; protein, 120 mg. per 100 ml.; chlorides and sugars, normal; no organisms seen on a stained film; culture negative.

I thank Mr. J. R. M. Whigham, F.R.C.S., and Dr. Eli Davis for their help.

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Reviews

PATHOLOGY OF TROPICAL DISEASES

Pathology of Tropical Diseases. An Atlas. By J. E. Ash, Director, and Sophie Spruce, Pathologist, U.S. Army Institute of Pathology, Army Medical Museum. (Pp. 70, 941 illustrations, 4s.) London: W. B. Saunders Company, 1945.

The authors of this publication have felt that in books dealing with tropical diseases the subject of pathology has received only casual reference. To fill the gap thus created they have produced this atlas which describes and depicts in a long series of illustrations (mostly photographs of disease conditions of the body and organs and photomicrographs of histopathological changes) all the salient aspects of the pathology of tropical diseases. In addition to the purely pathological study under each disease is given a short and concise account of its aetiology, epidemiology and clinical features supported where necessary by maps illustrating distribution and life cycles of the causative organisms. In all there are 257 plates comprising 941 illustrations of which 15 are in colour. These are excellently reproduced, and with their descriptive labels cannot fail to be of great value to students of tropical medicine.

The book is divided into a series of chapters each with its list of references to the literature. The first two deal with virus diseases. There then follow chapters on Bartonellosis, rickettsial diseases, tropical treponematoses, and spirochaetal diseases. A chapter on the dysenteries is followed by others on bacterial diseases, leprosy, and fungoid diseases. The protozoa—trypanosomiasis, leishmaniasis, and malaria—are then considered and four chapters are devoted to the helminths—nematodes, trematodes, and cestodes. Finally environmental factors, deficiency diseases, tropical ulcer, and aninism conclude what is undoubtedly a most complete and comprehensive survey of the pathology of tropical diseases. The book is well got up and printed and it should be available to all whose work lies in the field of tropical medicine.

KNEE-JOINT INJURIES

Injuries of the Knee Joint. By I. S. Smillie, M.B., F.R.C.S.E., F.R.F.P.S. (Pp. 320, illustrated 35s., plus 7d. postage.) Edinburgh: E. and S. Livingston, 1946.

Mr Smillie had the opportunity of treating a vast number of deranged knees among civilian and military patients in an E.M.S. hospital throughout the recent war, and as a consequence has written a monograph covering the whole field of knee joint injuries. In this he has been aided by enterprising publishers. Nevertheless, impressive book production does not excuse the defects which soon become apparent.

It seems a pity that the author did not hold his hand a little longer so as to have presented a proper statistical analysis of his results. He might even have combined with a number of surgeons who in the Services have also done good work. If thus he had produced a symposium limited to internal derangements of the knee we should have had a modest book of lasting value. Instead one finds a copious, unbalanced and incomplete review, greatly padded with material relating to every conceivable sort of injury to the knee-joint. A book for experienced surgeons has been combined with one for novices. All of which has recently been done concisely and with greater authority elsewhere.

One of the contributions draws attention to the filling up by fibrous tissue of the peripheral defects left when a meniscus is removed. This was recognized before, but it is not "regeneration." The replacement is not cartilaginous nor does it reproduce the shape or appearance of a normal meniscus. The degree to which meniscal shape is restored to the fibrous structure certainly is interesting and its different appearance is sufficient to distinguish it from an incompletely removed meniscus. Of all his cases 65% of the menisci removed were medial and the rest lateral—a rather higher proportion of the latter than usually expected. Differentiation of the types of tear and of cystic degeneration in each would have been of interest. Mr Smillie has designed a very useful set of special cartilage knives but he overlooks their forerunner in the Lowe-Breck knife.

In the discussion of ligament injuries no number of cases treated are given. The author states that the circumstances demanding operation for cruciate damage are rare. He has nevertheless found 17 patients with anterior cruciate loss upon whom to carry out a procedure of dubious value—namely, the transposition of the peripheral portion of a medial meniscus after detaching it posteriorly and passing the structure along the line of the old ligament through the lateral femoral condyle. The report on end results is incomplete and so unsatisfactory. In discussing fracture of the patella statistics are again lacking but the author does well in dealing with it as one only of the possible lesions in injuries to the extensor apparatus. Like most writers upon the patella he does, however, tend to regard its function too much in terms of its influence upon the tibia and not at all in relation to its mechanical effect upon the femoral condyles when the foot is fixed upon the ground—the commonest circumstance in which the quadriceps apparatus is ruptured. His treatment of this fracture is reasonably conservative. In connexion with operation for recurrent dislocations of the patella no acknowledgment is given to the work of Goldthwaite or of Hauser. The rest of the book deals with the remaining intra-articular fractures and with some injuries further afield which may involve the knee joint in some form of disability. A perfectly illustrated anterior displacement of femoral condyles in Fig. 270 is described as a backward displacement.

The book starts and finishes with emphasis on an interpretation of quadriceps muscle function, based upon the writings of another surgeon in which it is implied that the vastus medialis section only comes into action to complete the last 15° of knee extension the earlier range being the function of the rest of the quadriceps. Neither of these surgeons is an anatomist or a physiologist, and in the absence of carefully checked scientific data we will not genuflect to such authority.

HOMANS'S TEXTBOOK OF SURGERY

A Textbook of Surgery. By John H. Homans, M.D. Sixth edition. (Pp. 1,278, 530 illustrations, \$3.00 or 4s.) Springfield: Charles C. Thomas; London: Baillière Tindall and Cox, 1945.

First published in 1931 this textbook by the beginning of 1940 had reached a fifth edition, and a sixth has just appeared, so that the war years intervene between the last two editions. In those grim years there have been some profound modifications in surgical practice chiefly because of experience gained in the treatment of wounds and infections after the introduction of the sulphonamides and penicillin. This new edition embodies such experience and brings the work well up to date in all directions. As an example of this, in the section on the brain there is a paragraph on the use of fibrin foam and fibrin film in neurosurgery. The preface calls this a war edition, but it might with equal accuracy be described as postwar, since we have here an excellent account of the practice of surgery in the postwar period of to-day.

Dr Homans is now emeritus professor of clinical surgery at Harvard and the names of the original contributors no longer appear on the title page of the book, otherwise its format remains as in previous editions, and we are pleased to notice the retention of the historical approach to the various chapters. We would repeat what we said of the fifth edition, that no teacher should be without a copy of the book. Likewise the student, whether he be approaching his qualifying examination in surgery or more experienced and revising in preparation for a higher examination, should find it most valuable. Neither unwieldy nor too concise, the book is readable and can be thoroughly recommended.

PSYCHOANALYTIC THERAPY

Psychoanalytic Therapy: Principles and Application. By Franz Alexander, M.D., and Thomas Morton French, M.D., and Staff Members of the Institute for Psychoanalysis, Chicago. (Pp. 353, \$5.00.) New York: The Ronald Press Company.

This is an important book. It is based on seven years' work by the staff of the Institute for Psychoanalysis of Chicago in a concerted effort both to define those basic principles which make possible a shorter and more efficient means of psychotherapy and whenever possible to develop specific techniques of treatment. This represents a real break-away—not so much from psychoanalytic doctrine as from its technique and practice.

for several cases are quoted in which successful results have been achieved by twenty or fewer interviews. In many cases these interviews were spread over a year or more; but it is not the total length of treatment which is of such practical importance as its cost and time consumption for the patient. It is clear that only those who have had experience of the more rigid psychoanalytic techniques and a real knowledge of the theories and observations of Freud and his pupils could successfully employ these shortened methods. Many psychotherapists are finding that, given this knowledge and experience on the part of the therapist, propositions as to the likely cause of his troubles and the nature of his faulty reactions to life may be put with good effect before the intelligent patient for his acceptance or rejection. This allows for a much less passive attitude on the part of the patient, a greater degree of give and take between the participants in the treatment, and therefore more opportunity for synthesis as well as analysis. Obviously, since psychotherapy is so individualistic, great flexibility of method is necessary as between one patient and another, but the experienced therapist ought to be able to make a relatively quick appraisal of each patient's personality and problems and thereon plan a course of treatment appropriate to his needs. In this way it may be possible to deal with the vast numbers of mild incipient cases which are so much commoner—and more important—than the severe chronic cases. Also psychotherapy may be brought to bear more directly on the many psychosomatic conditions which have come to be regarded as due to emotional stress but for which psychiatrists have done all too little. The description of a case of peptic ulcer proved by x rays, and another of asthma shown to be allergic to certain foods, are of great interest in this respect.

A close study of this book will repay a wide circle of readers, both in encouraging those who are seeking to reduce the cost and time factors of psychotherapy and in persuading others that psychotherapy is less impracticable for their patients than they may have at one time thought.

EXPERIMENTAL CATATONIA

Experimental Catatonia. A General Reaction-Form of the Central Nervous System and Its Implications for Human Pathology. By Herman Hollend De Jong, M.D. (Pp. 225; illustrated, \$4.00 or 22s.) Baltimore: Williams and Wilkins Company; London: Baillière, Tindall and Cox. 1945.

In this monograph Prof. De Jong has collected the results of his classical work, which began in Amsterdam nearly a quarter of a century ago and has been continued in America since his escape from Holland in 1940. The author's previous monograph, written with H. Baruk in 1930, dealt with experimental catatonia produced by bulbocapnine, but the present volume describes experiments on catatonia brought about by other chemical and physical methods, and includes the application of some of this work to man. The first seven chapters give detailed account of animal experiments with bulbocapnine, scoline, asphyxia, centrifuging, electric stimulation, and by teration in metabolism; the next six deal with catatonia in man, with special reference to the effects of urine extracts, histamine, and the cephalin-cholesterol flocculation test.

The book has great value for all experimental psychiatrists, especially as Prof. De Jong says "the goal has not been to contribute to any particular trend of thought, but only to seek the truth."

Notes on Books

Die Verteilung der Sulfonamide im Organismus, by PAUL EGGER (Basle: Benno Schwabe and Co., 8 Swiss francs), is concerned with a study of the fate in the body of three sulphonamides, evidently those most popular in Switzerland. These are "cibazol," which is well known to us as sulphathiazole; "irgafen," made by Geigy, which is dimethylbenzoyl-sulphanilamide; and finally "elkosin," another Ciba product, sulphanilamido-dimethylpyrimidine, which is a relative of sulphamezathine. Much of the information in the monograph is similar to that already acquired for other sulphonamides. The author has, however, examined the amount of sulphonamide present in a large number of organs obtained at operation or from recently dead subjects. He has made the interesting observation that the concentration in the skin is high, being about equal to, or, for sulphathiazole, greater than, the concentration in the blood. No wonder these substances cause skin rashes, and that sulphathiazole is particularly prone to do so. Probably the high concentration in the skin is due to the fact that they are being excreted in part in the sweat.

La Médecine dans l'Ancien Pérou, by RAOUL D'HARCOURT (Paris: Librairie Maloine), is a summary of works by old Spanish authors and archaeological and anthropological researches into the maladies of the Indians of ancient Peru. Since writing was unknown to these people the facts related have had to depend on tradition and on primitive graphs, made on pottery and the glaze of vases, dug from the sands of the Peruvian coast. Medicine was in the hands of priest healers, who were herbalists and had a wide range of remedies. They did not hesitate to do such operations as cranial surgery, judging by the illustrations. Amputated stumps in mummies show evidence of having been neatly sutured. This book deals with a civilization which preceded the establishment of the Inca kingdom in the 12th century B.C.

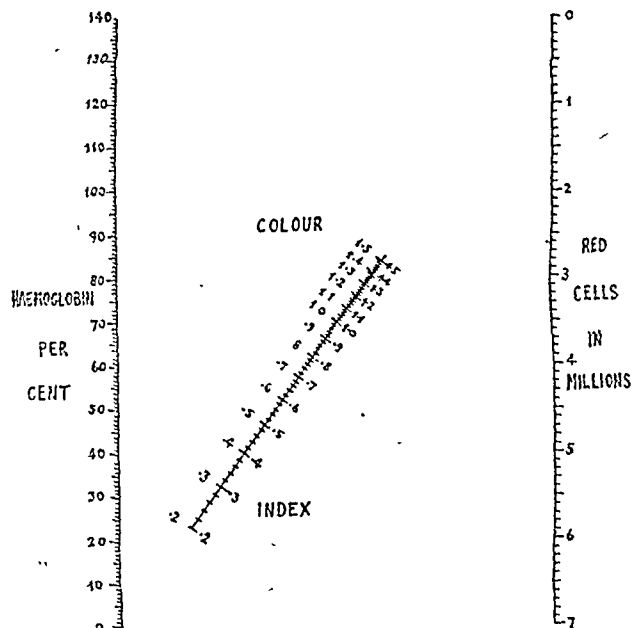
The W. B. Saunders Company of Philadelphia and London have republished in book form the Chicago Number, dated January, 1946, of the *Medical Clinics of North America*, containing the Symposium on Pediatrics. In a brief foreword Dr. Stanley Gibson introduces these discussions of modern problems in disease in childhood and the medical care of children, and himself contributes one of the eighteen papers on varied subjects in his specialty. At the end of the symposium there are two papers outside the range of paediatrics: one on Dupuytren's contracture and the other on control of gonorrhoea. Six numbers of the *Medical Clinics of North America* are published in the year; they are sold by annual subscription at 55s. in paper binding or 75s. in cloth binding.

Preparations and Appliances

COLOUR INDEX NOMOGRAM

Dr. B. J. FREEDMAN, M.R.C.P., writes from St. Giles' Hospital, Camberwell, S.E.5:

The calculation of the colour index of the erythrocytes is a little daily task of no great difficulty that presents itself on innumerable occasions to pathologists and laboratory technicians. As with any other repetitive task, a labour-saving device is welcome. The diagram shows a nomogram that I have



devised for its rapid determination. A ruler is placed on the appropriate points on the red cell and haemoglobin scales, and the point of intersection of the ruler with the middle scale gives a direct reading of the colour index. The straight edge of a transparent strip of x-ray film is better than a ruler as it renders interpolation easier.

Those who wish to construct their own nomograms may do so by drawing the two parallel vertical scales about 5 in. (12.5 cm.) apart, 1 in. (2.5 cm.) on the scale representing 1 million R.B.C. and 20% haemoglobin respectively. The oblique scale is made by joining the two zeros, and is calibrated by laying a ruler across the 5-million mark and various haemoglobin percentages.

For bench use the whole is best drawn on card and varnished.

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ALUMINIUM THERAPY OF SILICOSIS

It was in 1937 that Denny, a metallurgical engineer, Robson, chief surgeon to the McIntyre Porcupine Gold Mine at Schumacher, Ontario, and Irwin,¹ associate professor in the Department of Medical Research at Toronto, under Sir Frederick Banting, reported that in dusting experiments they could produce typical nodular silicosis in rabbits, but that if the quartz dust was mixed with aluminium dust of particle size less than 5μ , the proportion of aluminium in the mixture being less than 1%, nodular fibrosis did not occur. In 1939² they further showed that the metallic aluminium on being converted into hydrated alumina reduced the toxicity of quartz in tissues by flocculation, partly by absorbing silica from solution, but chiefly by coating the quartz particle with an insoluble and impermeable coating which is gelatinous hydrated alumina. This, on drying, forms the crystalline alpha aluminium monohydrate ($\text{Al}_2\text{O}_3 \cdot \text{H}_2\text{O}$), which stains red with aurine. They also exposed eight rabbits to an atmosphere containing freshly ground finely particulate aluminium powder in a concentration averaging 7,000 particles per ml. 12 hours daily for 14 months. After cessation of the dust exposure some of the animals were observed for a further seven months. Chemical assays of the lungs showed them to contain from 270 to 1,200 mg. of aluminium per 100 g. of dried tissue. During their lifetime these animals gained normally in weight, and from the appearance and texture of their fur and general behaviour there was no evidence of any harmful effect. At necropsy there was no evidence of fibrosis of the lungs, the only abnormality being aggregates of dust cells containing irregularly shaped opaque particles. In repeated experiments in rats Belt and King,³ however, found that the particles were treated as foreign bodies in the lungs, forming small concretions with fibrous tissue round them. Nevertheless in 1944 Leroy Gardner⁴ and his colleagues confirmed with experimental evidence beyond question that aluminium and aluminium hydrate (XH-1010), probably in amorphous state, specifically inhibit fibrous reaction to quartz, and that their administration will prevent progression of silicotic lesions and cause retrogression in immature tissue responses.

Evidence on the effect of aluminium in pneumoconiosis also comes from the recent report of the experimental studies on chronic pulmonary disease in the South Wales

coal-mines published by the Medical Research Council.⁵ These studies revealed that the most severe reactions in lungs result from quartz, but that the pathogenicity of this substance is reduced by clean coal and is practically abolished by shale. There is little doubt that the production of silicosis depends on the solubility of silica, and it is proved that quartz particles coated with iron oxide⁶ or alumina are less soluble than those which are not. King found that the shales depressed the solubility of the quartz by releasing aluminium from their aluminous components to form a protective covering over the quartz particles which could be stained with aurine. It was also demonstrated that mineral dusts containing higher proportions of aluminous components were more inert, even after being in the lungs for a long time; this is well shown by the fact that the shales are probably less dangerous to health than the sandstones. King also explained the pathogenicity of anthracite coal, which *in vitro* depresses markedly the solubility of quartz, by suggesting that the aluminous and siliceous components of steam and bituminous coal must be much more closely bound to the coal substance than is the case with anthracite.

Before applying the method for the prevention of silicosis in man it is essential to show that metallic aluminium is without harmful effects. In 1936 the Medical Research Council,⁷ after reviewing the findings in a group of fifty workers exposed for many years to alumina, were unable to find any evidence that the inhalation of alumina dust had caused pulmonary fibrosis, while Hunter, Milton, Perry, and Thompson⁸ were unable to find disease in the lung in 92 duralumin propeller grinders. Crombie, Blaisdell, and MacPherson⁹ investigated 125 employees engaged in making aluminium powder by a stamping process: they had been on this work for periods ranging from six to twenty-three years, and they were submitted to x-ray examination each year. Aluminium powder did not cause lung damage, nor did it favour the development of tuberculosis or any other condition. During the war of 1939-45, however, many papers from Germany described a condition of pulmonary fibrosis with frequent spontaneous pneumothoraces in workers making alumina powder.¹⁰⁻¹² These papers remain an enigma. It must be pointed out, however, that there are many differences in aluminium powders. Denny, Robson, and Irwin's powder is black; it contains 95% metallic aluminium, and its particle size is under 5μ , accounting for its black colour. Stamped aluminium powder is coated with stearine, while blown aluminium powder is coated with aluminium oxide. It is possible, therefore, that aluminium may not be completely harmless, and its use should be allowed only under the supervision of expert observers.

At the Porcupine Mine Denny, Robson, and Irwin have treated miners by blowing with compressed air metallic aluminium dust from small canisters into the rooms where

¹ Med. Res. Cncl. Sp. Rep. Ser. No. 250, 1945, London.

² Kettle, E. H., *J. Path. Bact.*, 1932, 35, 395.

³ *Brit. Med. J.*, 1939, 2, 1273.

⁴ *Brit. J. Industr. Med.*, 1944, 1, 159.

⁵ *Canad. med. Ass. J.*, 1944, 50, 318.

⁶ Goraleski, G., *Arch. Gewerbepath. Hyg.*, 1939, 9, 676; *ibid.*, 1940, 10, 384; *ibid.*, 1941, 11, 106; *Disch. Tuberk.-Bl.*, 1943, 17, 3.

⁷ Goraleski, G., and Jager, R., *Arch. Gewerbepath. Hyg.*, 1943, 11, 102.

⁸ Jager, R., and Jager, F., *ibid.*, 1941, 11, 117.

⁹ Koelsch, F., *Beitr. klin. Tuberk.*, 1943, 87, 688.

¹ *Canad. med. Ass. J.*, 1937, 37, 1.

² *Ibid.*, 1939, 40, 213; *Industr. Med.*, 1939, 8, 133.

³ *J. Path. Bact.*, 1943, 55, 69.

⁴ *J. Industr. Hyg.*, 1944, 26, 211.

the men change for about 20 minutes before they go down the mine, and after they come up. Their results are not yet published, but miners returning to this country are enthusiastic about this method of preventing silicosis. Crombie, Blaisdell, and MacPherson⁸ treated men in the same way but prepared the aluminium from a mill. By this method there is a small explosive risk if the motor is close to the mill, aluminium dust forming an explosive mixture if the concentration is more than 0.02 oz. per cubic foot (0.02 g. per litre). Thirty-four men with diagnosed silicosis were treated by daily inhalations beginning with 5 minutes and gradually increasing to 30 minutes. Some men received 300 treatments, the majority about 200. Out of the 34 cases studied, 19 showed clinical improvement with diminution of the dyspnoea, cough, pain in the chest, and fatigue, though they continued to work as miners; the remaining 15 cases remained stationary. Progress of the disease was assessed by means of respiratory function tests, repeated at three-monthly intervals. Bamberger¹⁴ also treated a group of non-ferrous metal miners with both metallic aluminium and hydrated alumina (XH-1010), and claimed that about one-third in each group showed symptomatic improvement though there was no significant change in exercise tolerance or vital capacity in any case. Aluminium dust cannot be regarded as a cure for silicosis, but these results suggest that it may prevent the development of human silicosis and may possibly arrest the progress of the disease when it is established.

These promising developments have been marred by two recent happenings. Denny and Robson¹⁵ have taken out a patent for this method of treatment in the United States and Canada, and created a company with the McIntyre Porcupine Mines, Ltd., known as McIntyre Research, Ltd., while in Australia and Tasmania laws have been passed to compel employers to install this method of treatment in their change houses. In this country the law does not allow the patenting of therapeutic methods, and British search workers are therefore free to investigate, assess, and develop the method. There is even an obligation to carry on investigations when restrictive influences are at work elsewhere. It is also appropriate to draw attention to the recent report of the Council on Industrial Health of the American Medical Association,¹⁶ which states that the administration of high concentrations of amorphous hydrated alumina unfavourably influences resistance to tuberculosis; and recommends that the general application of aluminium therapy in industry be delayed until adequately and impartially controlled clinical observation demonstrates its effectiveness in preventing or alleviating silicosis in man. It is evident that the real way to prevent silicosis is to prevent siliceous dust, and engineers must be encouraged to attain this end. Their achievements with wet drilling up to the present have been very great, and there seems no reason to doubt that within the next century their efforts will be rewarded with complete success. In the meantime mining must go on, and so must research into all possible methods likely to prevent or arrest silicosis in those engaged in the industry.

DIET AND INCOME

On another page Dr. E. R. Bransby gives the results of a dietary survey, made in 1941 by the Ministry of Health, of a number of working-class families chosen at random from various parts of the country. This period, it may be remembered, was one of transition from the days of pre-war plenty to wartime austerity and food rationing. By 1941 there had been considerable changes in the economic condition of the country. Food prices had risen by about 25% and wages by about 40% above 1938 levels. The present-day figures are approximately 22% and 50% respectively, though the former figure is really fictitious, as food prices have been kept low by the Ministry of Food subsidies, which, of course, ultimately come out of the taxpayer's pocket. The extra he would pay for food owing to the rise in the cost of living is taken out of his wage or salary. In 1941 the milk-in-schools scheme and the national milk scheme were in operation, but not the vitamin schemes for expectant mothers and babies, and the school meals service was operating only to a very limited extent. The bulk of the bread consumed was made from 75% extraction flour.

The survey confirms much that was already known to the social worker and the general practitioner familiar with the conditions in working-class families. It is not surprising to read that those families with an income sufficient to spend 13s. a week per head on food averaged only one child. Based on the present-day cost of living this is not an excessive sum to provide an adequate level of nutrition without monotony. On the other hand the families with four to five children spent less than 5s. a week per head on food—a totally inadequate amount judged by any standards. The consumption of most foods, and particularly the protective ones, was notably greater among the families with few children than among the families with several children. Both groups ate approximately the same amount of potatoes, margarine, oatmeal, fats, and sugar—all foods which are cheap or rationed. These are the energy-producing foods. For the protective foods the difference in consumption in the two types of family was considerable. The intake of meat, milk, eggs, vegetables and fruit was much greater among the families with higher than among those with a lower food expenditure per head. On an average the consumption of these foodstuffs was 450% more in the former group than in the latter. For fruit and vegetables the figure was 1,700% higher.

Judged by the League of Nations standards of minimum requirements, and by costs calculated in 1942 by Magee and George, the intake of all nutrients, except protein, was inadequate among those families spending less than 9s. per head a week on food. Most families with more than two children spent less than this a week. Particularly deficient were the intakes of calcium, vitamin A, and vitamin C. Magee and George, at the request of the Ministry of Health Advisory Committee on Nutrition, compiled figures to show that the standards for an adequate diet, as recommended by the League of Nations Commission, cannot be satisfied if less than 9s. per head is spent on food. This figure is for adults and older children; in

¹⁴ *Industr. Med.*, 1945, 47, 185.

¹⁵ Robson, W. D., *Trans. Canad. Mining Inst.*, 1944, 47, 172.

¹⁶ *J. Amer. med. Ass.*, 1946, 130, 1223.

ranges from 7s. 6d. to 4s. for younger children and infants. These figures presuppose some knowledge of nutrition, which is unfortunately possessed by few housewives, and a wise choice of "points" and unrationed foods. The Beveridge report recognized this and wrote off 1s. 6d. per person per week for wastage due to lack of nutritional knowledge. This brings the weekly food budget up to 10s. 6d. for adults and older children, 9s. for younger children, and 5s. 6d. for infants. These are the minimal figures based on recommendations of the Ministry of Health.

A further interesting fact noted in Bransby's survey is that as expenditure on food increases, the number of cooked meals eaten each day increases; as the family income falls more of the "bread and spread" type of meal is eaten. Apart from being a poor source of the protective elements, the latter may actually lead to a decreased food consumption through monotony and lack of appetite and interest in food. We all know how the sight and smell of palatable cooked food stimulate the desire to eat. Man cannot live by calories and vitamins alone. It is true, as McCance and Widdowson have shown recently, that it is possible to live for a limited period on a diet of bread, potatoes, and vegetables. Whether it is possible to thrive on such a diet is another matter. The volunteers in McCance and Widdowson's experiments were eating only an experimental diet for a limited period; they knew that if necessary they could resume their normal accustomed diet; and, what is most important, they were healthy adults and not children or invalids, so it was not proved that such a diet provided for growth and repair. Further, the extraction rate of the flour in the bread eaten was 92%, not 75%, the figure for white flour eaten before 1942. McCance and Widdowson recognize that the results might have been different if their volunteers had eaten bread made from low-extraction flour.

The survey demonstrates only too well that any increase in the number of children beyond two in the average working-class family leads to a lowering of the nutritional standard of all its members. It is futile for the Minister of Health to suppose that health can be bought with his new Bill when many of those who will have to pay for it are spending less on food than the minimum recommended by experts in his own Department. The masses need food and houses before health centres. The level of nutrition in many families could be improved by increasing the income-tax allowance for children, providing free school meals, and payment of part of the proposed children's family allowance in the form of vouchers exchangeable for protective foods.

PLASTICS IN SURGERY

Surgery has often benefited from methods and materials elaborated in other branches of applied science. Blaine¹ has recently extended his earlier observations² on the behaviour of plastic materials in the tissues of experimental animals, and Small and Graham³ have been using plastics for the closure of skull defects.

It is convenient to recognize two kinds of plastics, protein and non-protein; the former are absorbed by animal tissues, while the latter are not. Blaine found that casein plastic, one of the protein group, could be machined to make screws, plates, blocks, and nails. Though less strong than the metals, when fresh it has a tensile strength similar to that of bone, but after a few weeks in the warm and moist tissues of the animal it softens and loses its tensile strength. This loss will have to be overcome if the material is to be used in man to support any considerable and prolonged strain. Casein plastic has certain advantages for use in bone surgery. It may be autoclaved for twenty minutes at 15 lb. (6.8 kg.) pressure and 120° C., provided it is dried and cooled afterwards. It is ultimately completely absorbed and replaced by bone. It produces no unfavourable tissue reaction *in vivo*, and *in vitro* it does not inhibit the growth of a tissue culture.

A non-protein plastic which Blaine investigated is methyl methacrylate, better known as acrylic resin or "perspex." As Beck and others⁴ had previously shown, perspex resembled "nylon" in causing no tissue reaction (this is not true of all non-protein plastics), and it did not inhibit the growth of a tissue culture. Drury and others⁵ found it highly resistant to bacterial growth on its surface, and its interior remains sterile after many months of external contamination. Blaine concludes from animal experiment, however, that it has no outstanding advantages over the metals, and it has a lower tensile strength. Small and Graham state that methyl methacrylate is suitable for the closure of skull defects in man. They employed a method similar to that devised by Shelden and others⁶ to provide a transparent calvarial window for direct observation of the brain in monkeys.

Methyl methacrylate is supplied as a clear liquid monomer and as a polymer in powder form. When mixed they yield a soft mass which, on heating, undergoes irreversible polymerization to produce a light, tough resin, transparent and radiotranslucent, of which the final shape can be defined by pressure in a mould during polymerization. The elaboration of the plate for inlay requires several hours of laboratory work, and consequently the impression is taken at a first operation, and the perspex plate inlaid at a second. To overcome the disadvantage of a two-stage operative procedure, which does not lessen the value of a plastic in oral or ophthalmic surgery but is a considerable handicap in surgery's other branches, Blaine has reduced to twenty minutes the time necessary to prepare the final plate for inlay. In one method, the plastic, fully polymerized and heated to 130° C., is moulded to a plaster model, under aseptic conditions in a special press. In Blaine's second method a dough of monomer (with benzoin as catalyst) and polymer is applied directly to the bone defect, and polymerized *in situ* by ultraviolet light, under which the hardening process takes place in only fifteen minutes. If this last method proves applicable to man, perspex may be used to repair incomplete defects in the facial bones, and perhaps also in arthrodesis.

PLAN FOR SURREY HOSPITALS

The voluntary and municipal hospitals of Surrey, with the county borough of Croydon, set up a joint divisional council in 1941, and while Government schemes were being laid, the council produced a plan for co-ordinating and extending the hospital services in the county. The plan has been framed on the assumption that "as free a

¹ *Brit. J. Surg.*, 1946, 33, 245.

² *Proc. roy. Soc. Med.*, 1945, 38, 169.

³ *Brit. J. Surg.*, 1945, 33, 106.

⁴ *Brit. J. Surg.*, 1945, 33, 83.

⁵ *Brit. dent. J.*, 1935, 59, 130.

⁶ *J. Neurosurg.*, 1944, 1, 67.

choice as is practicable by the citizen of his medical adviser will continue and the voluntary hospitals will not only be permitted but encouraged to function in the future." The general scheme, for which the late Sir Laurence Halsey, chairman of the council, was largely responsible, is based on the provision of four types of hospitals—key hospitals (one or more of the London teaching or special hospitals), and district, local, and special hospitals, these last including mental hospitals, tuberculosis sanatoria, and hospitals for infectious diseases. It is proposed that the county should be divided into seven sections, each with one or more district hospitals equipped with means for treating on modern lines both in-patients and out-patients. The target for the district and local hospitals on the basis of six beds per 1,000 of population calls for 9,078 beds, whereas the present provision is only 5,259. Other targets are adopted for sanatoria and special hospitals.

According to the scheme the key hospitals are to be responsible for major plastic and thoracic surgery, neurosurgery, and radium and deep x-ray treatment. The district hospitals would cover general medicine and surgery, children's diseases, ear-nose-and-throat cases, fractures and orthopaedic cases, and various other categories; each of them should also have an out-patient ophthalmological department. Major operative work should be concentrated in certain district or special hospitals, and radiotherapy should be undertaken, when required, in collaboration with the key or special district hospitals. Each district hospital should also have an obstetric unit under the control of a senior obstetrician and gynaecologist, with other units associated with local hospitals and having local obstetrical staff. An out-patient department for rheumatism is also called for in all district hospitals. It is thought essential for radiotherapy to be practised in special centres, but there should be no segregation of cancer cases, though patients beyond active treatment and who cannot be cared for at home should be kept in special wards. Local hospitals should all be prepared to deal with emergency cases and arrange for regular attendance of consulting staff.

Whatever the fate of the hospitals of Surrey in a scheme embracing a larger region, the careful work put into these proposals will be of value, perhaps beyond the county as well as within it.

THE INSECTICIDE GAMMEXANE

The publicity given to D.D.T. somewhat overshadowed the subsequent British discovery of another synthetic insecticide of perhaps equal potentialities—"gammexane," an account of which was given by Slade last year.¹ Early in 1942 the biological field workers of Imperial Chemical Industries were looking for new chemicals to control the turnip flea-beetle. They found that certain samples of benzene hexachloride (or, more properly, hexachlor-cyclohexane) were very effective. The material was called "666" from the chemical formula $C_6H_6Cl_6$, and this name was used in early reports and commercial preparations. The compound hexachlor-cyclohexane exists in a number of isomers differing in the spatial configuration of the atoms in the molecule. When these had been isolated and tested separately, it was found that practically all the insecticidal action of the material was due to the gamma isomer. Hence the name gammexane.

Pure gammexane is a white crystalline substance melting at 112° C. It has a low vapour pressure (0.14 mm. Hg at 40° C.), but this is appreciable and means that thin films

are less permanent than D.D.T., which is practically non-volatile.² Gammexane is virtually insoluble in water but dissolves to different degrees in various organic liquids. Like D.D.T. it is chemically stable under most normal conditions. Gammexane is toxic to insects when eaten or merely by contact with the insect's cuticle; the vapour is also toxic. The insecticidal action is exceedingly high, since according to the data available the lethal dose to various insects is lower than that of D.D.T.—e.g., one-twentieth the dose to lice,³ one-fifteenth the dose to grain weevils,¹ one-tenth the dose to bed bugs,² one-ninth or one-third to houseflies,^{4,5} and one-half to the mosquito *Aedes aegypti*.⁵ Gammexane has also been shown to be highly toxic to ticks of sheep⁷ and cattle.⁸

Cameron⁶ and Taylor¹ have investigated the toxicity of gammexane to mammals. Like D.D.T., gammexane is much less toxic as a dry powder or as an aqueous suspension than when in solution. The pure compound is more acutely toxic than D.D.T., since the lethal doses to various animals are one-half to one-fifth the corresponding doses of D.D.T. The chronic toxicity of repeated doses, however, is about the same or possibly rather less than that of D.D.T. The characteristic warning signs of intoxication by D.D.T. are unfortunately absent with gammexane. In chronic intoxication, however, there are lethargy, anorexia, and loss of weight. Prof. Cameron concludes that gammexane "is of relatively low toxicity when applied to the skin or administered orally in single doses. Fairly large doses given repeatedly may be tolerated." It seems to be clear that the substance is safe to use in ordinary insecticidal preparations.

At present only one preparation of gammexane is commercially available. This is the powder known as 666 Dust Grade DO34, which contains about 0.6% gammexane, together with other isomers and some impurities, diluted with kaolin. The powder in bulk has an appreciable musty smell which becomes rather pungent and irritating when it is blown into the air. This dust has been used with success against insects (houseflies, crickets) breeding in refuse dumps, which are often a serious nuisance to neighbouring residents. Gammexane is very toxic to lice, fleas, bed bugs, cockroaches, and other medical and domestic insect pests. The characteristic odour already referred to, however, is regarded as objectionable by many people, and this limits the use of the Grade DO34 preparation. It is understood that investigations are proceeding to develop other formulations which are without this disadvantage.

The Albert Gold Medal of the Royal Society of Arts, which was struck in memory of the Prince Consort in 1864, has been conferred by the Society this year on Sir Alexander Fleming and Sir Howard Florey, as a joint award, for their services in the discovery and development of penicillin.

² Barnes, S., *Bull. ent. Res.*, 1945, 36, 273.

³ Busvine, J. R., *Ann. appl. Biol.* (in press).

⁴ Gersdorff, W. A., and McGovern, *Soap*, 1945, 21, (11) 117.

⁵ David, W. A. L., *Bull. ent. Res.* (in press).

⁶ Cameron, G. R., *Brit. med. Bull.*, 1945, 3, 233.

⁷ Taylor, E. L., *Nature*, 1945, 155, 393.

⁸ Ault, C. N., *ibid.*, 1946, 157, 699.

The National Association for the Prevention of Tuberculosis proposes to hold in London, in midsummer, 1947, a conference dealing with tuberculosis in all its aspects. This conference will probably last three days, and invitations will be sent to representatives from the British Commonwealth and Empire. Visitors are expected also from the United States and from some European countries, and this direct exchange of ideas should promote a closer contact between various countries and the local health authorities responsible for tuberculosis in Britain.

THE SCIENTIFIC METHOD IN CLINICAL MEDICINE

BY

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The writer of this article, immediately upon graduation, was sent to an isolated tent hospital in the Rocky Mountains. This hospital had no laboratory beyond what he made for himself. In his inexperience he found the clinical responsibility very heavy, but it never occurred to him that he had isolated himself from the scientific practice of medicine. Among many cases studied in that lonely hospital the treatment of one stands out as the most satisfying scientific success of what has since been a long professional life.

This writer, therefore, has been surprised frequently to hear physicians posted to outlying stations complain that in these stations they could not practise scientific medicine. He has investigated many such complaints, and in each case he believes that he has discerned a failure to understand the essence of the scientific method in clinical medicine. He has found that, in the minds of many, scientific medicine is confused with the ancillary sciences. He finds many physicians unaware that clinical medicine possesses its own scientific method and that this scientific method may be successfully practised independently of the ancillary sciences.

In a teaching school the ancillary sciences—chemistry, bacteriology, radiology, etc.—are particularly important. They provide the student with objective confirmation of the truths arrived at by purely clinical science. This should not make the student dependent upon them. Rather should it make him increasingly independent of them. When the student finds his own rational and objective findings constantly confirmed by the ancillary sciences he should then become more confident in his own science and less dependent upon the science of others. In a school training physicians, the chief function of the ancillary sciences should be to train the clinical scientists in their medical practice to be largely independent of the ancillary sciences.

Technique of Clinical Science

To all the sciences one method of procedure is common. This method is: (1) the collection of facts, (2) the selection of those facts that are significant, (3) the orderly arrangement of these facts in time sequence, (4) the contemplation of these facts until causal relationship becomes apparent, (5) the checking or control of the newly discovered causal relationship until its truth is established beyond question.

True clinical science follows exactly this technique. Each patient becomes the subject of an original research to discover previously unknown truth. In the interest of the patient it is essential that this truth (the diagnosis) should be established scientifically beyond the possibility of doubt. In clinical medicine this is accomplished by the scientific method.

(1) *The Collection of Facts*—The means by which genuine facts relative to a patient's complaint are acquired is an art in itself. The art requires gentleness, diplomacy, a sympathetic bearing, and often great patience. To cross-check and verify the truthfulness of the facts obtained one needs to know something of what the lawyers call the theory of evidence. It is seldom that the patient is a scientist, but the true physician must always be a scientist searching for truth. The responsibility for the truthfulness of the facts accepted rests not with the emotional patient but with the objective scientist. To call a patient a liar is generally an error of art, but to mistake fiction for fact is a scientific error. The accumulation of the facts requires tact, experience, judgment, and profound knowledge of human nature. This art can no more be learned from a book or a lecture than can that of playing the violin. Only by serious and persistent practice can the art be perfected.

(2) *The Selection of Significant Facts*—This also is an art that improves with experience. The beginner wisely includes all facts that might possibly have some significance. As experience increases the physician becomes more expert at recognizing what is significant. The facts seized upon, although fewer in number, are more significant.

(3) *The Arrangement in Time Sequence*—The facts as acquired are seldom in correct time sequence. They are usually procured in reverse time sequence. To demonstrate cause and effect they must be arranged in normal time sequence. This implies record with exact dates. Great scientific discoveries have depended entirely upon the fact that exact records had been kept with dates.

(4) *Contemplation for Causal Relationship*—One must study the facts now recorded in orderly time sequence. This is the essence of the scientific method. After a long life of clinical experience I am more and more impressed by the causal relationship that becomes apparent when clinical facts are carefully recorded in correct time sequence. When Darwin published his *Origin of Species*—probably the greatest scientific contribution of the nineteenth century—he stated that he believed he had truly followed the scientific method, because he had contemplated his facts for eighteen years before presuming to publish his hypothesis. The practical physician must contemplate more rapidly, but it has always been significant to me that the best physicians whom I have known seldom committed themselves to diagnosis on the first day. Colleagues criticized them for their slowness, but patients flocked to them because they were so frequently right.

In clinical cases it is seldom that such contemplation does not reveal causal relationship. We have now made a clinical history, and almost inevitably this will suggest causal relationship. In scientific language the latter is a hypothesis. Clinically we call it a working diagnosis.

(5) *The Proving of the Hypothesis*—The first and by far the best method of check or control is a thorough physical examination. The physician to be scientific, must train himself until he is familiar with the normal findings of health. Independently of the working hypothesis, and as objectively as possible, the patient is thoroughly examined from head to foot to find what variations there are from the familiar normal. Such examination, of course, is worthless unless the physician be familiar by practice with the normal. Here again we have an art that cannot be learned from a book. Like all the arts it can be perfected only by persistent and patient practice.

Certain variations will almost always be discovered—variations that indicate certain pathology. If this pathology conform to the original hypothesis (it will do so nineteen times out of twenty) then the working diagnosis has been reasonably well established. Our original hypothesis by an entirely independent and objective method of approach has been controlled scientifically and established as truth. By purely scientific method a hitherto unknown truth, the diagnosis, has been discovered and confirmed.

Further Control of the Reasonably Confirmed Hypothesis—Our scientific physician will then wish even more accurately to prove the truth of his diagnosis. As a practising physician he will do this by what is known in clinical science as the therapeutic test. For instance if the confirmed hypothesis be "pleurisy with effusion" an aspiration will almost certainly demonstrate the absolute truthfulness of the original hypothesis. At the same time such procedure brings relief to the patient and thereby establishes the clinical scientist as also a beneficent physician.

Relation of the Laboratory to Clinical Medicine

We have now described clinical medicine as it has been practised by scientific physicians ever since the scientific method was demonstrated by Hippocrates. This or a similar scientific method is practised by our best physicians everywhere. It is this method that distinguishes them from the quacks and impostors. When we subscribe to the Hippocratic Oath we bind ourselves to the Hippocratic tradition. Only those who follow in this scientific tradition are worthy disciples of Hippocrates.

What, then, of our scientific laboratories? We indicated above their essential place in a teaching school. The disciple of Hippocrates is always at school. The art is so long and time so short and judgment so difficult that the Reaper inevitably overtakes the Disciple before the discipline has been perfected. The discipline is infinite and always stretches out in advance of the disciple. The scientific laboratories are places where specialized scientists are willing to assist the clinical

scientist to discover additional and possibly very significant facts that may elaborate or perfect a picture of disease already built up by the clinical scientist. The clinical scientific method readily elucidates hundreds of significant facts. Among these cause and effect is usually evident; diagnosis becomes obvious and in the great majority of cases is ultimately thoroughly established by the therapeutic test. In an occasional case some causal relationship may be obscure or an effect may seem to be disproportionate to its apparent cause. In this occasional and so-called "difficult case" the specialized laboratory may be of inestimable value in supplying an additional and very significant fact not elicited clinically. This is the true function of the laboratory in clinical medicine.

It is not the function of the laboratory to make a diagnosis. The laboratory findings are liable to human error just like the patient's statements, and must be subjected to rigid control. Even when entirely correct the laboratory finding may be of no significance in relation to the patient's complaint. I have occasionally seen a non-significant fact, quite correctly discovered by a laboratory, acted upon disastrously. The making of a diagnosis and the control of clinical treatment are functions and responsibilities of the physician. Overwhelming disaster has marked the assumption of these responsibilities by the non-clinical scientist.

Furthermore, the overworking of our purely scientific laboratories through entirely unnecessary routine and innumerable requests for diagnoses such as every physician should make for himself is deplorable also because the laboratory's true function is embarrassed and the physician's clinical and scientific ability remains embryonic. We see so-called physicians abandoning entirely those arts that constitute the veritable basis of scientific medicine. They deliver themselves and their patient entirely into the hands of non-clinical scientists. They degrade themselves into becoming mere agents for the laboratories. The only ability they cultivate is that of reading laboratory reports. Since they have all learned to read, the discipline for them has become easy.

A shrewd observer points out the irony of a situation so organized that only two men ever examine the sick patient—the radiologist in the dark and the pathologist after the patient is dead. The result is inevitably disastrous to "the Art respected by all men in all times."

Such circumstances I believe to be the essential cause of that deterioration in clinical ability which is now so generally deplored. Laboratory science cannot be made a substitute for clinical science. Such substitution again leads the profession into the wilderness of disorder and superstition.

We arrive at the paradox that science (so called) becomes the test superstition to replace and destroy scientific medicine.

RESEARCH INTO THE COMMON COLD

"A Common Cold Research Unit" is being established by the Medical Research Council and Ministry of Health, and will start work in July at the Harvard Hospital, near Salisbury, which was built and equipped in 1941, and given to the Ministry of Health by Harvard University and the American Red Cross as a place for research into communicable diseases.

Laboratory Studies and Human Tests

A statement issued by the Ministry and the M.R.C. says that the problem of the common cold is a particularly complex one, made more difficult because, apart from chimpanzees, which are unsatisfactory for experimental purposes, it has not yet proved possible to study it in animals. Progress towards the discovery of effective means of preventing a number of other diseases has not been made until some way of observing the disease in animals became available. For example, an effective vaccine against yellow fever became possible only when rhesus monkeys, and later mice, were found to be susceptible to the virus. Similarly, not until it was discovered that ferrets were susceptible to influenza virus was any progress made with the study of influenza. Therefore the first objective of the present investigations into the common cold is to find a susceptible animal or, better still, some other laboratory technique which will permit a scientific approach to the problem.

As a check on their laboratory studies, workers at the National Institute for Medical Research will, at least for the time being, require to test on human volunteers the cold-producing activities of materials they are studying. These tests will be carried out at the

Harvard Hospital. The volunteers will for the time being be drawn from men and women students at the universities. First they will be isolated until it is certain that they are free from infection. Then, after a few days' quarantine, their noses will be sprayed with material to see whether or not it contains a virus. While these observations are being made—for a period of 10 to 14 days in all—the volunteers will be out of contact with the outside world and each other except that, to obviate boredom, they will normally live together in pairs. Isolation will not involve complete loss of freedom, for the volunteers will be allowed to move about the countryside around the hospital provided they avoid all human contacts; and they will live in restful holiday conditions. Volunteers are now being recruited from among university students. If more are needed later, an appeal will be made through suitable organizations. Careful selection is necessary, because special qualities are needed and an exact discipline must be maintained. The Medical Research Council is therefore choosing its own recruits, and applications from the general public cannot be entertained.

TUBERCULOSIS CARE IN NORTHERN IRELAND

It was plain from what was said at the inaugural meeting of the newly formed Northern Ireland Tuberculosis Authority (already christened "Nita"), which has been set up under the Public Health (Tuberculosis) Act,¹ that there is to be no restriction upon its field of activity. Indeed, as the Minister of Health (Mr. William Grant) pointed out, the authority's "terms of reference" were to tackle tuberculosis by all recognized methods, from prevention, including education, to treatment in its widest sense—care, maintenance, after-care, and rehabilitation. Its first duty was, of course, treatment of those suffering from tuberculosis and the provision of sanatorium beds. He hoped soon to see proposals for a drive to secure examination of all contacts of tuberculous persons, since this offered such an excellent opportunity for controlling the disease. The Government, he recalled, was going to meet all capital expenses, the full cost of treatment allowances, and 50% of the ordinary maintenance expenses.

At the meeting, which was held at the Parliament Buildings, Stormont, Councillor Percival Brown (Belfast) and Alderman Mac Christie (Coleraine) were appointed chairman and vice-chairman respectively of the authority. As a prelude to the meeting the Minister of Health entertained members and other guests to lunch. Proposing the toast of the new authority, Mr. Grant warmly acknowledged the co-operation he had received from local authorities (he mentioned particularly the Belfast Corporation) in getting the Act on the Statute Book, and the public spirit they had shown in meeting him "magnificently." The burden of tuberculosis care would now fall on those who had so willingly agreed to serve "Nita." Tuberculosis was a serious problem in Northern Ireland; there was much to be done, but he and the Government had the fullest confidence in them and the work they were going to do. The Prime Minister (Sir Basil Brooke), who also attended the luncheon, said that this Act was not the only health measure the Government had in mind, but any health services proposed would be at least as good as those offered in Great Britain.

TUBERCULOSIS IN INDIA

Lady Wavell in an address to the Tuberculosis Association of India on March 27 said that the time had now come when public opinion would demand much greater activity on the part of the State. Referring to the Bhoré Committee's report Lady Wavell said that consequent on the increasing strength of public opinion in matters of the health, and specially on the publication of the report, it was to be anticipated that various Governments and Administrations in India would assume responsibility for the prevention of tuberculosis and treatment and rehabilitation of sufferers from that disease. "Notwithstanding this," Her Excellency added, "the care and after-care of the sufferer, the education of the public, the research and the co-ordination and direction of the education of workers will, in many years to come, make great claims on the association."

The annual report, presented by Major-Gen. R. Hay, chairman of the association, recorded all-round progress during 1945. For more associations were affiliated to the centre, bringing the total to 34. A feature of the report is the training of tuberculosis workers. Refresher courses have been organized in different parts of the country. During the year 32 doctors received postgraduate instruction and four health visitors qualified, while 12 are undergoing training. Arrangements exist for admitting doctors for practical training in the Lady Lillithgow Sanatorium, Kasauli, and the New Delhi Tuberculosis Clinic. The affiliated associations have also been doing useful work. There are 124 tuberculosis clinics and hospitals and sanatoria with 4,384 beds in India. The report, ho

¹ *Journal*, April 6, p. 529.

ever, points out that this number "is grossly inadequate for a country like India, where the average number of deaths from tuberculosis is in the neighbourhood of 500,000 and the number of open cases is about 2,500,000."

The association took the important step of appointing on it corresponding members from other countries with a view to securing the benefit of contact with the best work and workers abroad.

Reports of Societies

PENICILLIN IN SUBACUTE BACTERIAL ENDOCARDITIS

At a meeting of the Liverpool Medical Institution on April 25, with the president, Dr. G. F. RAWDON SMITH, in the chair, Dr. G. SANDERSON and Dr. M. G. McENTEGART read a paper on the treatment of subacute bacterial endocarditis with penicillin.

Dr. Sanderson described the clinical findings in 20 cases treated in Liverpool for the Penicillin Clinical Trials Committee of the Medical Research Council (see *Journal*, March 16, p. 381). Of this group 8 had died, and 12 had survived for periods ranging from a few weeks to over a year. Of the 8 female cases 5 had died, and of 12 males 3 had died. Cases of congenital heart disease (3) had all done well. These findings were of doubtful significance. There seemed to be no clinical indication before starting treatment as to its probable outcome. Penicillin was given in the earlier cases by continuous intramuscular drip, subsequently by three-hourly intramuscular injection into the thigh. Patients preferred the latter technique, which was well tolerated if fine sharp needles were used.

There had been major embolic accidents in seven cases; cerebral embolism had been most frequent, including two cases of subarachnoid haemorrhage, but splenic, renal, femoral, and popliteal embolism had also been encountered. One patient, who had had a subarachnoid haemorrhage during treatment, had residual diplopia and difficulty in walking. A second patient developed recurrent massive haematuria during convalescence, and this eventually necessitated nephrectomy for left renal aneurysm. These two cases illustrated "recovery with sequelae." Such vascular complications would be encountered from time to time in successfully treated cases, and both physicians and surgeons would need to be aware of this new syndrome. In the second case mentioned timely surgical intervention was a life-saving and health-restoring procedure. The 8 fatal cases were summarized as follows:

Case No.	Age	Dosage (Mega Units > Days)	Time of Death	Remarks	Result
3	42	0.5 x 10	7 days after completing treatment	Death from cerebral embolism and uraemia. Post-mortem cultures: pyocyanus but no streptococci. Sections show healing	
7	18	0.25 x 25	5 months later	No relapse during two months under observation. Death from ruptured aortic aneurysm	
9	22	0.2 x 7	7th day of treatment	Moribund on admission	
10	30	0.2 x 25 (interval 65 days)	2½ months later; 9th day of re-treatment	Blood positive at end of course. Refused to stay in hospital. Re-admitted gravely ill	Failure of 0.2 x 25
11	25	0.25 x 28 (interval 12 days)	7 weeks after 2nd course	Blood positive immediately after both courses	Failure of 0.25 x 28 and 0.5 x 28 C.C.F.
13	62	0.25 x 28	5 months later	No relapse of infection. Death from congestive failure	
14	30	0.25 x 28	6 weeks later	Congestive failure. Necropsy showed no active endocarditis	C.C.F.
17	34	0.26 x 26	26th day of treatment	Necropsy refused	

These cases indicated that most failures were not failures of penicillin, and suggested that even when optimum schemes of dosage had been worked out a considerable mortality must still be anticipated, probably of the order of 25%. The two deaths from congestive cardiac failure (C.C.F.) were important, as most published series had included deaths from this cause. In discussing dosage Dr. Sanderson quoted Christie's figures as show-

ing the value of a large-scale investigation. Of the Liverpool cases treated with 0.5 million units daily for 10 days, three out of five had recovered, but no other centre had any success with this regime. The present tendency of dosage was upwards both in quantity and in time.

Laboratory Control

Dr. McENTEGART described the laboratory control of the investigation in relation to blood cultures, penicillin sensitivity of the organisms isolated, and serum and urine penicillin levels during treatment. Attention was drawn to the apparent lack of correlation between the coefficient of resistance (within the limits shown by the organisms isolated from Liverpool cases) of the infecting organism and the ultimate outcome, and cases were quoted in support of this conclusion. Observations on serum penicillin levels suggested that the onset of renal failure was accompanied by some degree of penicillin retention.

In the discussion the PRESIDENT commented on the greater success in the earlier cases to be treated than in the later ones. He wondered if penicillin might be at any rate partially responsible for the emboli so often observed. He was surprised that extensive dental extractions were considered an aetiological factor in infective endocarditis, as it was unknown at the Liverpool Dental Hospital, where major dental operations were frequent.

Dr. H. FULFORD said that one of the patients demonstrated at the meeting was seen by him before admission to the Royal Infirmary. He gave a history of tooth extraction for apical abscess three weeks before the onset of his symptoms. In a recent American review of 347 cases of subacute bacterial endocarditis the incidence of tooth extraction was 10%. Dental sepsis appeared to be the most important primary focus of infection. Most edentulous patients who developed bacterial endocarditis were infected with organisms other than *Str. viridans* (enterococcus, staphylococcus, and gonococcus). He felt that in future "oral clearance," particularly in patients with congenital heart disease or a history of rheumatic fever, should be considered an operation requiring pre- and post-operative penicillin therapy. Total clearance at one sitting in the dentist's chair should be a thing of the past.

Dr. R. M. EVANS recalled two cases of apparent cure in which the sudden onset of congestive cardiac failure several weeks after the penicillin treatment was found at necropsy to be due to a ruptured aortic cusp. In both cases vegetations were absent, and the bacterial infection apparently abolished, leaving the cusps damaged by scarring.

TREATMENT OF CANCER OF THE CERVIX

The April meeting of the North of England Obstetric and Gynaecological Society, held at Leeds, was devoted to a discussion on the treatment of cancer of the cervix uteri.

Mr. D. W. CURRIE, of Leeds, described a series of 41 cases on which he had performed a Wertheim's hysterectomy, collected between the years 1935 and 1946, with no primary mortality. Of these, 8 had died of the disease, and 6 out of the 11 operated upon five years or more ago were still alive. He was of the opinion that the operation was the treatment of choice in the early type of case, and that the operation should be preceded by treatment with radium to clear up sepsis and to minimize the risk of implantation of cancer cells in the vault of the vagina.

Dr. M. C. TODD, of Manchester, and Dr. G. W. BLUMFIELD, of Sheffield, described their technique for the treatment of this growth with radium. Dr. Blumfield stressed the importance of obtaining a reliable opinion on whether the type of cell in any biopsy was such as to be likely to react favourably to irradiation. He was of the opinion that there should be the closest co-operation between the gynaecologist, the radiotherapist, and the pathologist before coming to a decision as to which was the best form of treatment in any given case. Mr. Currie deplored the fact that many cases were sent direct to the radium expert for treatment with radium without letting the gynaecologist have the chance of giving his views on whether surgery should be employed or not.

Many members discussed the problem, and Mr. Currie was congratulated on proving that the risk of a Wertheim's hysterectomy was no greater than that of an ordinary hysterectomy, when it was performed by an expert surgeon.

Assistants and the Health Service

SIR,—I have read the condensed White Paper on the proposed National Health Service and have also followed with interest and ever-increasing apprehension the numerous reports, letters, etc., appearing in your columns, but have so far failed to find any reference to the position of assistants.

I am now aged 31, with 6½ years' war service to my credit, and was demobilized from the R.N.V.R. last December. Having no available capital and lacking any desire to invest borrowed money in a partnership with a State medical service "round the corner," I was forced to take an assistantship. What, I wonder, will be my position and that of the hundreds of other similarly placed ex-Service medical men now acting as assistants when the new service comes into force? Many of us, like myself, have no surgeries of our own. We live in furnished rooms and see patients in the consulting rooms of our principals. We have no patients of our own because, theoretically at any rate, all the patients we see are those of the practice.

With regard to the proposed direction of doctors, positive or negative as it may be, I feel that I have had my fair share of "draft chits" in the Navy, and on my demobilization looked forward to a free choice of locality in which to practise. This, it seems, was a vain hope.—I am, etc.,

Falmouth.

W. J. PATTON.

Medical Students and the Bill

SIR,—We have been sent a questionnaire on the Health Bill by the British Medical Students Association and we favour the attention of both undergraduates and graduates in the wide issues involved.

1. The bulk of it refers to points of method, technique, administration; only one question touches on policy: "Do you approve or disapprove in principle of the establishment of a comprehensive National Health Service?" The quality of that service is not defined or queried; and it is the quality that matters to the patient, not the mere presence of a service. We are reminded of the "control of the agenda technique" of any policy of force.

2. We doubt if responsibility can or ought to be given to students (or doctors) to answer some of the questions, as they concern future events and/or highly technical matters of administration.

3. Some of the questions are not worded in intelligible language. "Benefits and contributions" are to be "applied" (? like the thumb-screw), and "efficiency" is freely used without definition so that its meaning can range from "compulsory" to "a bigger and better Civil Service."

4. Only two questions out of a total of about 20 are answerable if the policy of the Bill is not accepted. Further, there is no opportunity for "contracting out" of answering a question, the choice being "Yes," "No," and "Don't know." This does not give an opportunity to exercise the "negative vote," which is valid in this questionnaire as only one policy is presented. By such a vote we mean the purposeful refusal to answer a question.

5. The executive of the B.M.S.A. points out that its finally expressed views must of necessity be the views of the majority answering this questionnaire, and such views are to be put forward to the Minister and the country as the views of the medical students of the country. Once more the fallacy of mob or majority rule prevails. That minority views are not represented with equal fairness we can only regard as one of the triumphs of totalitarian philosophy, and we have no compunction in denouncing this as alien, as the rule of force, as being of the creed of our recent enemy. If democracy means the rule of the majority and the suppression of the minorities, then cut out democracy. This is in absolute contradiction to the ethical concept of medicine—that the individual is of supreme importance—the condition of acceptance being that he harms not his fellows (thus arises common law).

In conclusion, we hold that the concern of the individual doctor and student is one of policy, and that the administration of that policy, its method of application, is to be formulated after the policy is agreed to, and by the co-operation of those concerned with its administration. And we agree to this policy: "that full facilities of medical care be extended to the whole community under conditions of privacy, freedom of contract,

and personal responsibility of doctor directly and solely to the patient, subject only to the common law and the ethical tradition." We therefore reject the Bill and any other proposed scheme where a central authority can interfere in the doctor-patient contract. We regard the Bill, by transferring responsibility to the State, as being a measure that violates our principles of association, as being a measure conflicting with the British tradition and the fundamental nature of man. We reject it in its entirety, fully realizing it contains in administrative technique much good.—We are, etc.,

GEORGE H. BLAIR.

J. MURRAY GILL.

GEORGE LAVERTY.

CYRIL E. WILLIAMS.

Edinburgh University.

The G.P. in Consultation

SIR,—May I be permitted to join issue with Dr. R. G. Blair on his statement (May 11, p. 733) that "the whole trend of modern medicine is to pass the complaints of each and every patient through a series of watertight compartments of mechanical and laboratory investigation, while the diagnosis and treatment are postponed for the assessment of the findings." Such indeed was the trend of medicine in this country a quarter of a century ago, and this trend now carries all before it in the United States. But it was exactly the recognition of this trend and of its dangers which twenty years ago led in this country to the foundation of the Association of Clinical Pathologists. The precise aim and purpose of clinical pathology as developed by the association is to eliminate the watertight compartments and to bring all branches of laboratory diagnosis into close and efficient contact with clinical practice.—I am, etc.,

Wolverhampton.

S. C. DYKE,
Vice-President, Association of Clinical Pathologists

What is Clinical Pathology?

SIR,—Since the B.M.A. proposes to publish a new journal, one on clinical pathology, it is perhaps proper to ask what this subject really is. One commonly held view is that a clinical pathologist is the laboratory worker who does the morbid anatomy, the bacteriology, the chemistry, and the haematology for a hospital which is too small, too poor, or too stupid to employ an expert in each. This is a shameful misuse of two words that separately were of good caste, and that wedded might well be used to distinguish the pathologist (laboratory investigator of disease) working with human material from those whose interests are in animal pathology (veterinary and comparative pathologists, and those working on experimental cancer or other diseases). The Goodenough report not only uses the term clinical pathologist, but seems to believe that there should be professors of clinical pathology, and yet the nearest it comes to giving a definition is to describe the ideal clinical pathologist as one who is an expert haematologist, a liaison officer between the clinician and the morbid anatomist, bacteriologist, and chemist, and capable of doing the simple diagnostic work that properly belongs to the subject of these three colleagues. Accepting this description for the moment, we may presume that there will be few if any publications in this proposed new journal on the liaison aspects of this man's work, and it would therefore be accurate enough to call it "The Journal of Haematology and the Simpler Clinical Laboratory Procedures." The absurdity is obvious. Let us therefore reject these hazy ideas and agree that "clinical pathologist" means a laboratory worker attached to and performing diagnostic work for a hospital. It has not been stated yet whether the sponsors of the new venture mean to exclude any of the four specialties that comprise clinical pathology. If not, and if the morbid anatomist, the bacteriologist, the chemist, and the haematologist are all to be accepted, then let us call it "The Clinical Laboratory Journal." At least let us be clear about the purpose to be served and the field to be covered by this new journal. There is not much room on the bookshelf.—I am, etc.,

Glasgow.

ALAN C. LENDRUM.

Resumption of Treatment at Spas

SIR,—Recently a number of doctors have asked me for information as to whether the spas of this country are still functioning as such, how patients should be referred to them and the general procedure of getting them there.

In answer to the first question, all the spa hydrotherapy and physiotherapy establishments are now open, but accommodation is, in many cases, still somewhat limited, owing to the delay in "de-requisitioning" hotels. There are three hospitals to which cases may be referred—the Royal National Hospital for Rheumatic Diseases, Bath, the Royal Devonshire Hospital, Buxton, and the Royal Bath Hospital, Harrogate. In most hospitals there is a waiting list, but application for particulars and entry forms should be made to the respective registrars.

With regard to private patients, these should be referred with a letter from their private doctor, preferably to a specific doctor at the spa chosen, or, failing this, to the spa director, who will forward on demand a list of doctors willing to supervise treatment. Accommodation consists of hotels, lodgings, or nursing homes, and facilities available at each spa can be forwarded to the patient by the spa director or physician concerned if some information is sent to him of the degree of incapacity of the patient, his means, and his preferences in the matter. The average stay for treatment is three weeks, but in some cases, of course, several months will be required if orthopaedic procedures need to be instituted. On this basis there are usually inclusive charges in addition to individual charges, arranged for a course of some eighteen treatments of whatever type the physician may order at the cost of a little under £6.—I am, etc.,

Bath.

G. D. KERSLEY.

The Catheter and the Prostate

SIR,—I am sure that every prostatectomist will agree that congratulations are due to Mr. Wilson Hey (May 18, p. 757) on his low mortality rate for such a large series of prostatectomy cases. His figures proclaim the extent to which he has triumphed over the twin enemies—haemorrhage and sepsis. It is proper, I feel, to regard the mortality rate as the primary concern in the results of prostatectomy. I personally am in hearty agreement with the writer on the general principle of the evils of the catheter in prostatic cases. I suppose that every surgeon who is largely concerned with prostatectomy is constantly exercised to improve his results, so that I am sure I cannot claim to be exceptional if I confess to having spent my surgical life in such an endeavour. My most recent efforts involving modifications of technique towards this end are represented by a modest total of 95 cases of suprapubic prostatectomy for simple enlargement, comprising 40 one-stage and 55 two-stage cases, with a total mortality of 1 (1.05%). The death was in one of the two-stage cases. Over the same period I performed suprapubic cystostomy on 18 other cases of simple enlargement, with the ultimate hope of prostatectomy for some of them. There were two deaths amongst these. Thus there was a total mortality of 2.6% in 113 cases of simple enlargement of the prostate submitted to open operation.

Briefly, the points I pay special attention to are: (1) Avoidance of urethral instrumentation as much as possible; (2) decompression by the suprapubic route; (3) wide indications for two-stage prostatectomy; (4) open operation in all cases; (5) careful toilet of prostatic cavity, which is then packed with Paul's tubing.

My experiences prevent me from endorsing Mr. Hey's views on the dangers of suprapubic drainage. I am still unaware of any evidence that the urine during the convalescence following any method of prostatectomy can be kept free of pus or organisms. I feel that while the benefits of a preliminary cystostomy are sufficiently well known not to need elaborating, the evil consequences from the introduction of fresh organisms through the suprapubic approach are much less than those which result from urethral instrumentation. Pre-operative indwelling catheter drainage, although it may result in a fall in blood urea in a most dramatic way (this object may be achieved equally well by other means), tends nevertheless to set up inflammation not only in the urethra but also in the prostate. The evidence that the latter organ is so affected is the regularity with which a certain amount of oedema is to be found in the prevesical space when the indwelling catheter is used pre-operatively. Moreover, the tendency to renal infection, septicaemia, and pyaemia from the instrumentation of the unhealthy prostate needs no emphasis from me.

My experience is that infective complications of all kinds, particularly those of the chest, commonly follow suprapubic cystostomy if urethral instrumentation has been employed in the pre-operative period; also after prostatectomy the same events may occur, as, for example, when an ill-timed effort is made to safeguard against post-prostatectomy obstruction. On the other hand, such incidents have been far less frequent amongst my cases when the instrumentation has been restricted to the actual operation session. In the more distant past I found that cystoscopic prostatic cases at all sorts of intervals—sometimes several weeks—before the prostatectomy gave me a certain number of cases with infected urine, and occasionally with something worse, for the prostatectomy. More recently, therefore, I have chosen what I consider the lesser evil—cystostomy immediately preceding operation.

With regard to chronic urinary infection after two-stage prostatectomy: if strict attention is paid to removing any vesical diverticula which are present (I removed diverticula in 14% of this group of prostatectomy cases) and a close watch is kept for the slightest sign of post-prostatectomy obstruction, such cases should be very exceptional. At the present time many of the younger surgeons are coming out of the Services, and have for a period been out of touch with prostate work. Some of these will be faced at once with the problems of prostatectomy, and with the difficulty of choosing how to proceed from the many modern methods of removing prostatic obstruction, all requiring a good deal of skill and experience. It is important, therefore, that they should know that suprapubic prostatectomy combined with bladder drainage can be done with relative safety, provided a sound technique is employed.—I am, etc.,

London, W. 1.

H. P. WINSBURY-WHITE.

SIR,—In your issue of May 18 Mr. Wilson H. Hey suggests that all cases of retention of urine, complete or incomplete, should be operated upon before a catheter is passed. He also states that the operation he performs entails a twelve-hour preparation with chemotherapy. The combination of these two ideas does not seem to be practicable. If, as he lays stress upon, the important factor is sepsis, surely his remarks can refer only to the prostate not complicated by acute retention. Even assuming we dispense with the chemotherapy, I find it hard to believe that it is better for the patient with an acute retention to have to wait an extra hour or so, while the theatre is prepared and a surgeon called in order to operate, than to give him immediate relief by the catheter.—I am, etc.,

St. Mary's Hospital, W. 2.

SEYMOUR EDELMAN.

Shock Treatment of Bronchial Asthma

SIR,—The article of Dr. Z. Godlowski (May 11, p. 717) is a further contribution to the most difficult problem of treating the so-called "allergic" asthma—i.e., that in which no organic cause can be found (strictly speaking, all asthma cases are allergic). The insulin treatment represents another example of non-specific protein shock, which, like Godlowski, I have pointed out to be the most rational treatment in this type of asthma. Unfortunately, insulin therapy has several disadvantages. It lacks simplicity, it is slow, and it is not safe except under expert supervision in hospital.

A simpler method of applying (non-specific) protein shock which can be used in general practice is one I described in 1939 and 1945 and which was first published in Austria and Switzerland in 1933. The drug used was "pyrifur," a *Bacillus coli* vaccine (now manufactured in this country) which originally was used in the treatment of G.P.I. in place of malaria.

"Pyrifur" is given intravenously, on an empty stomach, in the morning, and usually one injection (lowest strength, 50 million germs per ml.) is adequate. Four to five hours after the injection a rise of temperature occurs, associated with rigor, headaches, sometimes sickness and profound depression (symptoms resembling influenza or malaria), but three or four hours later this subsides again and the following day the patient feels almost normal except for some weakness. The method is safe, and no special laboratory tests are required. Only in decompensated heart cases with obvious clinical symptoms and signs have I refrained from using this treatment.

The administration of the drug is simple and it can be employed in general practice, as I have always done. I have found that within a few days the asthma disappears, and I have seen quite a number of cases without recurrences for four or five years.—I am, etc.,

Spennymoor.

E. BRAUER.

Penicillin in Eye Work

SIR,—Penicillin has been used extensively in eye work, not only in conjunctivitis and infections due to specific organisms but as prophylaxis in pre-operative and post-operative cases (Keyes, *J. Amer. med. Ass.*, 1944, 126, 610). It has been realized that penicillin in isotonic saline solution, administered as drops, was not ideal because its effect is so transient and repeated instillations are necessary to maintain an effective concentration. Some other base with a higher viscosity was sought. Before discussing the substance used, it is necessary to mention the other preparations of penicillin commonly used for eye work. Penicillin cream made with a lanette wax base was sometimes found to be irritating to the conjunctiva. Penicillin lamellae would be ideal if a gelatin or similar base was used, but the present type, a small compressed tablet, excites a foreign-body reaction. A solution of "carbo wax 4,000" was suggested as a liquid base for penicillin.

Carbo wax is soluble in water, and a 70% weight in volume solution has a viscosity similar to castor oil. Briefly, its properties are as follows: a condensation product of diethylene glycol, its formula is $(\text{CH}_2\text{OH})_2(\text{CH}_2\text{OCH}_2)_n$ and its melting-point 50–55° C. (McClelland and Bateman, *Chem. Eng. News*, Feb. 10, 1945). Experiments by Smyth *et al.* (*J. industr. Hyg.*, 1942, Sept. 24, p. 281) show that it is relatively non-irritant to the skin and to the mucous membrane of a rabbit's eye.

The solution of penicillin and carbo wax was prepared as follows. Carbo wax 4,000 (supplied as flakes) was dissolved in sufficient Sørensen's buffer (pH 8) to produce a solution containing 70% weight in volume. This solution was filtered, hot, through filter paper, distributed in small screw-capped bottles, and sterilized by autoclaving at 115° C. A solution of penicillin was added aseptically to the sterile carbo wax solution when cold. The final pH was 7 as measured by a comparator using a universal indicator. The preparation was found non-irritant to normal eyes and was used in cases of conjunctivitis, corneal ulcers, and in pre- and post-operative cases, 3 to 4 drops every four hours being instilled. The base described above is suggested, because of its higher viscosity and its inert and neutral properties, as a suitable vehicle for the ocular instillation of penicillin. Carbo wax 4,000 was supplied by General Metalurgical and Chemical, Ltd.—We are, etc.,

C. MONTAGUE RUBEN.

JOHN C. H. HANSON.

Hertford County Hospital

Toxicity of Uranium

SIR,—With regard to the significance of uranium in its relation to atomic energy your annotation (March 16, p. 397) dealt with experiments by the American authors Gustafson, Koletzki, and Free, who found that dogs given big doses of uranyl nitrate intravenously developed severe tubular necrosis of the kidneys, resulting within a short time in anuria, uraemia, and death. Sodium citrate given orally or intravenously protected the kidneys against uranium poisoning.

In experiments carried out more than thirty years ago J. Pohl found a different type of renal damage—namely, a subacute nephritis resulting in death, due to very small doses of uranyl nitrate hypodermically administered in rabbits (*Arch. exp. Path. Pharm.*, 1911–12, 67, 223). Unlike the acute nephritis with uraemia mentioned above, the main feature of the subacute nephritis is the lack of anuria and uraemia, but an obvious diuresis with a more or less increased excretion of N and NaCl—in other words, death occurs while the kidneys are fully functioning. The name "scouring nephritis" proposed by Pohl seems to be appropriate. Later, I myself (*Z. klin. Med.*, 1915, 81, 355) and in collaboration with K. Siegfried (*Z. exp. Path. Ther.*, 1920, 21, 380) tried to modify the course of this subacute nephritis in rabbits and found that daily intravenous injections of calcium lactate, and also of hypertonic NaCl solution, increased the manifestations and accelerated the

course of the poisoning, 0.9% NaCl solution being without any influence. These findings are remarkable in view of the therapeutic effect of sodium citrate seen by the American authors. As a result of specially arranged experiments we formed the theory that uranyl nitrate has a peculiar affinity for the kidneys, the other organs not being primarily affected. Microscopically we found glomerulonephritis when uranyl nitrate was injected directly into the renal artery.

Some unpublished experiments by Siegfried on that problem will be found to be of interest. He told me that rabbits poisoned by uranyl nitrate did not die but recovered when they were given a diet of vegetables and salad; they were eager to eat earth, to which fact he attached special value. I cannot remember whether Siegfried (he died about ten years ago) killed the animals in order to examine their kidneys histologically.—I am, etc.,

Kingston-upon-Hull.

L. DUNNER.

National Research into Tuberculosis

SIR,—Nearly six months ago (Dec. 1, 1945, p. 781) one of us (G. R. W. N. L.) wrote a letter to the *Journal* emphasizing the urgent need for organized research with a view to discovering a chemotherapeutic compound which will cure tuberculosis. This was followed by a few letters from colleagues and a very encouraging reply from Dr. Frederick Heaf (March 2, p. 327). Many important aspects of this problem were mentioned in these letters:

1. "The defeatist attitude which exists in the field of tuberculosis is to be deprecated, and it is a sad state of affairs that we are content to spend millions on palliative measures alone." (Dec. 1, 1945, p. 781.)

2. "The difference between the tuberculous patient and casualty from all other causes in persons of the same age is so tragically glaring that it cannot be missed. Whereas a patient in the casualty group, with the help of sulphonamides, penicillin, and surgery stands a very fair chance of getting over his disability, one in the tuberculous group, in spite of all modern medical and surgical treatment, stands with the sword of Damocles perpetually hanging over his head." (Jan. 5, p. 32.)

3. "Tuberculosis costs the country many millions of pound every year and destroys or cripples thousands of persons in the prime of life, and yet our efforts to combat the ravages of this scourge are still spasmodic and half-hearted. We are still unable to prevent persons becoming tuberculous or to offer them a cure and the infection continues to take its toll of children and young adults as it passes through the population practically unchecked." (March 2, p. 327.)

4. "Now that methods of treatment in pulmonary tuberculosis are coming under critical review it is being increasingly realized that they are over-used and, to a great extent, over-rated. The answer to the problem of tuberculosis has not yet been discovered. No effort or expense should be spared in the attempt to discover a chemotherapeutic substance to cure tuberculosis, and we should tolerate no delay. It is a prime responsibility of the medical profession and the Government, in meeting this national problem, to set up a special research unit with this object in view." (Dec. 22, 1945, p. 901.)

After reading through these extracts it is somewhat surprising that the response from the medical profession should have been so small. Is it because doctors in general are not easily drawn into discussion on matters which they consider important? Apparently not; for the columns of the *Journal* were occupied every week from November 24 to December 22, 1945, with fifteen letters on "Artificial Pneumothorax Refill," and on "Stethoscope v. X Rays" eighteen letters appeared between January 5 and May 11, 1946, when the correspondence had to be closed. It is an unhappy reflection on the outlook of the medical profession that it is so ready to dilate on medical minutiae, whereas fundamental issues leave it entirely unmoved.

Previous Governments have always been niggardly in their grants for medical research, and the present Government has so far given no indication that it intends to depart from the general rule. It might have been expected that included in the plan for reorganization of medical services would have been specific and generous provision for medical research. So far as we know the Government is content to continue with its annual pittance of £215,000 for medical research throughout the length and breadth of the country. Medical men must be aware of the pressing need for investigations likely to throw light upon practical problems of the moment. This work is of the very

first national economic importance. The Government must be urged to make every effort to contribute towards medical research so that not only general scientific knowledge but also curative treatment can be advanced to add to the heritage of this country.

While it is no wish of ours to introduce a red herring into this correspondence, any discussion of the problem of tuberculosis would be incomplete without reference to the question of pasteurization of milk. The evidence in favour of this measure for ensuring a safe milk supply is overwhelming and incontrovertible. The system of grading milk under the Milk (Special Designations) Orders is particularly dangerous in that it lulls the public into a false sense of security. Why, then, is the Government so tardy in introducing a measure which will render milk safe without diminishing its nutritive value? The *Bulletin of the Health Organisation of the League of Nations* (June 1937) sums up the position:

"The fear that pasteurization was detrimental to the food value of the milk has undoubtedly deterred many doctors in the past from supporting compulsory pasteurization. The fear appears to be entirely groundless and should now be removed to the limbo of disproved and forgotten prejudices."

Our plea is for immediate legislation insisting on pasteurization of all milk supplies and the speedy organization of systematic research for the prevention and cure of this terrible scourge on the young people of the world. At a conservative estimate tuberculosis costs this country £15 000 000 annually whereas it was reported the other day that one of the greatest authorities in matters of chemotherapy considers that £1 000 000 to spend on tuberculosis research should produce definite results within ten years. However distant the goal a start must be made now. It is up to us of the medical profession to insist that the Government take immediate steps to this end. By so doing the health of the whole country—for that matter of the whole world—would be changed for all time. We are, etc.

S. M. HILTON

GEORGE R. W. N. LUNT

Preston Hall Hospital, Kert.

Treatment of Congenital Hypertrophic Pyloric Stenosis

SIR,—I read with interest Dr. N. M. Jacoby's article (May 11, p. 721) on the treatment of congenital hypertrophic pyloric stenosis, with its excellent criteria for the differentiation of medical and surgical cases. His anxiety for the child's attendants was admirable—whilst the case was under his care—but as this never appears to extend beyond the day the infant is discharged from hospital—a period of some ten days—I feel he takes rather too optimistic a view of what takes place after this time.

I am still rather in the dark as to how long the feed volume reduction continues. Does vomiting return at all when the volume is increased? If it is kept small what weight does the child put on in subsequent weeks? I should like to quote two cases showing that the history of a pyloric stenosis extended considerably beyond the tenth day.

Case 1 Surgical.—Birth weight, 7 lb (3.2 kg). Normal birth at full term. Breast fed. Vomiting started at five weeks (8 lb 5 oz—3.7 kg), becoming increasingly projectile in twenty-four hours, and by the third day there were constipation, a palpable pyloric tumour and visible peristalsis. Operation was performed immediately. Weight was stationary during the week preceding the operation followed by a 5–7 oz (140–200 g) gain weekly. Weight 12 lb (5.4 kg) at three months, 17½ lb (8 kg) at six months.

Vomiting continued to be projectile for about three days after operation and then decreased, but there was some non-projectile vomiting after every feed until six months, when the child had started to take solid food. At a year the vomiting had ceased entirely.

Case 2 Medical.—Birth weight, 6 lb 11 oz (3.1 kg). Three weeks premature. Caesarean section for placenta praevia. Artificially fed. Digestive upset with frequent loose curdy stools and occasional non-projectile vomiting from 7 to 21 days. Projectile vomit once on seventeenth day, once on eighteenth day, slight improvement in general condition, then gradual deterioration. At seventh week constipation, small non-projectile vomits after each feed, abdomen distended, palpable pyloric tumour, visible peristalsis. Medical treatment advised: "Pylostropin" (Clay and Abraham) atropine methyl nitrate 1/750 gr (0.09 mg) lamella ten minutes before each feed for seven days, then before decreasing numbers of feeds for

the next fourteen days. Vomiting became less; distension disappeared, and there was a motion every twenty-four hours at first, then at slightly longer intervals.

Weight gain very slow at first, weight at three months was 9 lb 8 oz (4.3 kg), since then a rapid gain, now 12 lb (5.4 kg) at four and a half months. Still vomiting happily (literally!) from 4 to 2 oz (15–60 ml) after most meals, though the larger vomits are getting less frequent.

I am afraid my experience in this field is limited but probably (I hope) unique, in that these two cases are my sons and neither of them was in hospital, so that I had ample opportunity for studying their after-care—I am, etc.,

Liverpool

MARGARET SMYTH

"Cord Round the Neck"

SIR,—Eight years ago, at a meeting of the Society of Obstetrics and Gynaecology of Athens, I presented a case of a multipara who gave birth to a living child with six rings of the umbilical cord around his neck. The total length of the cord was about 5 ft. (150 cm).

In 1944, when attending a primipara the foetal heart stopped abruptly at the first stage of the labour, the cervix being three fingers dilated. When the delivery took place a tight cord was found around the neck, and that was the only apparent cause of death—I am, etc.,

Jesop Hospital, Sheffield

P. P. PANAYIOTOU

SIR,—With regard to this controversy, I should like to mention a peculiar condition which I once met with. I was called in by a midwife for delay in the second stage of labour, but was able to deliver without the use of forceps by pressure on the fundus. The child was just dead when delivered, and the cord was three times round the left arm and twice round the neck. The arm below the mark made by the tight cord was atrophied and was only half as long as the right arm and perhaps a third of its thickness. Death, I should think, would be due to the final stoppage of the circulation in the cord during the last stage of delivery.

Cord round the neck is a frequent cause of delay and weak pains in the second stage, and it appears sometimes to be responsible for shoulder presentations, etc.—I am, etc.,

Wallasey

F. WILLIAM INMAN

Sjogren's Syndrome with Rheumatoid Arthritis

SIR,—Prof. Arnold Sorsby, as he kindly offered to do in his letter (May 18, p. 774) has demonstrated to me the association of the keratoconjunctivitis sicca of Sjogren's syndrome with rheumatoid arthritis. What interests me also is that, on the other side, he has found that Sjogren's syndrome is an exceedingly rare complication of rheumatoid arthritis—I am, etc.,

London W 1

F. PARKES WEBER

Compulsory Vaccination

SIR,—At the recent Special Representative Meeting a resolution was proposed deploring the decision of the Minister of Health to abolish compulsory vaccination. The Chairman of Council, however, made it clear that the decision had been made on expert medical advice and on the ground that compulsion was acting as a deterrent. It was considered that propaganda on lines similar to that adopted in the case of diphtheria would be more likely to produce desired results. The resolution was therefore negatived.

With due respect to those who tendered this advice it may well be argued that no sort of parallelism exists between smallpox and diphtheria, since the former is not a prevalent disease, nor has it been so for the past fifty years. Many doctors have never seen a case, and for the general public it has lost its terror. Moreover, in all but exceptional cases diphtheria inoculation is without reaction, whereas vaccination produces a nasty little sore and a varying degree of malaise. It is not hard to see that propaganda will have no easy task. It is probable that the more intelligent public are quite unaffected one way or the other by the compulsory clause, while the ignorant are at least as much influenced by mental laziness as by passive resistance and are even less likely to "contract in" than they are to refrain from "contracting out." It may yet require a

severe smallpox outbreak to re-establish the necessity for vaccination. Active opposition to the compulsory clause is long a thing of the past, but once the rule is rescinded it will prove a most thorny and difficult matter to re-enact it if propaganda fails.—I am, etc.,

Derby

E. D. BROSTER.

The Population of India

STR.—Sir John Megaw's call (March 9, p. 343) for a commission of inquiry into the social and other customs responsible for excessive multiplication of population in India is likely to be a cry in the wilderness. Since the creation of separate electorates, and the provision of seats in the legislature according to the number under each religious denomination, capture of positions of power has become dependent entirely on numbers and not on merit or capacity. With separate electorates at every stage and with the statutory declaration that appointments—even specialist appointments, such as surgical appointments, V.D. appointments, appointments in eye hospitals, irrigation engineers, electrical technicians—will be distributed among different communities according to their number in population, matters have reached such a stage that multiplication and not qualification has been the sole determining factor. The scandal of holding back the constitution of a famine control body because sufficient Moslems were not available in Bengal, even though famine was then knocking at the door, was commented upon by the Woodhead Commission.

In such a state of affairs any advice to control prolific baby production will be considered inimical advice. Some years ago, at the Bengal Conference of the Indian Medical Association, a resolution to request the Government to start birth control clinics was thrown out by a majority of doctors who are overwhelmingly Hindu and who probably felt that the advice would be taken by the Hindus and not by other more backward intellectually and culturally unprogressive communities, and the result would be to tilt the balance further in favour of communities in which polygamy has not yet become something to be ashamed of, where temporary marriages are customary. Already Moslems, who were a minority in Bengal 70 years ago, have become the majority, and in the whole of India in 50 years the Moslems have increased by 80% while the Hindu population has gone up by 40%.

Social reform propaganda has also proved a boomerang in its results. Many years ago child widows could be counted by the 100,000 among Hindus, and as widow remarriage was unknown except among the lower castes this was a salutary check on the growth of population. So was also the institution of *Sanyasis*—celibate male monks—among Hindus. There were several millions of these people who at least could not procreate. Such institutions are becoming rarer with westernization. Sir John Megaw's well-meant advice is therefore likely to meet with a chilling reception in the present atmosphere of scramble for political power.

There is one redeeming feature to which one could call the attention of our friends. The over-all density of population is 168 per sq. mile, which is less than that for Europe minus U.S.S.R. If therefore India was industrialized even to something like the backward countries in Europe, India could easily feed herself, because even in the worst days of famine in Bengal there was hardly scarcity of grain. It was far more commonly inability to pay the State-controlled price, just as at present so-called destitutes are still daily dying in the streets of Calcutta for want of money, not grain.

Lord Wavell, who has proved to be one of the best Viceroys India has seen, even if he is the last Viceroy, is initiating country-wide schemes which are expected to raise the production of the soil. The yield of rice per acre in Bengal is about one-third of that in Spain and less than one-half of that of Japan, and the yield is getting less and less. A progressive Government could any day increase the yield to three or four times the present figures, and then scarcity of cereals would be impossible for at least the next 50 years and the poor man would have a far more satisfying diet than he has ever known.

In the present morbid atmosphere the way of deliverance lies therefore in calling not for limitation of families but for industrialization and co-operative methods of increasing the yield from the soil.—I am, etc.,

Calcutta

N. R. SEN GUPTA.

Obituary

T. H. BRYCE, M.D., F.R.S.

Prof. T. H. Bryce, who died in hospital at Oxford on May 16, held the Regius chair of anatomy in the University of Glasgow from 1909 to 1935, when he received the title of emeritus professor. He helped Glasgow to a leading place in the modern science of anatomy and did much original research in embryology and cytology; he also gave memorable service to anthropology and was a distinguished archaeologist.

Thomas Hastie Bryce, son of William Bryce, M.D., of Edinburgh, and a cousin of Viscount Bryce, the eminent jurist, statesman, and diplomat, was born at Dalkeith on Oct. 20, 1862. From Edinburgh Collegiate School he went on to the University of Edinburgh, graduating M.B., C.M. in 1886, and M.D. (with gold medal) in 1901, having become a Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow in 1890. Later he was awarded the Keith prize by the Royal Society of Edinburgh, which elected him a Fellow. After working as demonstrator of anatomy at Edinburgh under Sir William Turner he was appointed lecturer on anatomy at Queen Margaret's College, Glasgow, in 1890; two years later he became lecturer in the same subject at the University of Glasgow, holding the post until 1909, when he succeeded Prof. John Cleland in the Regius chair. On his retirement in 1935 he was succeeded by Prof. D. M. Blair. For many years he was curator of the anatomical and archaeological collections in the Hunterian Museum in Glasgow and devoted much time and skill to the arrangement and classification of the specimens. He had a European reputation as an anatomist and was especially distinguished for his work on human embryology, an important contribution being the monograph written with Prof. Teacher and Prof. Munro Kerr on the early development and embedding of the ovum.

Prof. Bryce was one of those responsible for the eleventh edition of *Quain's Anatomy*, contributing the sections on embryology, osteology, and arthrology. He was elected F.R.S. in 1922, and two years later gave the Rhind Lecture at Edinburgh University, taking as his subject "The Anthropological History of the Scottish People." He wrote a number of memoirs and papers on anatomical and anthropological subjects which appeared in the *Journal of Anatomy and Physiology*, in the *Quarterly Journal of Microscopical Science*, and elsewhere; and also the *Book of Arran*. He was appointed to the Royal Commission on Ancient Monuments of Scotland in 1908 and was a Fellow of the Scottish Society of Antiquaries. He had been a member of the British Medical Association for well over forty years, and served as vice-president of the Section of Anatomy at the Annual Meetings at Oxford (1904) and Sheffield (1908), and president of the Section of Anatomy and Physiology at Birmingham in 1911. His wife, who died in 1934, was an accomplished artist and embroiderer, who worked the beautiful banner for the Glasgow University Memorial Chapel. He is survived by his son, Major W. J. P. Bryce, of Downington, Lechlade, with whom he lived for some of his latter years.

WALTER DANDY, M.D., F.A.C.S.

Dr. Walter Dandy, whose parents came from the Furness district of Lancashire, died suddenly in Baltimore a few days after his 60th birthday and was robbed of the years in which he might have continued to be famous. For a deservedly famous surgeon Dandy surely was. Few men have continued to be so productive into their later years of such good and such new work. His name will always be remembered as the inventor of some of the major technical advances in the surgery of the brain, notably pneumography. By its means the significance of ventricular shifts and of local or general deformities was clarified. Dr. Dandy was well prepared to profit by the powers that this new diagnostic method conferred because his experiments on the secretion, on the circulatory pathways of the cerebrospinal fluid, and on the passage of dyes through it had given him an insight shared till then by scarcely more than his original collaborators, Blackfan and Weed—and to

some extent by Cushing. With increasing experience the third ventricle became an object of special study, and Dandy's books on tumours of the third ventricle (1932) and on benign tumours in the lateral ventricle (1934) are already classics. One of his latest papers (1945) was on strictures of the iter of Sylvius: a review of all the cases that he had gathered during the last 23 years.

It was in the innovation of surgical diagnostic methods and in the development of special techniques appropriate to particular regions of the brain (the ventricles, the pinealomas and other deeply seated tumours) that Dr Dandy excelled his early master, Harvey Cushing, whose assistant he had been in the latter's Johns Hopkins phase, his beginning. No surgeon has ever been bolder than Dandy in his designs (as in excision of the cerebral hemispheres): a boldness usually justified by successes where none had been won before. He was most people thought, a little too contemptuous of the final value of non-surgical diagnostic methods in neurology, nor was he as deeply interested in pathology as many would have wished. Dandy was in these respects very different from Cushing, and no two men could have made such great contributions to the same subject in more different manners. Dandy was always sure of the correctness of his own views and inclined to be contemptuous of opposing ones, but at the same time he was very shy and preferred, if he could, to hold himself aloof.

Walter Dandy had the advantage of association with Max Brödel, who founded the department of medical art at Baltimore, and all Dandy's papers are adorned and given a particular point by illustrations by that master draughtsman or by his pupils. No one made greater use than Dandy of the possibilities of the artist, as all his books and writings testify.

It would be wrong to bid farewell to Dr Dandy without a mention of his work on intracranial aneurysms of all sorts. Here he was again the first to do something—to put a clip upon the neck of an intracranial aneurysm intracranially, or to clip or ligature the carotid itself just after it had pierced the dura.

We mourn the loss of one who in energy, enterprise, imagination and technical ability has not been surpassed.

G J

J O W BLAND, M.D.

John Bland, who recently died at the early age of 46, was one of the small band of highly trained virus workers whose importance is out of all proportion to their numbers. He did particularly good work on the tissue culture of brain tumours and on the aetiology and treatment of trachoma and ophthalmia, and his death in the fullness of his powers is a sad loss to this country. He came of a literary family—his father was a well-known Fabian and his mother was the author Edith Nesbitt—and science and art were curiously blended in him. His handwriting resembled a mediæval manuscript, and he was a keen musician, both as player and listener. He had been a good oarsman at Cambridge, and after qualifying and doing house appointments at St. George's, he returned there to specialize in pathology under Dean. He learned his virus technique under Bedson at the London and tissue culture under Canti at Bart's. Canti died with his photomicrographic studies uncompleted and Bland seemed the likely man to succeed him, but a serious chest illness in 1937 changed his plans and he took up a research post in Egypt. Before leaving England he acted as secretary of the Section of Pathology, Bacteriology, and Immunology at the Plymouth Annual Meeting of the B.M.A. in 1938. He spent six happy and fruitful years in Cairo, which was soon to be the hub of the Allied defence system. In a subtropical climate, in which eggs always seemed to be spontaneously infected and tissue cultures were difficult to maintain, he worked steadily at trachoma and blindness, and gave much of his leisure time to civil defence. A succession of soldiers and pathologists enjoyed the hospitality and the musical Sundays at the Blands' flat at Zamalek, but only the pathologists realized that the exquisite design on the screen in the lounge was an enlargement of the growing edge of one of John's tissue cultures.

Much as he loved the white sunshine and the keen air of the desert, they proved less favourable to his malady than had been hoped. The relative isolation in which he worked also bore heavily on his spirit, for he was a man who found a great stimulus in the exchange of ideas with fellow workers. His health broke down again, and he was forced to return home. In a last letter, written

lying in his garden in Sussex, he wrote that never had the spring seemed so green and lush and beautiful. It may well be that his sense of beauty, was sharpened by his forebodings, for shortly afterwards the end came with surprising suddenness. A former colleague in a message of condolence spoke of his kindness and gentleness. To these one would add the virtue of graciousness. In these days of harsh uniformity it is good to be reminded that our profession still provides a framework within which men can satisfy their scientific and artistic sensibilities and can display those vital differences which make them an object of interest and affection to those who have the good fortune to be called their friends.

L J W

H E COUNSELL, F.R.C.S.

Dr Herbert Edward Counsell, who died at his home in Pusey Street, St. Giles, Oxford, on May 4 at the age of 83, had joined the B.M.A. in 1887 and was secretary of the Section of Surgery at the Annual Meeting at Oxford in 1904. He resigned from membership in 1931, some years after losing the sight of both eyes from glaucoma. He had been for many years one of the best loved figures in the University and town, and after his affliction the many visitors to his house were scarcely conscious of talking to a blind man. Born in 1863 at Chepstow, he studied medicine at Guy's Hospital, qualified in 1884, and some years after serving as resident obstetric officer at Guy's took the F.R.C.S. Always a lover of the country, Dr Counsell chose general practice to a career at Guy's which seemed open to him, and worked for ten very happy years at Liss in Hampshire. It was by chance that he made the move to Oxford. He visited a sister, then a student at the University, in glorious summer weather, and the beautiful city cast its spell over him. He disposed of the Liss practice and put up his plate at a house in the northern academic suburb of Oxford. There was no immediate response, but success came, not only did he become prominent in his profession but also a considerable figure in University and city life. At the age of 40 he entered New College and graduated with second-class honours in modern history in 1906. The Oxford University Dramatic Society had in Dr Counsell a staunch supporter and a warm friend of all the members. After the first world war the O.U.D.S. was nothing more than a tradition, but he directed his energies to its successful revival. A short time ago he published a book of memoirs under the title *37, The Broad*, the old house in Broad Street where he lived for many years. It had an enthusiastic reception for everyone who knew Dr Counsell felt that his was a life that should be recorded.

Dr B.S. writes: There must be innumerable people, literally all over the world and from all classes of society, who will feel that they have lost a personal friend in Dr H. E. Counsell. He was one of the last of the great Oxford "characters"—known as "Dogs"—to countless friends both inside and outside the University. For a number of years he had the biggest general practice in Oxford, and he would have been able to retire with a considerable competence had he only been willing to send in bills. Nevertheless, whereas anyone could be sure of profiting by his professional advice, it was very difficult to persuade him to charge proper fees. He was a gifted surgeon, but it is fortunate in a way that circumstances directed him into general practice, which enabled him to use his very remarkable personality to the best advantage. He was a natural "psychologist," who knew exactly the right thing to say at any given moment, for he used his heart as well as his head. In addition to his professional attainments, he was an excellent historian and a man of wide culture. The present writer was in the habit, year after year of spending his summer holidays with "Dogs" and his family, wandering all over Europe with a rucksack. He looks back on these holidays as being among the most "educative" as well as the most delightful souvenirs. In 1943 he published a book called *37 The Broad: The Memoirs of an Oxford Doctor*. This gives a better idea of the man than could any outside account. Unfortunately the book was sold out within a very short time of publication. It is hoped that it may be possible to arrange for a memorial edition.

The last twelve years of his life were clouded by what would have been for men of lesser calibre a major tragedy—name-blindness. No one ever heard him complain. He just set to and learnt typing and Braille. In fact, he himself typed the whole of his book, which ended with the words: "Surely Thy goodness and loving kindness have followed me all the days of my life."

Dr. JOHN BASIL, who died on May 13, earned for 27 years the heaviest practice in one of the most populous districts of London—Bermondsey. Proud of his mission, he administered with zeal his help to all his patients and often had to visit some

who lived as far even as Purley and Putney. By day and night he never refused to answer a call even during the worst period of the blitz. Taken suddenly ill with coronary thrombosis nearly six months ago, he was then admitted into Guy's, and three months later, feeling better, in spite of all admonitions, he returned to his work. But after two months a second attack supervened and he died with agonizing dyspnoea which lasted 11 days. Dr. Basil was an Armenian, and though he came to this country at the age of 23 to join his brother, who was a clergyman of a Protestant church, and to avoid the persecution of the Turks, he had already served as professor of Turkish at Marash, Syria. Having studied medicine at St. Thomas's, King's, and Charing Cross Hospitals he qualified in 1918. I well remember him, a few weeks before then, coming one morning after a sleepless night to show me a letter from the War Office informing him with regret that all his relations in Turkey, together with many other Armenians, were burned alive in a forest. Under such trying circumstances he had to concentrate his mind on his final examination. With the makings of a Christian missionary in him he then settled in Bermondsey convinced that the proudest mission of man was to serve humanity. Simple yet dignified, kind and patient, he soon gained the confidence and gratitude of all who came near him.—J. P.

ERNEST CHITTENDEN BRIDGES, who died recently in South Kensington in the neighbourhood where he had practised for a lifetime, was born in 1868 at Ipswich, the fifth son of John H. Bridges. He studied medicine at St. Bartholomew's Hospital, whence he qualified as M.R.C.S., L.R.C.P. in 1891, and later became M.D. Durham. He served St. Bartholomew's as house-physician, and was also house-surgeon at the Royal Northern Hospital and house-physician at the Brompton Hospital for Consumption. Settling in practice in Kensington in conjunction with the late Sir Robert Fox-Symons, he had the misfortune early in his professional career to contract pulmonary tuberculosis; from this he made a good recovery, but his energies thenceforth had to be carefully conserved. He was medical officer to St. Dunstan's Hospital for over 30 years, and served for a similar period on the staff of the Margaret Street Hospital for Diseases of the Chest, where he became ultimately consulting physician. But it will be less for these distinctions than for his personal qualities that he will be best remembered by his patients and his professional colleagues. Bridges—often affectionately known as "Briggs" by his friends—was a man of handsome features and manly frame who knew his job as a general practitioner "inside out"; always reliable, always kind, always honest and honourable, and with it all both human and humorous. Very definitely a personality and a credit to his profession, he will not soon be forgotten in South Kensington. He married twice; there was no issue of either marriage. For the last three or four years Bridges had been missing from the committee meetings of the Royal Medical Benevolent Fund, to which he had rendered long service, and from his club; a long series of illnesses and accidents had made him a chronic invalid, but his cheerful and indomitable rage sustained him to the end.—H. R.

he death last April of ERNEST CLARKSON BOURDAS deprives e Balham and Streatham districts of South London of a very senior practitioner, for he settled there immediately after filling his resident appointments soon after qualification. He was born in 1874, the son of the late Mr. I. Bourdas, and was educated at St. Paul's School and the Medical School of St. Thomas's Hospital. Qualifying as M.R.C.S., L.R.C.P. in 1899, he took the Brussels M.D. in 1900 and the Edinburgh F.R.C.S. in 1901, having meanwhile been house-surgeon at his own hospital. In the 1914-18 war he was a temporary captain in the R.A.M.C. and was employed as surgical specialist at the hospital at Frensham Hill. He remained in practice up to very shortly before his death, refusing to retire when normally he could have done, owing to his patriotic desire to do all he could for the Allied cause. This resulted in much overwork and definite overstrain, and probably brought about his breakdown in health, for although of impressive physique he was not overstrong constitutionally. Dr. Bourdas is survived by his widow with one son and one daughter: his brother is a retired surgeon captain in the Royal Navy.

The untimely death of ARTHUR WESSON, M.D., F.R.C.P., F.R.C.S., has removed a personality of great charm, ability, and enthusiasm, and it has dealt a bitter blow to the young specialty—physical medicine—which owes him so much. He came to University College Hospital from Merchant Taylors' in 1921, and after the usual resident appointment went to the Queen's Hospital, Birmingham, as R.M.O., later returning to U.C.H. in the same capacity. A travelling scholarship took him to America and Sweden. By now his interest was in arthritis and the then neglected specialty of physical medicine.

He returned to the L.C.C. at Mile End Hospital and in due course became deputy medical superintendent. When his own hospital decided to raise the charge of the physical medicine department to the status of an honorary staff post Wesson was appointed. At U.C.H. Wesson had just time before the war to organize a department which was unexcelled by any other hospital. But his main contribution was to the R.A.M.C., where in the early days of the war he took medical charge of the first physical development centre and later of rehabilitation in B.N.A.F. It was on his return from Italy that he contracted the illness which killed him, but his report on his work in that theatre of war will remain as a blue-print for any future campaigns. Wesson was essentially a team-worker. He effaced himself to a remarkable degree in securing the co-operation and co-ordination of all his colleagues, both medical and auxiliary, for he realized most clearly that therein lay the key to successful rehabilitation. His cheerfulness and unfailingly happy approach sometimes obscured his considerable width of knowledge—for he was a Fellow of both Colleges—but it secured the devotion of the physiotherapists and physical training instructors whom he delighted to teach, and of his patients who received every ounce of his energy.—F. D. H.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

R. R. A. Coombs, B.Sc.Ed., of Trinity Hall, has been elected into the John Lucas Walker Studentship from Oct. 1, on the nomination of the Professor of Pathology.

At a Congregation held on May 18 the following medical degrees were conferred:

M.D.—E. V. Bevan, S. R. F. Whittaker, J. D. Fergusson, D. Russell-Davis, N. C. Oswald, J. S. Minnett, *H. E. W. Robertson, *D. A. Smith.
M.B., B.Chir.—*S. R. Mawson, *A. L. T. Easton, *W. H. Davies, *R. I. Milne, *N. K. Dryden.

* By proxy.

UNIVERSITY OF LONDON

Sir Ernest Graham-Little, M.D., F.R.C.P., M.P., has been re-elected to represent medical graduates of convocation upon the Senate of London University; Sir Archibald Gray, M.D., F.R.C.P., and Mr. John B. Hunter, M.Ch., F.R.C.S., have been appointed to represent the Faculty of Medicine; and Dr. H. E. A. Boldero, F.R.C.P., the general medical schools.

The University has gratefully accepted an offer from the trustees of the estate of the late Sir Henry Wellcome of a capital sum of £74,000, for the endowment of the chair of pharmacology tenable at the College of the Pharmaceutical Society, and henceforth to be entitled the Wellcome Chair of Pharmacology. The income will be used to pay the salary of the holder of the chair, now occupied by Prof. G. H. Buttle, and to contribute to the cost of his research work. The Department of Pharmacology at the College was founded in 1926 and has made important contributions to research and teaching in pharmacology and physiology. It is hoped that, with the funds now provided, the activities of the department will be maintained and expanded.

Prof. A. J. E. Cave, M.D., has been appointed to the university chair of anatomy tenable at St. Bartholomew's Hospital Medical College from May 1, and Dr. J. N. Davidson has been appointed to the chair of biochemistry tenable at St. Thomas's Hospital Medical School from April 1.

The title of Professor of Medical Protozoology in the University of London has been conferred on Dr. H. E. Shortt in respect of the post now held by him at the London School of Hygiene and Tropical Medicine.

UNIVERSITY OF SHEFFIELD

At a meeting of the University Council, held on May 17, the following appointments were made: *Part-time Tutors in Surgery*, E. P. Hall-Drake, F.R.C.S., and C. D. P. Jones, F.R.C.S. *Part-time Tutor in Obstetrics*, H. J. Green, F.R.C.S.Ed., M.R.C.O.G. *Part-time Assistant Tutor in Obstetrics*, W. J. McCord, M.D., M.R.C.O.G.

The Council received the resignations of Prof. G. A. Clark from the Chair of Physiology on taking up a post in the Ministry of Health, and of Dr. Ethel M. Spedding from the post of temporary demonstrator in anatomy.

UNIVERSITY OF ABERDEEN

Dr. D. R. MacCalman has been appointed to the newly founded professorship of mental health in the University of Aberdeen. This is the third chair of the kind to be instituted in Great Britain, and it has been done in co-operation with the local authorities and voluntary hospitals. The professor will be physician in charge of psychological cases in the key hospitals of the area, though the administration of the mental hospitals continues as before.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The Health Service Bill

A meeting of Fellows was held on May 8, when the President Sir Alfred Webb-Johnson, after reporting on College affairs, said the Council desired to ascertain whether its attitude in regard to the National Health Service Bill was such as to have the approval of the Fellows in general. The Council concurred with the observations of the Negotiating Committee and gave the committee full support. The attitude of the Negotiating Committee was well known, and the basis on which objections were made to some features of the Bill was that some of the proposals were regarded as a threat to the freedom of the profession; for example, the prohibition of the sale and purchase of practices. The attitude of the Council was that if there was freedom of choice for the citizen in seeking professional advice, practices were transferred to the practitioner whether the member of the profession was paid directly by the patient or indirectly out of the Insurance Fund or by the State. The good will was therefore an original asset of that member of the profession and, if the sale of practices was made illegal or otherwise rendered ineffective, adequate compensation should be paid. The Council regarded with misgiving the setting up of a tribunal appointed by the Minister which could prevent a man from receiving public patients although he might remain on the Medical Register. It objected to the requirement to obtain permission to practise in a district, and saw great dangers in a substantial part of the general practitioner's remuneration being in the form of a salary. With regard to specialist practice, it feared that the Government proposals as a whole amounted to a Government monopoly of all hospitals, which practically implied that it was illegal to set up any independent hospital in the future, and the power which the Minister sought to obtain to acquire by compulsion purchase any institution for the treatment of patients, whether run for private gain or not, gave him the power to prevent a specialist earning his living, because the background of his living was an equipped institution. It was also a great anxiety to the Council that these proposals were only a stepping-stone towards a whole time salaried service. There would be a disturbance even in the first instance of the doctor-patient relationship if part of the doctor's remuneration came from salary. Other points which had caused the Council grave concern were the interference with voluntary effort, the appointment of bodies with very great powers who would be appointed directly by the Minister and not elected by the people, and the interference with hospital trusts. These considerations had led the Council to pass a number of resolutions which were before the meeting.

After general discussion Mr T B Lavton moved a resolution that the meeting should give general support to the Council in the action it was taking, and this was carried unanimously.

Mr Charles L Mayer of New York has made a further award for the encouragement of British scientists and surgeons. A few months ago he gave £1,000 to the Royal College of Surgeons as a prize for Mr Terence Millin for his contribution to the advancement of the surgical treatment of enlargement of the prostate. He has now made a gift to the College of £1,000 as a prize for Prof E C Dodds, FRS, in recognition of his work in discovering and studying stilboestrol, and as an encouragement to him to continue his researches in the field of the synthesizing of hormones. The award will be presented to Prof Dodds on June 13.

The following lectures will be delivered at the College (Lincoln's Inn Fields, WC) at 5 p.m. on each day.

Hunterian Lectures—June 6, Prof D S Poole Wilson, *Missile Injuries of the Urethra*; June 13, Prof J D Ferrarsson, *Original Observations in Carcinoma of the Prostate Treated with Oestrogens*. *Lectures by the Research Professor in Ophthalmology* (Prof Arnold Sorsby)—June 20, *Pure Penicillin in Ophthalmology*; June 27, *Genetic Aspects of Ophthalmology*.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At a meeting of the College held on May 7, with the President, Dr D M Lyon, in the chair, Drs T Carlyle Mitchell and O Olbrich were introduced and took their seats as Fellows of the College. Drs A H Campbell, N G Pandala, N F Lilawala, G O Horne, and S G Graham were elected Fellows of the College.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the Royal College of Surgeons of Edinburgh held on May 16, with Mr James M Graham, President, in the chair, the following candidates who had passed the requisite examinations were admitted Fellows:

H. M. Bradmore, A. El Marn, A. A. Finlayson, A. L. Goodall, R. S. Hunt, R. R. Hunter, W. C. Lawrence, B. Lawson, K. Mack, Leitch, D. M. N. Loring, W. Magauran, K. S. Masalawala, N. R. K. Mitchell, Mary G. Murphy, I. W. J. McAdair, L. R. Rabson, D. R. Ryder, R. S. Stewart, E. B. Tovey.

The Henry Arthur Dalziel Ferns Bursary was, after a competitive examination in organic chemistry in its application to medicine, awarded to I. S. Trotter.

Medical Notes in Parliament

HEALTH SERVICE BILL

When discussion of the National Health Service Bill was resumed in a Standing Committee of the House of Commons on May 21, Mr Bowles again in the chair, consideration of Clause 4 was begun. In the provision that "the Minister may make certain accommodation in hospitals which is not for the time being needed by any patient on medical grounds available for patients who undertake to pay," Mr REID moved to substitute "shall" for "may." He said that if accommodation existed which was not needed on medical grounds there should be no question of Ministerial discretion. Something could be said for leaving a discretion with a hospital management committee or board of governors. Mr BEVAN replied that in practice the decision whether an individual case went there or there would be entirely a matter for the local hospital authorities to determine but the Minister must have a power of veto for the accommodation as a whole. The Government had gone further in provision of beds available on part-payment than many on his side of the House desired, and he was not prepared to extend the power already given. The amendment was withdrawn.

Mr MESSER moved to leave out the proviso "on medical grounds" because there were other conditions which made it inadvisable for a patient to be in the same ward as other patients. On Mr BEVAN's assurance that the word "medical" would cover all the situations Mr Messer had in mind the amendment was withdrawn.

On the motion that Clause 4 stand part of the Bill Mr SOMERVILLE HASTINGS pointed to the difference between Clauses 4 and 5, in Clause 4 only part of the charge was recoverable whereas in Clause 5 (1) the whole charge was recoverable. Mr BEVAN said Clause 4 referred to accommodation which might be made available in a hospital. Clause 5 referred to separate accommodation, in a pay block expenses were greater and the Ministry wanted power to recover them. Dr MEDFORD TAYLOR asked whether in a case under Clause 4 no medical fees could be recovered from persons who paid for special accommodation. Mr BEVAN said medical fees could be recovered in certain circumstances because some hospitals might have no pay block. The Clause was approved.

PAY-BED ACCOMMODATION

On Clause 5 (Accommodation for private patients) Mr REID moved to substitute "If the Minister is so advised by the Regional Hospital Board, he shall" for the words "If the Minister is satisfied that it is reasonable so to do, he may." He said that this was obviously a decision which must be taken on a district or at most on a regional basis, having regard to the accommodation and services available. It could not be determined by the local hospital committee. Mr BEVAN said it would be a reversal of the whole procedure under the Bill to make the Minister the instrument of the Regional Board. Mr Reid's words suggested the Minister would be bound to do what the Regional Board advised. The Minister would normally receive the advice of the Regional Board on what accommodation should be set aside, but it must be the Minister who, in the light of the relations between Regional Boards must ultimately decide on the scheme submitted. The Ministry of Health had proposed pay-bed accommodation not only because there must be diversification of services inside the National Health Service but also because the Government desired the association of specialists with the hospital. Unless there were pay beds they might not come to the hospitals; therefore there was no danger that pay beds would not be provided. The amendment was withdrawn.

Mr MESSER moved to leave out the word "urgently" from the proviso that nothing in subsection 1 of the Clause about accommodation for private patients should prevent that accommodation from being made available for anyone who urgently needed it on medical grounds and for whom suitable accommodation was not otherwise available. Mr BEVAN said it would be difficult to administer a hospital if the management committee had not reasonable security for some of the pay beds provided. In the case of the pay blocks it was implicit between the Regional Boards and the specialists using the pay blocks that there should be a firm contract. The specialist would have made available to him a certain amount of accommodation in a separate wing. If that were open to be assailed at any moment on the same grounds as pay beds the specialist would not know where he stood.

Dr BARNETT STROSS thought the word "urgently" might act partially against the majority of people. The provision was already qualified by the words "on medical grounds" and

might safely be left to the discretion of the matron or hospital board. Mr. Messer withdrew the amendment.

SPECIALISTS' PRIVATE PATIENTS

Mr. MESSER then moved to omit subsection 2 of Clause 5, under which the Minister can allow any specialist on the staff of a hospital providing hospital and specialist services to make arrangements for the treatment of his private patients either at that hospital or at any other such hospital. He said the Minister was taking over voluntary hospitals which had been used by specialists for the treatment of their own cases. The hospitals would be public property and the specialists would be paid from the public purse. There was a grave danger in specialists, who might be servants of the State, being entitled to treat their patients privately and being paid by those patients for that service. He foresaw better treatment for those who could afford to pay for it.

Mr. SOMERVILLE HASTINGS said he was sure no doctor did a better operation for private patients than for ordinary patients, but he was sure that they gave more personal attention to the private patients and left more to the house-surgeons and registrars in the case of the other patients. When these hospitals came under State control everyone would have a right to treatment in them. Why should anyone wish to pay the doctor unless he expected to get better treatment by so doing? The Committee was making the individual who received the payment the arbiter whether beds should be used for patients for whom payment was received. Mrs. BRADDOCK said that a part-time specialist service would be what the country would have to use for the time being. While that existed Parliament must allow part-time specialists to charge a fee. If the specialist was paid a full-time salary he had no right to charge a private patient; the Clause might need some alteration to fit that position.

Dr. TAYLOR hoped that in the side wards fees would not be charged because otherwise appalling abuses would be liable to arise. Everyone who had worked as a hospital administrator had seen from the inside the difficulties which continuously arose when the specialist's pocket pulled against his good judgment. In this Clause Mr. Bevan not merely was giving the specialists what they wanted in private accommodation but would subsidize their activities. If the patient was in a private ward and needed a blood count or an x-ray examination he would still be entitled to that service under the Bill. Labour Members did not like this arrangement but accepted it reluctantly as a necessity of the situation. The way to overcome the problem was to make full-time hospital practice so attractive that every specialist elected to become a full-time hospital specialist.

Dr. MORGAN said his experience of both general practitioners and specialists was that their standard of conduct and ethics was as high as that in any other section of the community—certainly as high as that among trade unionists or M.P.s. The part-time specialist must be given a concession of this kind, and Dr. Morgan saw nothing which would tempt the specialist to do something which would be regarded as unethical.

A FULL-TIME SALARIED SERVICE OF SPECIALISTS

In reply to Sir Lucas Tooth, Mr. BEVAN said the patient himself would determine whether he was a private patient. If he wished to insist upon selection of a doctor he would become a private patient. He (Mr. Bevan) admitted that specialists were being given favourable treatment, but he believed that by this means Parliament would eventually obtain a far higher standard of service. Radiological examinations, blood counts, and all the other facilities of a hospital would be available to a patient free, and therefore the Committee was not favouring a patient by not charging him for them if he himself was paying for a specialist. No additional facilities were being given. But what the Committee must try to procure was that the specialist was induced so far as possible to spend all his time at the hospital, both for his own sake and, in the case of the teaching hospitals, for the sake of the students and for the whole atmosphere of the hospital. It would be disastrous if there grew up in Great Britain a rash of nursing-homes where the specialist intellectually isolated himself and where the patients would not get the same standard of treatment. Unless the Committee agreed to the subsection that situation would arise, and not only in this country. In the past the *prima donnas* of the medical profession had influenced administrative policy because they could use their influence to attract money for the hospitals. In future the financial pulling-power of the medical *prima donna* would no longer be necessary to the hospitals. Replying to Mr. Somerville Hastings Mr. BEVAN said that the attraction of funds would also disappear in the case of the teaching hospitals, which had had bitter experiences of theoretically possessing a specialist on their staff who was not available for general hospital purposes. In future a hospital would not have to placate the idiosyncrasies of a specialist to build up its own

patients and to find its revenues. He had made special efforts to enable the specialist to attend patients in several hospitals. There was a lot of intellectual in-breeding in some big teaching hospitals. The specialist would be in contract with the Regional Board, and would move quite freely throughout the whole of the system. The necessity for the specialist to have continuous care of the patients he treated must not undermine the principle of mobility within the service. The specialists were in contact with the Regional Boards and in contact with teaching hospitals. He hoped to make arrangements with the teaching hospitals whereby the specialists attached to a teaching hospital would not spend all their time there. By spreading the specialist over the hospitals the Ministry was limiting the possibility of abuse. The whole momentum of the scheme would be in the direction of a full-time salaried service for specialists at hospitals.

Sir H. MORRIS-JONES: That is what we are afraid of.

Mr. BEVAN said at present many young men from the Forces would be in a better position if this scheme were in operation and the Ministry could use their services immediately. The Ministry wished the apparatus it was providing to be used by the medical profession in the freest possible professional manner, but it wished to secure that the administration of the hospital itself was, so far as possible, in secular hands.

Mr. Messer withdrew his amendment.

G.P.'S PRIVATE PATIENTS

Mr. Linstead moved to insert additional words to subsection 2 which would grant the same facilities [for treatment of private patients] to "any medical practitioner providing general medical services in the area of any hospital." The intention of the amendment was to ensure that general practitioner beds should be available at hospitals. Col. STODDART-SCOTT said that Mr. Bevan himself during the Committee Debate on May 16 had conceded it to be vital that general practitioners should be encouraged to visit their patients in hospitals. Mr. BEVAN said that presumably these patients were entitled to free hospital services; and they could afford, or for some reason wished to acquire, private accommodation in a general practitioner hospital. He hoped that a general practitioner would have access to his patients in every hospital; he would not charge hospital fees because it would be a private patient and he would be charging general practitioner fees. On the other hand the patient would pay for the bed and would have the general hospital service free. Therefore the Ministry was not interested whether the patient was paying the general practitioner. If the patient was on the general practitioner's list then the doctor could not accept the fee, but if the general practitioner had a patient who was paying a private fee that practitioner could treat his patient in the hospital in the same way as he could treat his free patients. The Ministry encouraged the general practitioner to have these facilities, and Mr. Bevan understood that they were available. In a general practitioner hospital where no specialist's services were required a general practitioner would normally be in charge of his patient and would prescribe the treatment. Where the patient was in the hospital under a specialist the relationship between the specialist and the general practitioner was a matter for the hierarchy. It was a fact that there were some hospitals from which the general practitioner had been barred in the past. He wanted to make it clear that the general practitioner should give treatment in a general practitioner hospital to persons who could not get treatment at home but suffered from something that did not require specialist treatment. He would consider whether it was necessary to put down an amendment to make that clear. The amendment was withdrawn.

Mr. HENRY STRAUSS moved to leave out the words which enabled the Minister to prescribe regulations fixing the maximum charges to be recovered by specialists for treatment of private patients. He supposed the idea of the words was to secure some limitation of maximum income for the surgeon. His own view was that that was not good sense and not even good socialism. The Minister had made it clear that he wished to get as many specialists into the National Service as possible. The Minister was putting strong pressure on the specialist to come into the scheme, otherwise the specialist could not get his patient into the hospital. Why then should the Minister deprive first-rate men of first-rate prizes?

Mr. BEVAN said he would like to warn Members that if long polemical speeches were made on Committee points the Committee would not be able to get the Bill through on its time schedule. The Committee adjourned.

On May 22 Mr. HOPKIN MORRIS, resuming the discussion of Mr. Strauss's amendment to Clause 5, said that if the words which Mr. Strauss proposed to omit were retained they would defeat the aim of the Minister. His aim was to bring private patients into the State hospitals, but the words now challenged would drive them out. Mr. BEVAN replied that if he thought

he Clause would drive specialists away from the State hospitals into private nursing-homes he would accept the amendment, but he did not think that that would be the effect. It was reasonable that the Ministry should seek to protect patients against exorbitant fees for operations to be performed in State hospitals with State facilities. He thought that the "ceilings" would probably be fixed fairly high as they now were in many hospitals, and very good incomes would be obtained under them. He was not capable of stating what would be reasonable fees for different operations by different specialists and he did not propose to try; there would be a range of fees with a maximum. The amendment was negatived.

A SAFEGUARD FOR THE PUBLIC

Col. STODDART-SCOTT moved to add at the end of the subsection a provision that the Minister

"shall allow any specialist to make arrangements on similar terms with the Hospital Management Committee or Board of Governors constituted under the following provisions of this part of this Act or the treatment of his private patients at any hospital for which such Committee or Board are responsible."

He said this proposed that any specialist, even those outside the scheme, should have the use of the national services and be able to make arrangements to send their patients into the hospitals so that the patients might have the inalienable right to the hospital beds and the specialists' services. This was not to the benefit of any individual consultant or specialist but so that the people could have some safeguard. The desire of the people for an independent opinion from a specialist not in the Government service would still exist—for example, in war pension cases and industrial injuries. Sir H. MORRIS-JONES said Mr. BEVAN could not expect to get every consultant and specialist in the kingdom into the scheme straight away; the scheme would ostracize a number of reputable medical men in this country. Mr. LINSTED, supporting the amendment, thought it should not cut from the Minister that freedom of choice of doctor and freedom of choice of hospitals had been rejected. Those two things were regarded as basic principles of the Bill.

Mr. BEVAN said the amendment would provide an inducement to doctors and specialists to remain outside the scheme. They would say, "We can sabotage the service by staying outside and we can always use it if we want to." If the medical profession were more hostile to this scheme than they appeared to be that would be extremely dangerous. A specialist or consultant physician who was not attached to a hospital and did not avail himself of the clinical experience and knowledge which accumulated there would not be the person anyone would wish to consult. As for the argument that people would like to have an independent opinion, the fact was that the doctors would not be employees of the State. They would be under contract to the governing boards of the teaching hospitals and not under contract with the Ministry of Health. They would be perfectly free. They were largely part-time people, and it was absurd to suggest that these highly qualified men with vigour of mind and character would concede for a moment that they would not be able to give a second opinion hostile to the first because the State might be involved in some way. In any case an insignificant number of persons were going to be outside the scheme.

Mr. REID pointed out that Mr. BEVAN had said a specialist must keep in touch with hospital practice. He asked whether Mr. BEVAN would offer these men the opportunity of keeping a substantial part of their time, say half, for private practice. That would influence many specialists. The Committee had not yet heard about the terms on which people were allowed to come in as specialists. Mr. BEVAN replied that so long as a specialist was attached to the public service, no matter in how small a degree, he was conceived to be in that service. There would be no question that he must spend half his time in the hospital; it might be much smaller than that.

The Committee divided and the amendment proposed by Col. Stoddart-Scott was defeated by 28 to 14. Clause 5 was then ordered to stand part of the Bill.

LOCAL OWNERSHIP OF HOSPITALS

On Clause 6 (Transfer of hospitals to the Minister) the chairman, Mr. BOWLES, said he proposed to call two amendments in the names of Mr. Willink and Mr. Reid. The main discussion would turn on the second one.

Mr. LAW moved the first amendment, which provided that the transfer should be made "where on the appointed day the Hospital Management Committee for any voluntary hospital has not been appointed under this Act or such later dates as a Hospital Management Committee shall be so appointed." Since, he said, this amendment was consequential to the second one he intended to address himself to the second, which pro-

posed to leave out the words transferring to and vesting in the Minister all interests in premises forming part of a voluntary hospital, and inserting instead words transferring these interests to "the Hospital Management Committees or the Boards of Governors constituted under the following provisions of this Act." Mr. LAW said that Mr. BEVAN could accept these amendments without losing his main objectives; he would still be able himself to provide the integrated hospital service which he thought was necessary. He would still have the duty to provide the service, responsibility for it would still be on his own shoulders; administration of the hospital service for the region would still be in the hands of the Regional Hospital Board. The hospital premises would not vest in any outside body, but either in the Management Committees appointed by and responsible to the Regional Board or in the Boards of Governors appointed by and responsible to the Minister. The Committee had decided already that responsibility for the regional administration should be with the Regional Board and with the Minister, but it was of the utmost importance that the Management Committees and the Boards of Governors should have the fullest responsibility for the administration of their own local unit.

Mr. BEVAN said the argument here was that the hospitals should cease to be in their existing ownership and should vest in the Management Committees or the Regional Board as the case might be. It would be simpler if all hospital property was vested in the Minister. A time might arise when the Management Committee might be replaced by some other administrative body, bringing the complications of transferring the property to a body which Parliament would have to define. Ownership would not conduce to the authority of the Management Committees under the Regional Boards. What would conduce to their authority and autonomy were the administrative functions which the Minister gave them and the financial flexibility of the whole machine.

Cmdr. MAITLAND said under central financial control there must be some form of central bulk purchase with the Treasury overshadowing the buying. He would prefer local control in these matters. Mrs. MIDDLETON asked for an assurance that where the names of hospitals had a commemorative association those names would be maintained on the transfer of ownership. Mr. BEVAN gave this assurance, saying it was hoped to preserve the identity and names of association of such hospitals.

Mr. REID pressed for an assurance that the Ministry of Works would have nothing to do with the hospitals. He asked whether alterations were to be done by the Regional Board through local architects or by the Ministry of Health through its building section, or through the Ministry of Works. Nothing could be more disastrous for hospital progress than that the Ministry of Works should be the Government's agents. He further inquired whether maintenance of existing buildings would be left to the discretion of the Regional Board or a local committee, and whether it was proposed that transfer of ownership should take place before the new Hospital Committees were in the saddle.

Mr. BEVAN said he could not agree that ownership would carry with it other powers, such as employment of architects. The wide body of knowledge at the disposal of the Ministry of Health with the many technical advisers available was more likely to produce a good hospital design than was a local Management Committee. The idea that when the Ministry of Works stepped in ruin followed was astonishing. Cmdr. Maitland had said he hoped there would be no standardized buying. Mr. BEVAN confessed that he hoped there would be some. The amendment moved by Mr. LAW was defeated by 26 to 17, and the amendment linked with it was not taken.

Mr. KEY moved to insert words to make clear that easements and rights attaching to hospitals and the premises of hospitals were transferred with the premises themselves. An example might be a right of way over adjoining land for approaching a hospital. Dr. MORGAN asked for an assurance that where hospitals or institutions owned land, such as farms, or had houses on land adjacent for the housing of the staff these properties would be transferred. Mr. KEY said the transfer would occur if the properties were for the purpose of running the hospitals. If they were only for the purpose of endowment they were dealt with in Clause 7. The Committee agreed to the amendment.

PREMISES OF TEACHING HOSPITALS

Sir HUGH LUCAS-TOOTH moved to add the words "other than a teaching hospital" in the subsection providing for the transfer to the Minister of premises forming part of a voluntary hospital. His intention was that buildings and equipment now belonging to teaching hospitals should be transferred not to the Ministry but to the new bodies which were to administer the teaching hospitals. There was a genuine feeling within the hospitals that if legal possession of these buildings was taken

away it might be the beginning of the end of their particular identity and a threat to the existence of their particular name. It was common sense to say that responsible boards governing teaching hospitals should be given power to carry out minor structural alterations without consulting Government Departments. If the Minister gave an assurance that the Ministry of Works was not in the Bill that would go some way towards meeting the objection. There would be difficulty in apportioning the buildings and assets of the teaching hospitals so as to transfer to the Minister only that part which was strictly the property of the hospital while leaving the other part to the medical school. Mr. SOMERVILLE HASTINGS said King's College Hospital had been completely rebuilt during the last 30 years, but did not lose its tradition. It had moved from the centre of London to the outside, but the tradition still remained. Whoever might own these hospitals their identity would continue as long as their teaching schools remained and as long as the tradition remained. The hospitals would lose nothing by being taken over by the Minister.

Mr. BEVAN said he had devised a scheme for administration of teaching hospitals which would leave them with the utmost economy consistent with the general hospital service. He believed the scheme commended itself to practically all the teaching hospitals. Some persons connected with these hospitals had apprehensions which were not based upon facts. Mr. Linstead said he and other members had received a letter from the Voluntary Teaching Hospitals Association saying that the amendments before the Committee were essential for the smooth and efficient working of the proposed service. That letter was dated May 2. Mr. BEVAN said he had been under the impression that the scheme in the Bill was highly satisfactory to the teaching hospitals. Transfer to the Ministry would not make St. Thomas's any less St. Thomas's, Bart's any less Bart's, or Guy's any less Guy's. Their identity and continuity of tradition would be unbroken. They would be enlarged and on much firmer foundations. Furthermore, the Ministry wished power to create new teaching hospitals. It had been suggested that under the Bill the Board of Governors could not spend money on structural alterations, but Clause 12 gave them power to maintain any premises forming part of or used in connexion with the hospital. That included making structural alterations. There would be a global budget, and within that budget teaching hospitals would be expected to discharge those responsibilities. If pressure came from the teaching hospitals to enlarge what they had it might be easier for him (the Minister) to yield to pressure from other directions to take away from them something they had already got. If the hospitals insisted on certain modifications in their direction to get their consent, other modifications might be made to get greater enthusiasm for this scheme from other quarters. He asked whether the teaching hospitals would prefer to own their buildings and have the obligation put on them to spend their endowments on capital expenditure. Most of the endowments which had been given to teaching hospitals were provided for general hospital purposes. They amounted to a sum in the region of £11,000,000. In the Bill he accepted the obligation of maintaining the buildings and of adding more buildings when needed, leaving this £11,000,000 to the teaching hospitals. The amendment was defeated by 25 to 17.

LIABILITIES OF HOSPITALS

Mr. KEY moved to leave out the phrase in Clause 6, subsection 1, dealing with the transfer to the Minister of all liabilities to which the governing body of a voluntary hospital is subject immediately before the appointed day and to insert "rights and liabilities to which any such governing body or trustees were entitled or subject immediately before the appointed day, being rights and liabilities acquired or incurred solely for the purposes of managing any such premises or property as aforesaid or otherwise carrying on the business of the hospital or any part thereof, but not including any endowments within the meaning of the next following section or any rights or liabilities transferred under that section."

Mr. KEY said the amendment amounted to this, that on the appointed day the hospitals would be taken over as running concerns. Contractual rights which had been made with suppliers of goods, drugs, fuel, and so on would be included with the liabilities. The amendment would not apply to some rights acquired by the management of the hospitals under some covenant to pay a yearly sum by way of endowments—that is, it would not apply to endowments within the meaning of Clause 7.

Mr. REID said that under the Bill, as introduced, rights under gratuity covenants would have lapsed because the latter were covenants to pay a voluntary hospital. He thought a court of law would hold that the covenant fell because the foundation of it was abolished by this Bill. If that was so the Minister was really resuscitating these covenants for the benefit of the

Exchequer, because the greater part of the purposes for which the endowments fund would be used were purposes for which the Exchequer would have to pay if there were no endowments. He did not see why someone who wished to support a local hospital should now be told that he had to support a fund which applied to the whole country. This would be so whether Clause 7 (Endowments of voluntary hospitals) was carried or not. Mr. BEVAN said it would be appropriate to raise that point on Clause 7. All the Committee was doing at present was tidying up the Bill to make certain that the running contracts of the hospitals were carried over. The amendment was agreed to.

Sir HAROLD WEBB moved to leave out words in Clause 6 subsection 2, which transferred local authority hospitals to the Minister. He said these hospitals were already publicly owned, and the purpose of a transfer must be to remove them from the control, administration, and direction of local authorities. Mr. BEVAN said the principle of transfer had already been determined and could not be varied in the case of local authority hospitals. The amendment was negatived.

Further drafting amendments were made on the motion of Mr. KEY. By one of these provision was made so that property owned by a visiting committee should be transferred at the same time as the property and liabilities of the local authority. He said that at present visiting committees of mental hospitals took charge of funds and undertook liabilities in connexion with a mental hospital owned by and run by a local authority or a joint board.

Mr. Linstead moved to insert words to provide that the Minister could also decide not to take over a hospital where it appeared to him that its transfer was inexpedient on the grounds that provision of medical services or the services of specialists was not the main purpose of such hospitals. Mr. BEVAN said although "hospital" was defined in the Bill, the kind of institution to be taken over would largely depend upon the recommendations of the Regional Boards and the ultimate hospital plan. It was not intended to take over institutions which were not specifically hospitals or ancillary to hospitals. Mr. Linstead said he was thinking of Papworth, for tuberculosis patients. Mr. BEVAN said that was really a hospital. Mr. Linstead cited homes for the dying and homes for the incurables. In his constituency incurables did not go to one well-known home for medical attention, but to spend their last years and for nursing services. Mr. BEVAN said if the institution were not required for general purposes it would not be taken over. In some cases it might be in the interests of the inmates and those responsible for the institution that it should be taken over. He would not like to be pressed to exclude institutions of that sort.

Mr. MESSER said the Registered Hospitals Association covered some 13 hospitals which specialized in certain cases, and there was no question of any loss of revenue. One of them was St. Andrew's Hospital at Northampton, where especially valuable work was done. He could not find any way of fitting it into the general scheme. Dr. MORGAN cited the Roffey Park Rehabilitation Centre, which was run privately, the Homoeopathic Hospital, and the Jewish Maternity Hospital. Mr. BEVAN asked members not to press the case of those special hospitals at the moment. There was provision for arbitration in Clause 9 of the Bill. The powers of the Bill were wide enough. If the special-hospitals were taken over that would be done because the services they rendered were necessary in the general hospitals service. There was no reason why the Regional Boards should not administer them for national purposes. Mr. Linstead withdrew his amendment. The Committee then adjourned.

TRANSFER OF PROPERTY

Resuming on May 23 discussion of Clause 6, Mr. J. S. C. REID moved an amendment to subsection 4, which provides that all property transferred to the Minister shall vest in him free of any trust existing on the appointed day. The subsection goes on to provide that the Minister may use such property for any of his functions under the Bill, but shall so far as practicable secure that the objects for which the property is used immediately before the appointed day are not prejudiced. Mr. Reid moved to substitute for the latter provision the words:

"But the Minister shall use any such property for the purpose for which it was used or within the district in which it was situated immediately before the appointed day unless the Minister shall be satisfied on the advice of the Regional Hospital Board and of the Central Council that there is no need for hospital accommodation to be provided for that purpose or within that district."

The Opposition agreed that there ought to be some change from the existing position with regard to both buildings and property, but thought that diversion of property from its original use and purpose should be under more precise limits.

In his proposed amendment Mr. Reid would not object if the reference to the Central Council were omitted. The Minister would have power to consult the Council in the case of large national endowments, but in general the Regional Boards ought to be consulted.

Mr. KEY said the amendments restricted the value of the first three lines of the subsection, which transferred the property to the Minister free of any trust. The Government desired that there should be freedom to use property for the purpose of working out a hospital system which would be to the general benefit of the particular district in which the hospitals were situated. The trust mentioned might involve that a particular institution should be used only for patients from a particular district or only to give a certain type of service. In the development of a full hospital system it might well be that institutions were given a definite function, and this might be other than that put down in the particular title deeds. The Government desired that the wishes of the donors should be followed "so far as practicable," and that was provided in the Bill. These matters of detailed administration were not subjects on which the advice of the Central Council could be sought. The Regional Hospital Boards would be the instruments through which the service was to be developed in any area. The Government could not accept the amendment.

Mr. Linstead said the clause was a basic interference by the Government in the freedom of the citizen to dispose of his property in his own way. There seemed to be nothing in the Bill to prevent the Minister selling property and applying the proceeds of the sale in a different part of the country. Mr. Messer said if the amendment were carried it would mean that the orthopaedic hospital at Stanmore must continue to treat nothing but orthopaedic cases, and that the sanatorium at Harefield, not far away, would come within the region but could not transfer to Stanmore any cases other than orthopaedic cases. A lot of orthopaedic work concerned children, for whom there were hospital schools. Under the amendment it might be possible to bring children to Stanmore Hospital and Harefield Sanatorium, but at neither place would the children get the education they would receive if the work were co-ordinated.

Mr. KEY said that in a given area there would be a number of institutions which would come under one hospital committee or would certainly be in the area of one Regional Board. To work out a really efficient hospital system modifications and changes in the use of existing institutions would be necessary. So far as practicable the objects for which an institution was founded would be followed, instead of changing its purpose merely by whim. The amendment gave no freedom of movement to the Regional Boards or to the Ministry in this matter, and would make impossible the working out of a hospital scheme. The Government must be free to organize and adapt on the complete undertaking that so far as practicable the purposes for which the foundation was made originally should be observed. The proposed amendment was rejected by 29 to 11.

Mr. REID then moved to omit the whole of subsection 5, which deals with the regulations permissible under the clause for interests in premises between the Minister and personnel. He remarked that the subsection started with the words "regulations may provide," but the Committee did not know the lines on which these would be made. The Committee was now discussing premises used partly for hospital purposes and partly for some other purpose.

Mr. KEY said there might, for example, be a hospital institution where arrangements had been made for general hospital treatment but which was connected with teaching hospitals and used for that purpose. It might be necessary to make an apportionment to the governors for carrying out their functions as a teaching hospital, while another part of the institution was used as a part of the general hospital system under the management and control of the Regional Board. All the regulations would be placed before Parliament. Mr. REID said the subsection could not apply to the example given by Mr. KEY. The provision applied only to premises where part was to be taken by the Minister and part was to remain under the old owner.

Mr. KEY said that until the Ministry came up against the problem of adaptation in actual experience it could not say what types of apportionment would be involved. There would be the safeguard of arbitration and the presentation of the regulation to Parliament. The amendment was negatived.

SUPERANNUATION

In subsection 6 of Clause 6, which provides that this section shall not apply to rights and liabilities arising out of contracts for rendering personal services, Mr. KEY moved to omit the rest of the subsection and to substitute:

"Or to rights and liability arising out of any enactment, scheme, or contract providing for the payment of superannuation benefits,

except superannuation benefits payable in respect of officers employed for the purposes of a voluntary hospital who had ceased to be so employed before the appointed day, but this subsection shall be without prejudice to the provisions of Part VI of this Act relating to the transfer and compensation of officers and the superannuation of officers."

The purpose of the amendment was to exclude from the transfers of rights and liabilities the rights and liabilities relating to superannuation in order that they might be considered when the Committee dealt with Clauses 63 and 72. One important exception was where a voluntary hospital had a liability for payment of superannuation to somebody who had actually retired. Liability for that was transferred to the Minister.

Mr. MESSER stated that local authorities were disturbed at the prospect of having to carry the liability into the new service when, in fact, they were not responsible for the officers transferred. Mr. REID said he had in mind officers of certain voluntary hospitals who had no legal right to a pension but had a pension granted at pleasure. In fact the pensions were always paid and the officers had a moral right to them. The question arose in mental hospitals. He trusted it was the intention of the Government to take over that moral liability. Obviously the governors of the mental hospitals would not have any funds in the future and these people would be left stranded.

Mr. KEY said the arrangements under Clause 6 for superannuation did not relate to the carrying on of superannuation schemes for the employees who would be taken over with the institutions. Mr. Reid had raised an important case, and the feeling of the Ministry was that it should give *ex gratia* payments to those people with the permission of the Treasury. That was the intention. The amendment was agreed to.

INTERIM DIFFICULTIES

On the motion that Clause 6 as amended stand part of the Bill, Cmdr. Maitland said it was the duty to some extent of people who controlled hospitals to turn endowments into buildings. He asked the Minister if he would help voluntary hospitals which were now in difficulty about their position in the interim period. Many hospitals had saved during the war to be in a position to build, for example, new maternity blocks. Mr. MESSER said that a month ago his own authority passed a development plan involving £20,000,000. The Minister would not let it spend that sum because it could not give building labour, but the authority had the money and the sites, and the scheme was planned. No time should be lost in informing those hospitals which were to be outside the scheme. Turning to the regulations proposed in Clause 6, Mr. Messer said a recent conference called by the L.C.C., the Association of Municipal Corporations, and the County Councils' Association regarded with disquiet the fact that the Minister was not compelled as the clause stood to provide regulations, and that local authorities or voluntary hospitals would not be able, by right, to choose arbitration.

Sir H. MORRIS-JONES asked how much time the hospitals had before the appointed day and what powers they would have in the interim period so that they could proceed with some of their schemes. Dr. MORGAN, Mr. PIRATIN, and Mr. Linstead asked the Minister to make a pronouncement on special hospitals, such as the Royal Masonic Hospital and the Manor House Hospital. Ministry of Pensions hospitals, and the Swiss, French, and German hospitals in London were cited. Mr. COLLINS said much of the discussion and many of the amendments had not been remotely concerned with the welfare of the people who entered the hospital. His friends desired some assurance on behalf of the patients of prompt entry, swift and accurate diagnosis, skilled medical treatment, careful nursing, and suitable food. Mr. HENRY STRAUSS asked for a specific reference to the registered mental hospitals, some of which were financially independent and were anxious to continue without interference and to make developments; but Dr. TAYLOR hoped the Minister would not give such an assurance.

MINISTER'S REASSURANCE

Mr. BEVAN said there need be no apprehension on the part of hospitals concerning their power to extend, because the limit was lack of labour and materials. But if they had ambitious building projects they would not be able to carry them out. Emergency schemes must be put in hand, and approval had been given for a number of extensions and adaptations. If a hospital had a project which it thought to be one of high urgency it should make an application, and this would be considered. It would be impossible, ahead of the hospital plan, for any regional area to approve great building projects, even if the country had the labour and materials, because the Ministry did not know what would be the relation between one hospital and another until the plan had been made. As soon as the

Bill was passed the Ministry would establish the Regional Boards in order that plans might be made as soon as possible. As they were being made the hospitals would learn what their position was to be. Therefore they would have an idea as the schemes were being formulated, quite a substantial time before 1948. The Bill gave the Minister power to bring parts of the scheme into operation at different appointed days so that all the scheme would not be suspended until one day in 1948.

There was no doubt that any scheme in which the State accepted responsibility for free hospital service would damage and undermine the incomes of voluntary hospitals. But those responsible for voluntary hospitals were keen about their job, and he could rely upon them to keep their hospitals up to the highest pitch of efficiency. In the meantime voluntary hospitals should be maintained by those who had been accustomed to do so, and he hoped that those who could would help the hospitals by donations, and that those who made weekly contributions would continue to do so until the insurance scheme was in operation. Voluntary hospitals might have to eat into their capital resources or incur overdrafts, and these overdrafts would have to be transferred with the hospitals. His statement did not indicate a wish that the hospitals should begin to pile up overdrafts. If they did so they would get into difficulties, not from the point of view of surcharge but because the overdraft would be deducted from the assets when considering how much of the endowment funds were to be made available in the future. So far as possible the Ministry would try to push the endowments down into the management committees where they would fertilize the whole service. Therefore, the vigilance of the voluntary hospitals would assist in building up the funds of which they would have possession later.

He could not say what special hospitals would be left outside, because the Regional Boards must be able to look at all the hospitals available to see what they would need for an efficient hospital service. Furthermore, many of the special hospitals, like sectarian hospitals and hospitals giving special forms of recognized therapy, might want to come into the scheme, because if left out of it they might be ruined. All patients who now went into those hospitals and paid for treatment would be entitled to free hospital treatment. If these special hospitals were brought into the scheme it must be regarded as a principle that their special sectarian and individual character must be preserved. It must be the obligation of the Regional Boards to see that their management committees were of a character which maintained the continuity of the characteristics of those institutions. He gave that absolute guarantee.

He would not say that he intended to lay hands on the Admiralty hospitals or the hospitals of the Ministry of Pensions. These were Crown hospitals. Later, when the scheme was in full operation, he might see how the other Departmental hospitals could be dovetailed into the general health service. He made no definite promise. The Government hoped to serve the plastic surgery groups, which had done magnificent work during the war.

Clause 6 as amended was ordered to stand part of the Bill.

ENDOWMENTS OF VOLUNTARY HOSPITALS

On Clause 7 Mr. REID moved to leave out the words which restricted to hospitals designated by the Minister as teaching hospitals the provision that all the endowments shall be transferred to and vest in the board of governors. He welcomed the stress laid by Mr. Bevan on the importance of having a responsible management committee in charge of a particular hospital group. The Minister should allow the management committee of that group to keep the funds which were now vested in the particular hospitals concerned. In his amendment he was trying to bring the other hospitals into line with the teaching hospitals.

Mr. BEVAN said Conservative members forgot that what the Committee was anxious to do was to take the provision of hospital services away from the atmosphere of private charity. The Chancellor of the Exchequer would have been entitled to take all this money and use it to finance the scheme, because all this money was provided for general hospital purposes. The finances for general hospital purposes would be found by the State. The money under discussion was pocket money. The Ministry would try by global budgets to give the Regional Boards and the hospital Management Committees freedom of movement within the budget, and by making this money available to them would give them even more elbow room to provide more amenities and spend additional sums.

Mr. STRAUSS said the provision in the clause was without precedent. The Courts of Chancery and Parliament had always been careful to follow so far as possible the wishes of donors and testators. Capt. MARSDEN, noting that money coming from voluntary sources was to be pocket money outside the funds provided by the State, asked whether the income allocated year by year from King Edward's Hospital Fund would be seized

and disbursed by the Minister. To this Mr. BEVAN said "No."

The chairman, Mr. BOWLES, said the amendment did not deal with the purpose for which the funds were to be used.

Col. STODDART-SCOTT pointed to the situation in some industrial cities of the North, like Leeds and Bradford, where there was a teaching hospital in a university city next to another city with a large hospital but a university college. In Sheffield and Hull there were a university hospital and a teaching hospital in one city, and a university college and a large hospital in the other. One would retain its endowment and use it as it wished, while the other would get a share-out as the Minister arranged. He hoped the Minister would consider places with university colleges which in time would become universities and might establish medical faculties. What would be the position after the appointed day if the Minister had not made any additional teaching hospitals and some of the university colleges developed medical faculties? Would he be able to give back their endowments to places like Bradford and Hull?

Mr. BEVAN said the Committee would have to deal with that separately. It would have to be managed somehow. That was not the situation at present in connexion with some hospitals. Some had more money than they needed while others had no money at all. That could not be allowed in a properly organized hospital service. If teaching hospitals were created the Ministry would have to provide for them.

On a division the words which Mr. Reid proposed should be left out were retained by 27 to 13. Further consideration of the Bill was adjourned.

Experimental Health Centres

Mr. SOMERVILLE HASTINGS asked on May 16 whether the Minister of Health proposed to set up health centres so that further experience could be gained before the national health scheme came into operation. Mr. BEVAN said he did not think this would be practicable in the light of present statutory powers. He considered it better to press on with the National Health Service Bill and then to gain experience under it as quickly as possible.

Penicillin and the Public

Mr. BEVAN told Dr. Barnett Stross on May 16 that he had not completed his arrangements for the distribution of penicillin. The arrangements would provide that, for the present, penicillin would be available to the public only on the prescription of a qualified practitioner. That should be a safeguard against the danger apprehended by Dr. Stross that by taking small doses of penicillin indiscriminately the public might jeopardize efficient treatment for serious disease.

Dr. STROSS asked Mr. Bevan to take steps to advise the public that penicillin did not cure the common cold, or tuberculosis, or many other constitutional ailments.

Streptomycin

On May 16 Mr. PERCY WELLS inquired to what extent streptomycin was being produced in this country; whether it had been used in the treatment of tuberculosis; and with what results. Mr. BEVAN said a number of firms were carrying on research and development in connexion with this product, but the quantity resulting from these activities, which were on a laboratory scale, was as yet very small. It had therefore not been possible to use streptomycin in the treatment of tuberculosis.

Colonial Medical Service

Mr. GEORGE HALL told Mr. Dodds-Parker on May 15 that there were 128 vacancies in the Colonial Medical Service. The vacancies were being advertised. Appointments were over-taking retirements at the rate of about 15 a month. Mr. Hall added that he was not satisfied that the conditions offered in a number of Colonies were sufficient to attract highly competent specialists, either for short or long terms. He had recently made proposals to a number of Colonial Governments designed to remedy this defect. Some of these Governments had agreed to the proposals; others still had them under consideration.

Notes in Brief

On Jan. 1, 1946, there were 2,693 patients in mental homes and institutions managed for private profit under the Lunacy and Mental Treatment Acts. The number who left or were discharged as recovered or relieved during 1945 amounted to 66% of the number admitted.

Mr. Bevan is considering rules submitted by the General Nursing Council to establish a register of nurses who are trained in the nursing of tuberculous persons.

In England and Wales, at March 31, 1946 (the latest date for which figures are available) the number of persons who had been on waiting lists for institutional treatment for tuberculosis longer than 10 days was about 6,200.

The Services

The following have been mentioned in dispatches in recognition of gallant and distinguished services in the Mediterranean Theatre

Colt (Temp) G Anderson OBE, G T Garraway and H J R Thorne DSO, Lieut-Colt (Temp) F A Bevan TD, H Banbridge TD, S M, Comes A L D'Abruzzo OBE, J Fleming G M, Friell TD, F D Hari A G Johnson B R M, Johnson J B, King A J C, Lakhmire MBE, W A Mill J D W, Pearce R W, Raven L F W, Salmon MBE, J R St G S and A Watson Lieut-Colt (Acting) J B Bishop, Maj R A Facey TD, G D Falconer and R A P Gray, Maj R (Temp) J L C Beale K, Cameron A A, Dickie J A P, Evans D J, Frier A, Findlay R S, Garden A, Gourevitch MBE, J A Gird, n I C Hyland, D Jefferson, H C Johnston, C D P Jones MBE, F Kane A B, Kettle, I Leveson J, Macartney MBE, S MacKenzie W, MacKenzie A A, MacNair R L, Marks W E, Mashier R G, Miller R, Michay P B L, Muldoun A D, Newsholme J G O'Sullivan W A, Owen E, Pereira F H D, Phillips H P, Player A H M, Richards G I M, Ross M J, Saunders J A W, Shearer S B, Smith O H, Theodor F L, Turner W M, Walsh W J, Walter R H, Watson G A, Wilson and C L Worthington, Majors (Acting) C W A, Faloner B S C, Gaster and R I McAlley, Capt H Abramovich, MC, J H Adams P B, Angus J R, Armstrong C L F, Beaton W H C B, H J H Bennett, O H Bostock, J Brod T O, Candler M A, Chamberlain R C, Connolly J H, Cule R B, Davies, W A J, Donald L, Dorman J F B, Edeson P K D, Edmunds G, Godfrey C L, Grandage J, Halliday J M, Hilditch J R, Horn D R, Hughes F G, Hunter, P E, J E, Jaxon D, Klein M, Knowles R A, Lambourne R, Lush H C, Mansfield C R, McClure R, McIlroy J M, Munden H B M, Murphy, D F, Nicholson D A, O'Sullivan R T, Parkin G H, Parkinson I M, Sayers P S, Seen W R, McL Stevenson J H, Stranger B S, Tulloch J P, Turney C P, Wallace R, Watson D, Weitzman M H, West T K, Whaley P J, White and W W, Willson, Capt (Temp) L H Moore, Lieut H Baker R, Frarckham and W A Reynolds R A M C, Lieut-Col R S, Sahu M C, Lieut-Col (Temp) A N de Quadros, Lieut Col (Acting) S M Mohammad, Capt M A Alvi, G L Banerjee, K Chari M A R, Chowdhuri H, Dubey G, Singh N, G, Govind Raj G S, Nair G S, Grewal S M, Kanur P V, Krishnamurthy S, Mitra and H P B Neku, Capt (Temp) S F D Gola and S C, Guha, Lieut N N Banerjee, J S Bains and M K Bhat, Amb Sub A Mohd, Sub M T Khan, Sub (Acting) A Singh, Jerns D Singh G Singh M, Dadd, and S Mohiuddin I A M C

CASUALTIES IN THE MEDICAL SERVICES

Killed in Burma—W/Capt Michael Dean, R A M C

Killed in action Singapore Feb 1942—Major Seth Kenneth Squires R A M C

Murdered in India—Capt Joyce Margaret Hierons R A M C

Murdered, reportedly missing now reported missing presumed killed—Temp Surg Lieut Geoffrey Sulliffing Cross R N V R

Wounded—Brig R M B MacKenna, A M S, Major K B Thornton, R A M C, W/Cap S J T Merryfield, R A M C

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales there was a decrease in the incidence of acute pneumonia 165, measles 141, and dysentery 75 while an increase was reported for scarlet fever 77 and whooping-cough 33.

A small rise in scarlet fever occurred in most areas, and no large variations from the totals of the preceding week were recorded. The only notable change in the local trends of whooping-cough was an increase of 79 in Lancashire. Notifications of diphtheria increased by 1, the only marked fluctuations being an increase in Lancashire 21 and a decrease in Warwickshire 21. The decline in measles was contributed by London and Lancashire, where 128 and 114 fewer cases were notified than in the preceding week, the only large increase was in Essex 50.

The returns for dysentery were the lowest for the last seven teen months. The largest returns were Lancashire 32, Middlesex 25, London 16, Kent, 12, Warwickshire 10.

The Rock Ferry district of Birkenhead reports 7 cases of smallpox, 2 fatal. The staff of the Health Department and private practitioners have been working at great pressure to deal with the queues of people wishing to be vaccinated, over 10 000 vaccinations were carried out during the first few days.

In Scotland the incidence of infectious diseases declined. The chief falls were measles 250, scarlet fever 34, whooping-cough 22, dysentery 13, diphtheria 9.

In Ire an increase of 20 in the notifications of measles was the only appreciable change in the trends of infectious diseases. This was due to an outbreak in Dublin, Dun Laoghaire U D, involving 27 persons.

Cholera in India

An outbreak of cholera in the Province of Bihar caused the deaths of 2,167 people during the week ending May 4.

Week Ending May 18

The notifications of infectious diseases in England and Wales during the week included scarlet fever 1,112, whooping-cough 2,306, diphtheria 369, measles 2,658, acute pneumonia 461, cerebrospinal fever 49, dysentery 120, paratyphoid 2, typhoid 5, smallpox 5.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 11.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for: (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease are for: (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946					(1945 Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	61	3	21	1	—	53	2	22	2	—
Diphtheria Deaths	36	30	82	33	11	41	23	118	69	11
Dysentery Deaths	13	16	48	1	—	44	2	11	20	—
Encephalitis lethargica acute Deaths	3	—	1	—	—	1	—	—	—	—
Erysipelas Deaths	—	—	39	6	—	—	—	6	10	4
Infective enteritis or diarrhoea under 2 years Deaths	45	—	—	31	—	35	9	1	6	2
Measles* Deaths	2,570	928	879	69	—	12,412	822	203	52	12
Ophthalmia neonatorum	3	10	19	—	—	—	3	6	—	—
Paratyphoid fever Deaths	1	—	1 (B)	—	—	3	—	—	—	—
Pneumonia influenza Deaths (from influenza)*	445	28	6	3	—	511	25	6	7	3
Pneumonia primary Deaths	—	28	187	31	8	—	24	210	26	13
Poliomyelitis acute Deaths	1	—	—	—	—	1	—	—	—	—
Puerperal fever Deaths	—	2	11	1	—	—	—	12	—	—
Puerperal pyrexia† Deaths	123	12	17	1	—	126	9	13	2	—
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths	1,022	67	127	15	25	1,365	69	214	16	71
Smallpox Deaths	2	—	—	—	—	—	—	—	—	—
Typhoid fever Deaths	9	—	1	1	—	4	—	2	10	2
Typhus fever Deaths	—	—	—	—	—	2	—	—	—	—
Whooping-cough* Deaths	2,180	160	115	34	18	799	31	7	3	13
Deaths (U-1 year) Infant mortality rate (per 1,000 live births)	53	35	52	53	1	50	35	70	29	24
Deaths (excluding still births) Annual death rate (per 1,000 persons living)	4,301	676	551	210	13	4,664	662	672	217	140
Live births Annual rate per 1,000 persons living	8,366	1241	105	468	29	5,833	621	809	468	22
Stillbirths Rate per 1,000 total births (including stillborn)	276	38	30	—	—	171	14	34	—	—

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county) and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

Medical News

Mr. John Douglas McLaggan, F.R.C.S., has been appointed Aurist to the King.

Dr. Sterling Bunnell of San Francisco, consultant for hand injuries to the U.S. Secretary for War, is visiting this country, and on Wednesday, June 12, at 3 p.m., he will lecture in the anatomical theatre, Guy's Hospital Medical School, on reconstructive surgery of the hand.

The annual assembly of the Faculty of Homoeopathy will be held at the London Homoeopathic Hospital on Wednesday, June 5, at 2.30 p.m., when Dr. F. H. Bodman will give an address on "Teaching and Learning Homoeopathy," followed by Dr. F. R. Neubert, who will speak on "Homo-Apathy—The Orthodox Practitioner Looks at Homoeopathy."

The second quarterly meeting of the Continental Franco-Anglo-American Medical Society will be held at 11, Chandos Street, W., on Tuesday, June 11, at 2.30 p.m., when Lord Horder will preside.

The annual general meeting of the Royal Medical Benevolent Fund will be held at 4 o'clock (not 5 as stated last week, p. 821) on Wednesday, June 12, at 11, Chandos Street, Cavendish Square, W.

The annual general meeting of the British Association of Physical Medicine was held at the Royal College of Surgeons of England, Lincoln's Inn Fields, on May 15, when the report of the Council was presented to the members by the president, Lord Horder. A meeting to consider the treatment and rehabilitation of spinal cord injuries will take place at Stoke Mandeville Emergency Hospital on Wednesday, June 12, at 11.30 a.m. It will begin with a paper on demonstrations by Dr. L. Guttman, and in the afternoon Dr. Francis Bach and the staff of the physiotherapy and occupational therapy departments, together with the surgeon-instructor, will demonstrate the treatment of patients.

The Kettle Memorial Lecture will be given by Prof. W. E. Gye in the anatomical theatre of St. Bartholomew's Hospital Medical College, Charterhouse Square, E.C., on Wednesday, June 19, at 5 p.m. His subject is "Recent Advances in Cancer Research." Medical practitioners and medical undergraduates are cordially invited to attend.

The new address of the Institute for the Scientific Treatment of Delinquency is 8, Bourdon Street, Davies Street, London, W.1 (temporary telephone number (for urgent calls only): Mayfair 7072). To facilitate reorganization the directors have decided to close the clinic to new cases until Monday, June 24. Treatment of current cases will be continued. The lending library also will be closed, for removal, stocktaking, and reorganization, until July 1.

A delegation of seven scientists from Holland has arrived in this country, under the auspices of the British Council, to visit research and other scientific or medical institutions and make contacts with representative British scientists. After a stay in the London area they will visit the Provinces. One or more of the party will travel Oxford, Cambridge, Leeds, Glasgow, Manchester, Edinburgh, Aberdeen, Sheffield, Bristol, and Birmingham.

Prof. P. Lacroix, the Belgian orthopaedic surgeon, is visiting this country under the auspices of the British Council to attend the Conference of Orthopaedic Surgeons at Newcastle and visit Edinburgh, Manchester, and London to see medical institutions and meet British doctors.

The Swiss Academy of Medical Sciences is organizing a British-Swiss Medical Conference to be held in Basle from Sept. 16 to 21. An organizing committee has been set up in England, under the chairmanship of the President of the Royal Society of Medicine, and the following institutions are represented on that committee: Royal College of Physicians, Royal College of Surgeons, Royal College of Obstetricians and Gynaecologists, Medical Research Council, Physiological Society, Pathological Society of Great Britain and Ireland, and the British Council. Medical men from this country are cordially invited to participate, and they may take their families with them if they wish. Special arrangements will be made for the entertainment of non-medical visitors attending the conference. A detailed programme of speakers and subjects will be circulated at a later date. Thomas Cook and Son, of Berkeley Street, W.1, are handling the bookings, and reservations should be made with them before July 1.

To mark the L.N.E.R. Company's appreciation of the splendid work which doctors from Durham City and the neighbourhood performed at the railway disaster at Brownay Colliery last January, Mr. C. M. Jenkin Jones, divisional general manager, has sent a cheque for 50 guineas to the treasurer of the Royal Medical Benevolent Fund, adding that some of the doctors who helped were travellers on the train. Another cheque for 50 guineas has been sent to the Durham County Hospital in recognition of similar services by the medical and nursing staffs there.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Allopathy Westcent, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Reaction after Radium Treatment

Q.—A patient had radium treatment for skin carcinoma of the ear (6,500 r in six days) in October, 1945. He has since complained of general debility and failure of mental powers. Are these the result of the radium treatment?

A.—The dose of radiation for the destruction of a skin carcinoma is necessarily large, and the local reaction before healing takes place is severe, but the action and reaction are localized. General debility and failure of mental powers could not be caused by the local radium treatment of the ear.

Penicillin Spray for Bronchiectasis

Q.—Would the penicillin spray method of treatment help an old-standing case of unilateral lobar bronchiectasis?

A.—Most large hospitals in England are now using, in the treatment of cases of infection of the bronchi, including bronchiectasis, inhalation of a mist containing penicillin. It is difficult to obtain adequate concentration of penicillin in the atmosphere of a room, and it is usually preferable to atomize a penicillin solution of 20,000 units per ml. with oxygen, and for the patient to breathe in the mist through a plastic face-piece of the shape used in inhalation anaesthesia. With the best type of inhaler it is possible to obtain a penicillin concentration of 5 units per ml. in the patient's sputum.

This method of treatment will be increasingly used in the future, and should always be controlled by assay of the penicillin in the sputum. It is impossible to obtain adequate concentration by using a hand- or foot-bellows and ordinary air; also, the droplets of the mist must be sufficiently small to be non-irritant to the larynx. Using a suitable inhaler and adequate oxygen pressure, 2 ml. of penicillin solution can be vaporized in fifteen minutes, and, if this quantity is breathed every two hours, an adequate concentration of penicillin is obtainable in bronchiectatic cavities. It may be that the predominant organism in the cavities is not penicillin-sensitive, but, in general, even long-standing cases are much improved.

Posture in Sleep

Q.—What is the ideal posture for slumber? Can faulty posture, particularly in the obese, be responsible for straining the sacro-iliac or other ligaments, so causing backaches or similar complaints?

A.—There is no "ideal" posture for slumber. An easy relaxed position for the body in the horizontal state is all that is required to satisfy the normal basal physiological requirements for the short number of hours needed. The story is very different in the care of the invalid confined to bed for long periods. Here posture is extremely important, for far more than basal physiological requirements have to be met. It is in this field that the most flagrant departures from the principles of "physiological rest" are occasionally found. It is faulty posture in the obese or, in fact, in any other person in bed for a long period that is responsible for much of the backache which is prone to follow. Sitting up with the knees straight, the feet unprotected, with the lumbar region unsupported is common and is associated with abdominal visceral compression and poor respiratory excursion. This is a very

large subject, but one feels that it is in this field that great improvement could be provided in the medical and nursing care of the chronic sick.

Pyloric Stenosis and Haematemesis

Q.—Is there any association between pyloric stenosis and haematemesis in infants, and is there any factor in the stool of an infant under 6 months which, in the absence of demonstrable causes of bleeding, would give a positive benzidine reaction to tests for occult blood?

A.—In congenital pyloric stenosis a certain degree of gastritis is common. With this the vomit may be dirty, brown, and even blood-stained. There is no known association between pyloric stenosis in infants and any other cause of bleeding. A positive test for occult blood in the stools of an infant receiving only milk, orange juice, and cod-liver oil must presumably indicate bleeding somewhere in the alimentary tract (or swallowed blood from a cracked nipple).

Mental Ulcer

Q.—A 3-year-old boy was circumcised last December. A few weeks ago he developed a mental ulcer. What is the treatment?

A.—Phimosis is often associated with a small meatus, requiring a meatotomy, and this is almost certainly the cause of the mental ulcer. A meatotomy should therefore be carried out, with subsequent dilatation of the meatus with a bougie to prevent it contracting again. The dilatation may have to be carried out more than once, and an anaesthetic will probably have to be given, otherwise the mental ulcer is likely to recur continually, even although it temporarily heals. The treatment of the tight meatus so often associated with phimosis is, indeed, more important than the circumcision itself.

Asparagus, Urine, and Skunks

Q.—What makes urine smell so unpleasantly after eating asparagus?

A.—It is not known for certain what is the substance which, after eating asparagus, gives the smell to the urine, but it is probably methyl mercaptan. M. Nencki (*Jahresbericht über die Fortschritte der Tierchemie*, 1891, p. 193) distilled the urine of four men—who had consumed between them 12 kg. of asparagus—with oxalic acid; the gas evolved was passed into mercuric cyanide solution; the precipitate so obtained was distilled with dilute HCl into lead acetate solution, and a pale yellow crystalline precipitate of the lead salt $Pb(SCH_3)_2$ was obtained. It is said that the smell of the skunk is due to butyl mercaptan.

Mercurial Diuretics

Q.—In a case of congestive heart failure can injections of a mercurial diuretic be continued over a long period if necessary? If not, what are the indications for withdrawal, and is any other form of therapy possible?

A.—Intravenous injections of the mercurial diuretics may be given over a period of many months, and even two or three years, without producing undesirable side-effects in the kidneys or elsewhere. In general, it is best not to repeat the injections more frequently than every five days. Restriction of the fluid intake, avoidance of salt in the diet, and the administration of ammonium chloride 20 gr. (1.3 g.) in capsules thrice daily for forty-eight hours before each injection may enhance the effect and allow less frequent dosage. Patients may at any time develop idiosyncrasy to the drug; the lesser grades of sensitivity are manifested by skin disorders, such as urticaria or erythema; more severe reactions include purpura and exfoliative dermatitis. A positive patch test will prove the relationship of the drug to the eruption and indicate withdrawal. Allergy, as indicated by cutaneous lesions, often passes off after withdrawal for a week or two, and the injections can then be resumed in smaller dosage, or at longer intervals, without further sensitivity developing.

Accumulation of mercury in the body may occur if the dosage is too great or too frequent; it is to be suspected if poor diuresis is obtained in spite of the existence of oedema. Digestive disturbances, such as vomiting or diarrhoea, may

arise, and occasionally haematuria or stomatitis. These disorders will generally preclude further use of mercurial diuretics. If mercurials have to be withdrawn, a trial may be made of furosemide 10 gr. (0.65 g.) thrice daily or of theophylline ethylenediamine 7½ gr. (0.5 g.) by intramuscular injection daily for three days. Failing these measures, mechanical drainage by Southey's tubes may be undertaken.

Colloidal Vanadate Reaction in Cancer

Q.—What is the colloidal vanadate reaction, and what is its value in assessing the progress of malignant disease?

A.—The colloidal vanadate reaction was introduced by Bendien in 1931 as a diagnostic test for cancer, and subsequently modified by Cronin Lowe (*Journal*, 1933, 1, 407). The reaction depends upon the effect of vanadate solutions on the blood serum, the results being interpreted by estimation of the precipitations obtained. The chief factor in producing differences in precipitation is probably the globulin content, and while the serum globulin tends to be high in cancer, the same applies in many other diseases, so that the test cannot be regarded as specific. For this and other reasons—for example, that the test is a delicate and variable one, and that special care is required in the collection of the blood specimen, in the preparation of the vanadate reagents, and in the technique itself—the value of the reaction in assessing the progress of malignant disease is a somewhat controversial matter. An excellent review of the changes in the serum proteins in malignant disease is given by Boyland (*Cancer Review*, 1932, 7, 433).

Negative Sputum in Tuberculosis

Q.—A young man aged 38 has the clinical signs and symptoms of pulmonary tuberculosis. A radiograph shows infiltration of both lungs, with a cavity in the right side. Examination of the sputum by the ordinary staining method is persistently negative. No culture has ever been made owing to technical difficulties. Can I exclude pulmonary tuberculosis without attempting a culture of the T.B.? In other words, is a culture absolutely necessary for a final diagnosis? Is there any possibility of a case of pulmonary tuberculosis having a persistently negative sputum by the ordinary direct smear examinations?

A.—A negative sputum smear examination does not exclude pulmonary tuberculosis, in fact, it is not unusual to find patients with extensive disease, particularly chronic disease, and a persistently negative sputum. If a constant search is made the bacilli will usually be found after a time, and, of course, cultural methods are a great help. In this particular instance probably the safest course would be to regard the patient as suffering from pulmonary tuberculosis and to continue to make daily examinations of the sputum. These will probably reveal the bacilli before long.

Diarrhoea

Q.—The article on "What is Gastric Flu?" (March 23, p. 439) implies that there is a clinical entity with diarrhoea as a dominant symptom that may be primarily an infection of the central nervous system. (1) Will you please give further information about this? (2) In the summer of 1943 I saw two cases with sleeplessness, nausea, diarrhoea, and "feeling frightened." It seemed possible that the symptoms were due to an infective agent, or a toxin formed by one, that acted on parts of the nervous system involved in fear reactions, and that the diarrhoea was brought about through those physiological mechanisms that are operative when diarrhoea is caused by fear. Are there any observations that would confirm or refute this view?

A.—(1) The musculature and secretory activity of the bowel are under the control of the sympathetic nervous system, which, if irritated or otherwise affected by some noxious agent, may cause abnormal bowel movements with resultant diarrhoea. Thus, in poliomyelitis, the virus of which is neurotropic, intestinal disturbance may occur early in the infection and these symptoms may be related to the invasion of the sympathetic ganglia by the virus. In the diarrhoeas of early infancy evidence of inflammatory reaction in the bowel is usually lacking, and the suggestion has therefore been made that the symptoms may be due to an irritative effect by virus or toxin on the sympathetic nervous system. So it may be with the epidemic

virus diarrhoea of adults which has lately become prevalent in this country.

(2) The diarrhoea associated with excitement or fear is usually attributed to the over-secretion of adrenaline, which stimulates the sympathetic nervous system in its action. It does not act through the sympathetic nervous system but directly on involuntary muscle, and in this way may cause an intestinal upset. The cases described possibly belong to this category with a "functional" rather than an organic origin for the syndrome.

Erythema Multiforme

Q.—What is the aetiology of erythema multiforme? What is the treatment?

A.—Erythema multiforme claims numerous and different aetiological factors, such as focal infection, or an association with inflammatory ringworm, or as representing part of the symptom complex of poradenitis venerea. The occasional pain and joint swelling have suggested a rheumatic or streptococcal origin. Most attacks run their course in three to four weeks. Routine treatment includes rest in bed and a sodium salicylate mixture. In the recurrent form, which is uncommon, a variety of dermatitis herpetiformis may be suspected. A careful search for an underlying cause, such as chronic focal sepsis, or gastrointestinal or even renal disease, may be required.

Gastric Disorders in Aircraft Production

Q.—An employee complains of his stomach being upset by the spray used on aeroplanes for preserving them. He says it contains resin and lanolin, and that masks are supplied for use when spraying, but it is impossible to wear them if the nose is stuffy, as when he has a cold. Is this psychological, or is there some harmful effect on the digestive organs from this spray?

A.—It seems most unlikely that a spray containing resin and lanolin would be used for preserving aircraft. The material usually sprayed on aircraft is "dope," which is a type of paint. This contains aromatic hydrocarbons, including toluene, xylene, and benzene up to 15%, and amyl acetate, among other substances. A rubber solution containing naphthalene is sometimes sprayed on metal parts to prevent scratching. None of these substances is known to have a harmful effect on the digestive organs, and it is, therefore, probable that the symptoms are psychological. Many people have a feeling of nausea on entering a freshly painted room. The wearing of a mask can never be said to be pleasant, and it is always difficult to persuade workpeople to wear them. If there is nasal obstruction, further obstruction in the form of a mask is sure to be uncomfortable.

INCOME TAX

Car Expenses

N. W.'s car has been written down by depreciation allowances to £52. What will be the position if he sells it in 1946-7 for £200 and buys a smaller car for, say, £1,200?

His tax liability for 1946-7 will be unaffected. As regards 1947-8 (a) he cannot claim "replacement cost" because he has had the depreciation allowance on his present car; (b) he will be liable on a "balancing charge" in the amount of £200-£52=£148; and (c) he can claim the "initial allowance" of 20% of £1,200=£240, plus the "depreciation allowance" of 25% of £1,200=£300.

Cash in Lieu of Residence

B. C. as a demobilized M.O. received "£350 plus £100 in lieu of residential emoluments if not in residence." Is the £100 liable to tax, and if so can any deduction be made from that amount for the cost of private residence?

The recipient of emoluments in kind is fortunate in that such an indirect financial benefit is not taxable. Where cash is received in lieu the recipient is in the same position as the great majority of salary earners—i.e., tax is payable on the full amount of the emoluments and the cost of personal expenses of living cannot be deducted.

Ship Surgeon: Residence

"LEX," who has previously been resident abroad and has no residence or permanent abode in this country, holds an appointment as a ship surgeon on a ship registered and owned here. Does this render him liable to income tax on War Loan interest or income from abroad?

Apparently "Lex" cannot claim to be residing abroad, and is therefore liable on the income mentioned above.

LETTERS, NOTES, ETC.

Inhalations for Asthma

Dr. CLEMENT FRANCIS (London, W.1) writes: I am very glad to see the timely warning in the *Journal* against the practice of inhaling adrenaline solutions of a strength of 1 in 100 in asthma (*Journal*, April 27, p. 671). I was recently asked to see a young woman who for the relief of asthma had been inhaling adrenaline vapour of the above strength at frequent intervals for several weeks. She was collapsed, with an extremely rapid and irregular pulse; but showed rapid improvement on removal of the inhaler and admission to hospital under Dr. Saxby Willis, who has kindly informed me that the administration of sedatives quickly relieved her symptoms. I can confirm the statement that the use of an inhalant solution containing 1% cocaine does not lead to an addiction to the drug, and I have never known a patient who was not at the moment suffering from an asthmatic attack to show any desire to use such a preparation.

Inhalations of vasoconstrictors and antispasmodics usually give rapid relief in asthma, and the method is undeniably simple to use; but it must not be forgotten that local application of the vapour of solutions of adrenaline, cocaine, atropine, papaverine, and pituitary extracts causes paralysis of the cilia of the bronchial mucosa. This objection does not apply to 1% ephedrine, which according to Van Aleya is the only vasoconstrictor in common use which does not cause ciliary paralysis. If the asthma inhalation is used only occasionally—e.g., once or twice a week for a short period—no permanent damage to the cilia results; but when inhalations are used several times a day for successive months the bronchial cilia are destroyed. Moreover, the repeated inhalation of powerful vasoconstrictors results in a reactionary vasodilatation, so that the bronchial mucous membrane becomes chronically thickened and the asthmatic patient finds that he or she is becoming increasingly short of breath on exertion, that coughing is more troublesome, and expectoration more difficult. The above symptoms are unlikely to be produced when the patient relies on an oral remedy such as iodide of caffeine, or, if a more powerful means is necessary to combat an attack, a subcutaneous injection of a few minims of a solution of adrenaline 1 in 1,000.

Village Longevity

Dr. A. C. L'ESTRANGE (Clows Top, near Kidderminster) writes: Dr. C. E. S. Harris's longevity record (May 4, p. 709) is indeed very good, but I think the Teme Valley, Worcs, takes a little beating in "long-livers." My last ten death certificates read: 104, 91, 80, 74, 74, 84, 93, 53, 89, 81; total, 823 years, giving an average of 82.3. It was most unfortunate that the 53-year-old broke the "run," as my 11th certificate was for 83 years.

Nocturnal Erections

Dr. H. S. GASKELL (Stowmarket) writes: I note under "Any Questions?" (May 4, p. 707) a reference to nocturnal erections in elderly men, and that the answer was that when nothing is found to account for it "very little help can be given." Ten years ago a widower aged 70 was much troubled with this symptom. I gave him 6 weekly intramuscular injections of testosterone, 50 mg. each time. The trouble immediately disappeared, and the patient, who is still hale and hearty at 80, and carrying on his business, has repeatedly told me since that he has never had a recurrence.

Major E. S. A. ASHE, R.A.M.C., writes: With reference to the question and answer on nocturnal erections (May 4, p. 707), an article by H. Gaudin in the *New Zealand Medical Journal* of 1943 suggests stilboestrol in doses of 0.5 to 1.0 mg. for the relief of the above. In one of his cases complete relief was obtained after 3 doses, and it might be worthy of trial, on the assumption that it is a symptom of the male climacteric, etc.

Menstrual Migraine

Dr. E. D. GRAY (Manchester) writes: In the answer under the above heading (Feb. 2, p. 190) it was implied that "calcification of the roof of the pituitary fossa" might be a factor in the selection of the appropriate treatment of menstrual migraine. Surely it is well known that this appearance of a calcified roof does not represent a real encroachment of the sella turcica. It is caused by ossification of the dural folds connecting the anterior and posterior clinoid processes. Such ossifications are frequently seen in lateral radiographs of the skull in both males and females. No evidence has been adduced to suggest that this bridging of the sella could have any effect on the pituitary gland; indeed, if one considers the position of the anterior and posterior clinoid processes relative to the middle line, it must be obvious that tubular bands of ossification between these points could not possibly influence pituitary function. The appearance of an enclosed sella should be regarded as an incidental point and no clinical significance should be attached to it.

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THE SOURCE AND TRANSMISSION OF NASOPHARYNGEAL INFECTIONS DUE TO CERTAIN BACTERIA AND VIRUSES

BY

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(From the Connaught Medical Research Laboratories,
University of Toronto)

In view of the interest now being taken in the possibilities of ultra-violet light and aerosols for the prevention of nasopharyngeal infections, this paper discusses the probable methods by which the bacterial and virus infections of the nasopharynx are disseminated. For various reasons only scarlet fever, tonsillitis, pneumonia, diphtheria, and meningitis will be considered among those due to bacteria; and of those caused by viruses, only influenza, measles, and the common cold (it being freely admitted that direct proof of the virus origin of the last is still wanting).

Spread of Bacterial Infections

There is abundant evidence that preceding an outbreak of bacterial infection of the nasopharynx a slow increase occurs in the carrier rate, and not until this has reached a certain

increases when he carries on some form of nasopharyngeal activity. Even so, the great majority of the expelled organisms come from the mouth, few or none coming from the nose. The mechanism of expulsion itself has been recently reviewed in detail by Duguid (1945), while Hare (1940) described experiments which indicated the path followed by the organisms after leaving the mouth. These experiments have been repeated and extended. In brief, the method employed is as follows.

A subject sits upright in a quiet room and counts for five minutes, coughs six times, sneezes once, or blows for two minutes directly forwards with his mouth in the centre of a quarter circle of culture plates. In most experiments the circle has been twelve inches (30 cm.) in radius (Figs 1 and 2). The plates are situated on the radii at 90°, 67.5°, 45°, 22.5°, and 0° from the vertical, the first-named being directly in front of the mouth and the last directly

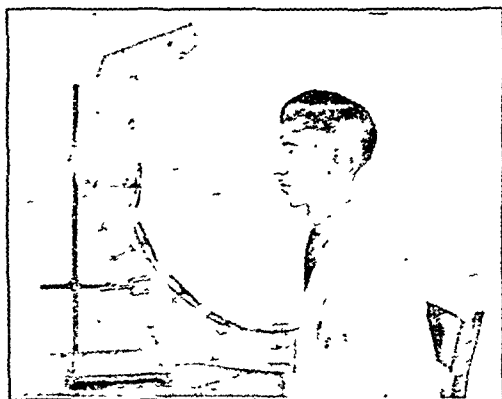


FIG. 1

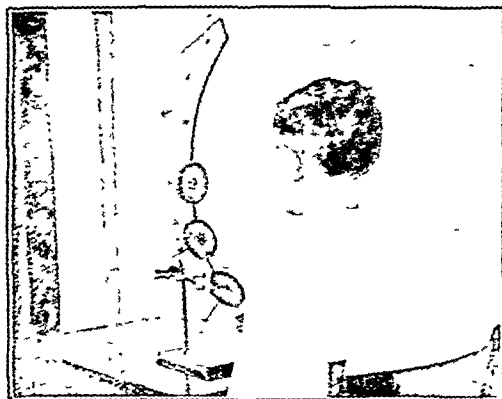


FIG. 2

level do clinical cases appear. In the course of this, it may be assumed that, in general, the infecting bacteria reach the recipient in the air he breathes and gain access to the atmosphere from the nose or mouth of the case or carrier. The presence of the specific organisms in the air may arise in two ways: (1) by expulsion of the organisms from the nose or mouth when the case or carrier indulges in such activities as speaking, coughing, sneezing, blowing, or spitting; and (2) by contamination of the hands, handkerchief, pillow, bedding, towels, or any other object which has access to the secretions of the mouth or nose and from which they can be released after the secretions have dried. These two mechanisms must be discussed separately.

Expulsion from Nose or Mouth

In experiments, which need not be quoted in detail, it has been determined that few organisms reach the atmosphere when the subject breathes quietly, but that the number rapidly

under it, all of them twelve inches away. After incubation, the number of colonies on the plates are counted. The collected results are given in Table I.

TABLE I.—Average Number of Colonies per Person on Culture Plates Exposed at Different Positions in Relation to the Mouth

Position of Culture Plate	Talking		Coughing		Blowing		Sneezing	
	Average	% of Total	Average	% of Total	Average	% of Total	Average	% of Total
0°	23.1	30.0	6.7	4.9	1.3	2.6	355.8	7.5
22.5°	39.1	41.8	8.9	6.5	1.6	3.2	1,636.0	34.4
45°	16.2	17.3	60.1	43.9	8.0	16.0	2,425.6	51.1
67.5°	8.4	9.0	52.9	38.7	27.0	54.2	262.8	5.5
90°	1.8	1.9	8.2	6.0	12.0	24.0	71.3	1.5
Total	93.6	100.0	136.8	100.0	49.9	100.0	4,751.5	100.0
Number of subjects	39		20		3		9	

It is not suggested that all the expelled organisms appear as colonies on the plates, but the method does give an indication of the route they take after leaving the mouth. For this reason it would appear that the great majority of the organisms are in droplets of fairly large size whose trajectory depends on the resultant of the force of gravity acting perpendicularly to their initial motion and on the amount of force used in expelling them. Naturally the trajectory is somewhat flatter when violent methods of expulsion are used than when talking, the result being that the majority of the organisms were on the plate at 67.5° from the vertical when blowing, on those at 67.5° and 45° when coughing, on those at 45° and 22.5° when sneezing, and on the plates at 22.5° and 0° (directly under the mouth) when talking.

In the above experiments the head was in the natural position, but if it be inclined forwards so that the mouth is pointing directly downwards over the plate at 0°, gravity assists the force of expulsion and quite large numbers of organisms can be isolated on that plate. If, on the other hand, the mouth faces upwards, very few organisms travel any distance at all, most of them apparently falling back on to the face.

Thus it is obvious that gravity exerts a very powerful influence on the droplets, the great majority of those which contain organisms falling downwards shortly after they leave the mouth. The ultimate fate of the organisms therefore depends on the position and the surroundings of the donor as well as the force exerted in expelling them. While sitting at a desk or table, lying in bed or in similar positions, a very high proportion of the total output will impinge on some surface below the mouth, and only by the more violent methods will it be possible to avoid this and obtain droplets with a flat enough trajectory to float free before becoming "neutralized" by falling on some such surface. Some idea of the numbers which may be expected to do this may be gained from the number of colonies obtained on the plate at 90°, directly in front of the mouth. As will be seen from Table I, the largest number was obtained with the subject sneezing—71.3 colonies (though, had not the subjects unanimously jerked their heads downwards, it might have been larger)—and was smallest when talking, only 18 colonies being obtained. When these figures are compared with the 4,061.6 colonies obtained on the plates at 22.5° and 45° when sneezing, and the 67.2 obtained on the plates at 0° and 22.5° when talking, it is obvious that under most circumstances the vast majority of the droplets containing organisms will be "neutralized" by falling on to some object below the mouth.

When the subject is standing upright, however, with from four to six feet (120–180 cm.) of air below the level of his mouth, some of the droplets will be neutralized by falling on to his clothes, some by falling direct to the ground; but many will rapidly lose water by evaporation, leaving their salts, non-volatile substances, and bacteria as droplet nuclei (Wells, 1934). These are so small that the force of gravity is unable to overcome the resistance of the air, and in consequence they float free. The number of droplet nuclei produced, as well as the number which contain organisms, will naturally depend on the particular activity of the subject. Some idea of the extent of bacterial pollution of the atmosphere which can occur in this way may be obtained from the following type of experiment.

The nose and mouth of a subject were projected into a large box, 51 in. (130 cm.) high, 32 in. (80 cm.) wide, and 21½ in. (55 cm.) deep, the mouth being placed 24 in. (60 cm.) from the floor. The walls and floor were covered with muslin soaked in liquid paraffin to neutralize the larger droplets falling on them. Five blood-agar plates were placed on the floor and exposed for one hour before the activities enumerated below. They were then removed, the subjects talked, coughed, or sneezed, and after an interval of five minutes a second series was inserted through a hole in the wall. They were left for one hour in order to collect the lighter particles slowly settling out from the air. Following incubation at 37° C., the difference between the number of colonies on the two series of plates was assumed to represent the number of nasopharyngeal organisms collected as a result of the particular activity of the donor.

It was found that after talking for five minutes nine normal persons produced an average of 13 colonies, after six coughs 28, and after one sneeze 715. Thus it is obvious that sneezing is by far the most prolific activity, air pollution being quite mild after only talking and coughing. Duguid (1945) used much the same technique but sampled the air directly with a slit sampler,

and similarly found that only by sneezing was it possible to obtain any large numbers of the lighter droplets and droplet nuclei containing organisms.

Thus the number of organisms expelled varies according to the violence of the methods used for expelling them; the path they take after leaving the mouth will likewise vary with the particular activity of the donor, but will in general be downwards rather than forwards, and their ultimate fate will depend to a large extent on the position of the mouth in relation to surrounding objects, but will generally involve the deposition of the organisms on some surface below mouth level. Those which do not reach such a surface will float free as infected droplet nuclei. Lastly, it should be pointed out that without sneezing or violent blowing it must be almost impossible for the subject to project any considerable number of organisms into the mouth of another person on the same level and only 12 in (30 cm.) away.

Expulsion of Specific Organisms by Carriers and Cases

Using the same methods, Hare (1940) studied 12 known carriers of group A haemolytic streptococci. As might be expected, under the influence of gravity these organisms tend to fall away along with the nasopharyngeal saprophytes. But of equal importance is the fact that very few of the colonies on the plates contained the specific organisms. This information is summarized in Table II, in which are given the total number of

TABLE II.—Total Colonies and Those Containing Group A Haemolytic Streptococci Isolated on Plates Exposed at all Settings with Head Upright

Carrier	Talking Time (mins)	Total Cols	Haemolytic Strep.		No of Coughs	Total Cols.	Haemolytic Strep.	
			No	%			No.	%
Ric	15	386	0	0	18	52	0	0
Tow	10	263	1	0.38	12	32	0	0
Ste	5	153	0	0	6	45	0	0
Sim	5	245	0	0	6	48	0	0
Mac	5	114	0	0	6	84	0	0
Pie	5	54	2	3.6				
Cus	5	114	3	2.63				
Kee	25	198	1	0.51	24	127	0	0
Rol	15	196	1	0.51	18	1,939	2	0.1
Ros	10	48	0	0	6	45	0	0
Mo	10	272	0	0	12	67	0	0
Wat	10	135	0	0	12	71	0	0
Total		2,178	8			2,510	2	

colonies collected, as well as the number containing haemolytic streptococci isolated at all the sittings in which the heads of the carriers were upright. Seven of the carriers did not expel any haemolytic streptococci during the tests, though three of them expelled some when the head was turned downward. Acutely infected cases were not studied, though several were examined as soon as they were convalescent. But Bloomfield and Felt (1924) encountered considerable difficulty in obtaining expulsion of infected droplets from patients with scarlet fever and tonsillitis during the acute phase of the illness. In a recent paper Duguid (1946) described an investigation of 50 cases of scarlet fever and 37 carriers who coughed six times at blood-agar plates held only 3 in. (7.6 cm.) away from the mouth. About 10% of the total colonies contained haemolytic streptococci, but only 39 out of 87 individuals expelled them.

The expulsion of pneumococci and of meningococci does not seem to have been investigated by a similar technique. Teague (1913), however, held serum-agar plates 3 in. from the mouth of patients with diphtheria who were talking and coughing. Only 48 out of 180 plates contained the specific organisms, only 65% of the patients emitted them during the period of test, and in 30 out of 48 patients only one colony per plate was isolated. Similar results were obtained by Duguid (1946) with patients coughing six times at tellurite plates. The specific organisms comprised only 4% of the total output, and they were isolated from only 10 out of 50 patients. No comparable experiments have been carried out with carriers, but, in view of the statement of Copeman *et al.* (1922) that they have very few diphtheria bacilli in their throats, it would seem that the ability of both case and carrier to emit the specific organisms is no better than that of carriers of haemolytic streptococci.

Thus the available evidence suggests that only a proportion of carriers of streptococci and diphtheria bacilli (and patients

in the acute stages of infection) expel these organisms, and that the organisms which they do expel will, in most circumstances fall and impinge on some surface below the level of the mouth. Those which do not will float free as infected droplet nuclei but in view of the fact that very few droplet nuclei produced as a result of other activities than sneezing contain organisms at all, and the number of specific organisms expelled by a carrier is only a small fraction of the total output, it follows that the production of infected droplet nuclei by carriers of these organisms can hardly be a serious factor in the dissemination of infection.

Much less is known about the expulsion of meningococci and pneumococci but it may be assumed for the present that it proceeds along the same lines.

Contamination of Person and Surroundings

Working with carriers of haemolytic streptococci Hare (1941) showed that the skin of the face and hands, the clothing and the handkerchief may be contaminated by their organisms and that this contamination may persist over long periods of time. The same author, and also Hamburger, Puck, Hamburger and Johnson (1944), showed that the bedding and the dust of the carriers' rooms are contaminated. There is also evidence that the nasal carrier is more capable of polluting his surroundings than the throat carrier, and Hamburger, Green and Hamburger (1945) found that the bedding of such carriers might contain 80 times more streptococci than that of throat carriers. Exactly how the organisms reach the person and the bedding has not been determined. It is probable that some reach it during conversation and coughing but that the majority come from nasal or oral secretions directly. However they arrive, there is no doubt that there may be quite marked contamination.

There is also evidence that the organisms may be released into the atmosphere from these situations. Before this can occur the particular secretion must be dry. Using a wind tunnel Willits and Hare (1941) showed that lint infected with haemolytic streptococci did not infect the air stream so long as it was moist, or even when dry so long as it was undisturbed. But once dry, very slight degrees of agitation sufficed to release considerable numbers of organisms into the air stream. For the same reason, it is possible to show that there may be little or no air contamination in the neighbourhood of the bed of a carrier when all is quiet, but that the number of specific organisms in the air increases very considerably if the bed is made or agitated only slightly (Willits and Hare, 1941, Thomas and van den Ende, 1941, Hamburger, Puck, Hamburger, and Johnson, 1944).

Much less evidence is available in respect of the other bacteria although Stillman (1917) found Types I and II pneumococci in the dust of 48 out of the 183 households in which cases had occurred, but only one Type I in 62 control households. Eagleton (1919) found meningococci in the air of Army huts in which carriers were sleeping. The ability of carriers of diphtheria bacilli to contaminate their surroundings does not appear to have been investigated, although Wright, Shone, and Tucker (1941) found them in the dust of wards in which there were cases.

Mechanism of Transfer from Person to Person

The investigations reported in the preceding section show that, unless extremely violent and impolite methods are employed, it is probably very difficult for a carrier to infect the atmosphere in his vicinity to any great extent directly from his mouth or nose. Furthermore, he is equally unable to infect directly, by any other method short of violent sneezing or blowing, another person whose mouth is only 12 in (30 cm) away and on the same level. On the other hand, his person, the objects which surround him, and particularly his bedding, may be contaminated by his organisms, some having presumably reached them from the droplets which have fallen in the course of conversation, etc., but probably a far larger proportion by direct contact with his nasal and buccal secretions. As the organisms on the surrounding objects can reach free air after drying, Hare (1940) suggested that it was these organisms which are responsible for conveying infection to others.

This hypothesis was put forward to explain the transmission of haemolytic streptococcal infections, but there would seem to

be little doubt that it also applies in other bacterial infections of the nasopharynx. In view of this, it is to be expected that little or no transfer of infection would occur during ordinary contacts of the day, but that an ill-ventilated office or crowded class room, and particularly the dormitory, would be the place where infections of this type are acquired. Epidemiological observations confirm this, for the work of Glover (1918) on the spread of meningitis, of Glover and Griffith (1931) and of Dudley (1926) on the spread of streptococcal infections, of Dudley (1926) on the spread of diphtheria and of Schroder and Cooper (1930) and Strom (1932) on the spread of pneumonia, all point strongly to the importance of the sleeping-place and, to a somewhat less extent, of the class room in the epidemiology of these infections.

This would seem to be due to the fact that during the daytime the number of infectious particles expelled direct into the atmosphere or released from objects available for contamination seldom reaches dangerous proportions, although something approaching it may occur in class rooms or offices with closed windows when the clothing is shaken or handkerchiefs are waved about in the air. But in the dormitory a high proportion of the organisms collected on the bedding during the night are released at once when the room awakens and the occupants get up, and, in common with others, we have found that the bacterial population of the air of Army huts increases ten to twenty times following reveille. It is the sudden release of the concentrated output of the night which makes available enough infected particles to increase the number of carriers or bring about clinical infections.

Spread of Virus Infections

It is generally assumed that epidemics of influenza, measles, and the common cold are due to linear spread over the lines of communication, and that a gradual increase in the carrier rate an apparent prerequisite for the development of an outbreak of bacterial infection, does not occur. However, it has recently been demonstrated that mouse pneumonia virus may remain latent in the tissues of a number of different species of laboratory animals passing from animal to animal without apparent clinical infection. The virus may be mobilized, however, and cause infection, with the production of specific antibodies, by the application of a suitable non-specific stimulus such as the intranasal instillation of sterile suspensions of egg embryo and similar materials (Eaton and Van Herick, 1944, Horsfall and Curnen, 1946). A slightly different but essentially similar mechanism has been invoked by Shope (1944) to account for the spread of swine influenza. It is possible that something similar occurs in influenza, measles, and the common cold, the latent virus corresponding in some degree to the bacteria in the throat of a carrier.

What the essential change may be which causes the virus to awaken and produce clinically apparent infection is open to conjecture, but in view of the fact that colds, particularly in North America, almost invariably appear immediately after the sudden drop in temperature which heralds the autumn, that, although influenza may occur in the summer, recent epidemics of influenza A and B have been winter diseases in both hemispheres, and that measles usually makes its appearance in the autumn, it would seem that weather may play some part in this.

Nevertheless this does not provide a complete explanation; for if latent virus is widely disseminated before an outbreak it is probably in isolated pockets or cells of the population rather than in a high proportion of the population as a whole. What proportion of the world is seeded in this way, and how far apart the pockets are, are matters for conjecture. In the measles outbreak in the Faeroes investigated by Panum (1939), for instance, it is highly improbable that any latent virus was present before the epidemic began. For all the cases were traceable to other cases, and isolated households remained free until contact with cases was established. On the other hand, in a large town the virus may well survive from one epidemic to the next in a few individuals scattered here and there.

Before influenza epidemics, only a few members of the population can very well carry latent virus, for in the pandemic of 1918 isolated islands escaped. In the Samoa group, for instance, the American island of Pago Pago remained free because a strict quarantine was imposed but the islands of

Upolu and Savaii were almost certainly infected by the steamer *Talune*. In the Falkland Islands epidemic of 1935 it was observed that settlements which had been warned by telephone isolated themselves immediately and escaped infection, so that in time "the island could be divided into sharply defined areas where the disease was or was not present" (Cheverton, 1937). In the pandemic of 1889 Parsons (1891) observed that deep-sea fishermen and lighthouse keepers did not become infected so long as they remained isolated. Thus it would appear that if latent virus plays much part in the genesis of epidemics of influenza it is only in very isolated pockets.

In the common cold, on the other hand, it would seem that latent virus must be quite widespread during interepidemic periods, in view of the unanimity with which the populations of whole countries, and even continents, appear to become infected with the advent of cold weather in the autumn.

Thus, if it be allowed that an epidemic starts as a mobilization of the latent virus in isolated pockets of the population, there must in addition be case-to-case transfer of the virus in order to account for the large number of secondary cases which quickly appear. This transfer, moreover, must occur with great rapidity and very easily.

The path by which viruses travel from person to person is quite unknown, but it may for the present be assumed that the same mechanism operates as in the bacterial infections. In consequence, it may be postulated that the recipient inhales virus particles which have reached free air from the patient either by direct expulsion from the nasopharynx or from buccal or nasal secretions which have dried on his person or surrounding objects.

Expulsion of Viruses

Direct study of the expulsion of virus particles is a difficult proceeding, and, so far as we are aware, has not yet been attempted. If, however, as few virus particles are expelled as are streptococci by cases or by carriers of that organism, and particularly if they follow the same path after expulsion, the difficulty in visualizing direct mouth-to-mouth transfer is equally great. It may well be that, in view of the copious secretion from the nose in a cold and its tendency to increase in measles and influenza, there are many more virus particles available for expulsion, and that, besides being present in the nose, these particles occur in the anterior region of the mouth instead of being mainly confined to the tonsillar region, as appears to be the case with carriers of bacteria. For this reason the expulsion of easily recognizable organisms by normal subjects whose anterior mouth flora had been increased many times by taking up 5 ml. of a suspension of *B. prodigiosus* in saline (the whole of the growth on an agar slope after 24 hours' incubation being played) was studied in the same manner as with the carriers streptococci.

The results are given in Table III, from which it will be seen that the artificially infected mouth expels many more

TABLE III.—Average Number of Colonies per Person Isolated Before and After Instillation of *B. prodigiosus* Culture into the Mouth

Position of Culture Plate	Talking		Coughing		Blowing		Sneezing	
	Before prodigiosus	After prodigiosus	Before prodigiosus	After prodigiosus	Before prodigiosus	After prodigiosus	Before prodigiosus	After prodigiosus
	Total Cols.	Prodigiosus Only	Total Cols.	Prodigiosus Only	Total Cols.	Prodigiosus Only	Total Cols.	Prodigiosus Only
0°	14.2	114.0	1.1	1.0	1.3	14.3	400	400
22.5°	18.3	62.5	2.1	4.4	1.6	16.3	400	1,080
45°	3.8	16.4	11.8	16.6	8.0	42.3	1,424	2,096
67.5°	2.0	4.1	19.6	113.5	29.0	250.0	1,920	1,200
90°	0.3	0.7	2.5	4.7	12.0	87.3	1,028	348
Total	38.6	197.7	35.1	140.2	51.9	410.2	5,172	6,124
Number of subjects	9		9		3		1	

organisms than the normal, the majority of them being the indicator organisms. The contrast between such a person and the streptococcal carrier is very marked indeed. Nevertheless, the same general principles apply. The great majority fall downwards out of harm's way, and, even with the larger numbers of organisms available, only by the more violent methods

would it be possible to infect the nasopharynx of another person on the same level and only 12 in. (30 cm.) away. This may possibly explain the failure of attempted transmission of influenza during the 1918 epidemic. It is possible, however, that in view of the increase in the number of available organisms, infected droplet nuclei may be commoner than in the bacterial infections.

Contamination of Person and Surroundings

Whether patients with virus infections of the nasopharynx can contaminate their person and surrounding objects has not been determined experimentally, but mere observation of a person in the throes of an acute cold should convince even the most sceptical that the virus is distributed over most of his person and surroundings. There is probably less contamination in influenza, but the prodromal stage of measles may be equally severe. For this reason the following experiments were performed.

Normal subjects had about 1 ml. of a suspension of *B. prodigiosus* instilled into their nostrils four times in the course of an hour and, by the application of soap or small quantities of sneeze-powder, the condition of the nose was made to resemble in some degree that of a person with a cold. The same subjects, but on different days, took cultures into their mouths (twice in the course of an hour) and on other occasions into both nose and mouth. While in this condition they wore a sterilized laboratory coat with pieces of sterile lint, 1 in. (2.5 cm.) square, pinned on in various strategic situations. They then proceeded to carry on with their ordinary occupations around the laboratory.

After an hour the patches were removed, placed into phials containing 5 ml. of broth, and, after shaking, 1/2 ml. of broth in each phial was spread over the surface of a well-dried agar plate. After incubation of the plates for 48 hours at 26° C. the number of *B. prodigiosus* colonies was determined. This figure was multiplied by ten to account for the dilution, giving the total population on 1 sq. in. (6.45 sq. cm.).

Immediately after the removal of the lint squares the coat was taken into a room 8 ft. (244 cm.) by 7 ft. (213 cm.) and 9 ft. 6 in. (290 cm.) high in which seven agar plates were disposed—two on the floor, two on stools 2 ft. (60 cm.) high, two on the bench 2 ft. 6 in. (75 cm.) high, and one on the window-sill 3 ft. (90 cm.) from the floor. The coat was then shaken twice with only moderate vigour. The room was now shut up and left for one hour. The plates were then covered, incubated for 48 hours, and the number of colonies of *B. prodigiosus* determined. For control purposes a similar series of plates were exposed for one hour before the experiment. The room was carefully washed and aired between each experiment.

From Table IV, in which the results are given, it is obvious that when the nose contains many organisms, even for a short period of time, they have no difficulty in reaching and contaminating the clothing of the subject during the ordinary activities

TABLE IV.—Contamination of Laboratory Coats by Normal Subjects after Instillation of *B. prodigiosus* Culture into Nasopharynx, and Extent of Contamination of the Air of a Small Room after Shaking the Coat

Site	Subject A						Subject B							
	B. prodigiosus instilled into:						B. prodigiosus instilled into:							
	Nose Only	Nose and Mouth	Mouth Only					Nose Only	Nose and Mouth	Mouth Only				
			a	b	c	d	e			a	b	c	d	
No. of prodigiosus on 1 sq. in. (6.45 sq. cm.)						No. of prodigiosus on 1 sq. in. (6.45 sq. cm.)								
R. lapel ..	500	1,400	0	30	0	1,000	0	0	0	0	0	0	20	
L. lapel ..	0	20	280	330	0	0	0	1,360	0	0	0	40	20	
R. sleeve ..	210	0	0	20	30	0	30	0	0	0	0	0	10	
L. sleeve ..	40	0	10	550	0	10	0	30	0	0	0	0	0	
R. abdomen	0	80	0	340	20	70	20	20	0	0	0	0	0	
L. abdomen	660	50	0	180	20	230	20	0	140	0	0	0	0	
Back ..	0	0	0	20	0	10	0	370	0	0	0	0	0	
Handkerchief	10,240	—	—	—	—	—	—	—	—	—	—	—	—	
No. of prodigiosus collected on 7 Culture Plates exposed in Room for 1 hour After Shaking Coat:														
	4	8	1	1	4	3	4	4	4	1	1	0	0	

of the day. When the organisms are only in the mouth there is rather less contamination. On the clothing being shaken in a small room there was detectable contamination of the air by the indicator organisms. The results varied somewhat with the subject, the clothing of subject A being more heavily contaminated, while the air of a small room contained more organisms.

It must, however, be borne in mind that in these experiments the subjects were under observation for only one hour, that the organisms instilled into the nasopharynx very quickly disappear, and that the amount of nasal excretion was usually much less than that met with in acute infections. For these reasons the actual number of organisms detected is probably much smaller than the number of virus particles which might have been picked up had the individuals been clinically infected and a suitable technique been available for isolation of the virus.

Mechanism of Transfer from Person to Person

The experiments in the preceding sections show that if the number and location of virus particles in the nasopharynx of a patient in the acute phase of infection bear any resemblance to the number and location of the indicator organisms used in these experiments, the path they follow when travelling from donor to recipient is probably very similar to that followed by the bacteria under consideration in the first part of this paper, the indirect route by way of contamination of the person's clothing and surrounding objects probably being more important than direct mouth-to-mouth transmission.

Consideration, however, of the epidemiology of these infections shows that the release into the atmosphere of the concentrated output over several hours—an apparent prerequisite for the production of further cases of bacterial infection—is by no means necessary in the case of the viruses. For it is hardly necessary to do more than refer to the extremely rapid spread of colds and influenza following their introduction into islands and other isolated communities, while it would be possible to quote several instances from Panum which demonstrate the exceedingly slight contact necessary for the dissemination of measles. It is probable that this is due to a much greater output of infectious particles by persons with acute virus infections, aided by the fact that the virus is present in the nose. For this reason, not only do the surroundings become very heavily contaminated but also the atmosphere in the neighbourhood as well.

There is even a possibility that the person and clothing of others in the vicinity of the patient may become polluted either by droplets falling thereon direct from the patient or by virus particles released into the atmosphere after the buccal and nasal secretions on the person or bedding of the patient have dried. Such persons may become temporary "carriers" in the sense that the virus is on their clothing and not in their throats. In this condition they may convey infection to others at a distance. There is some epidemiological evidence in support of this.

While investigating an outbreak of influenza A in Alaska in 1935 two passengers and a pilot left Fairbanks on April 8 by aeroplane for Kotzebue, where they stayed for several days. The former place had had influenza since Jan. 15, and the latter was in the throes at the time of their arrival. They then proceeded by plane to Point Barrow, arriving on April 15. The Eskimos there became infected, though none of the travellers was infected in any way (Pettit, Mudd, and Pepper, 1936).

During the influenza epidemic in the Falkland Islands in 1935 the supply ship, S.S. *Lafonia*, left Port Stanley on Aug. 30, two members of its crew having been landed on Aug. 28 sick with influenza. "The hands themselves all seemed fit except for slight colds." On Sept. 2 she touched at a port in West Falkland, where "an epidemic of influenza broke out and spread to each place visited by the mail officer from the ship" (Cheverson, 1937).

Isolated communities such as Spitzbergen (Paul and Freese, 1933), Tristan da Cunha (Barrow, 1936), or the settlements in the Arctic north of Canada have very little respiratory infection so long as they remain isolated from civilization, but when contact with the outside world is re-established, usually by boat, the inhabitants suffer from severe colds. As a rule no information is given as to the state of the immigrants, although it may be assumed that they had had contact with colds some time previously. Hirsch (1883), however, mentions that they are usually free of infection at the time of arrival, and Heinbecker and Irvine-Jones (1928), describing an expedition to Baffin Land, mention that "it was not necessary for any member of the expedition to have an acute respiratory infection for the malady to appear amongst the natives."

A third instance may be quoted from the Reverend K. Macaulay (1764), who landed on St. Kilda in a spirit of scepticism that healthy people could carry colds, but to his immense surprise colds duly made their appearance amongst the islanders three days later. The same author mentions that some of His Majesty's soldiers landed on Hirta, "and although the natives gave them no manner of assist-

ance" (which was not surprising, for it was the year of Culloden). "at the same time, it is certain . . . that the cold described above attacked them with immense fury."

In the case of measles somewhat similar evidence may be cited from Panum (1939).

"Three weeks before Whitsunday, the provincial surgeon was summoned to Kvalvig, where a severe epidemic of Krujv was prevailing, and he had to spend the night in the village. In the house in which the surgeon slept the measles broke out exactly 14 days after his arrival. No other occasion than his visit could be assigned for the outbreak of the disease, since no resident of Kvalvig had been in any suspected place, and particularly none of those who lived in the house that was first attacked, and since no other stranger from any affected or suspected places had been in the village. . . . To Midtvaag, in Vaaga, the measles came, so people said, with the midwife, who had passed several days with the measles patients at Steegard. The woman had had the disease herself in Denmark. In all the houses in which the midwife had been, they said, the measles appeared 14 days later; and a girl who washed the midwife's clothes immediately after her arrival was the first who took the measles in Midtvaag."

Thus an aeroplane with three individuals on board, coming from an infected locality, and a mailman from a presumably infected ship, conveyed influenza; the arrival of ships with no apparent infection and the landing of an uninfected clergyman and a party of uninfected soldiers were followed by outbreaks of common colds; and the visit of a surgeon and a midwife, both free from infection themselves but from infected localities, caused measles in other communities. It is arguable that the immigrants were carriers and infected the new community, not necessarily by direct mouth-to-mouth transmission of the virus but indirectly by way of their clothing. If carriers of viruses have no more particles available for distribution than have carriers of streptococci the transmission of virus may be very difficult to achieve without very close and intimate contact. For this reason the alternative suggestion is equally plausible—that the virus was present on the boat or amongst the belongings of the travellers owing to contact with previous cases, and that a sufficient number of particles were released when the clothes were shaken or luggage was unpacked in the new community to cause infections amongst any susceptibles present. In this connexion the observation by Marshall, the surgeon of Shackleton's expedition, that after the party had been completely isolated for many months and was free of infection an outbreak of catarrh followed the opening of a new bale of blankets, is of some importance.

Thus it would seem probable that the person-to-person transfer of virus particles may occur if violent methods of expulsion are employed, but that an indirect route in which the buccal and nasal secretions dry on the person and surrounding objects and reach the atmosphere by shaking, etc., is more probable. Whatever the mechanism may be, there can be little doubt that it is extraordinarily efficient and that, in contrast to the bacterial infections, minimal degrees of contact are all that are necessary. Indeed, the virus may be conveyed to others separated in time and space by considerable distances.

Discussion

It is not suggested that anything more than a working hypothesis has been put forward to account for the spread of the infections under consideration, and it is possible that as further evidence is obtained it may have to be modified or even abandoned altogether. It would seem, however, that the methods by which both bacterial and virus infections are disseminated are essentially similar.

The former evidently requires the slow building up of the carrier rate, and not until a sufficient number of carriers have been assembled can actual clinical infections appear. The virus infections, on the other hand, probably require the presence of individuals carrying virus in the latent form. The frequency with which such persons occur in the population is still a matter for speculation. When the external conditions are right (and what these conditions may be we do not know, though weather may play its part) the virus is mobilized, producing clinically recognizable infection.

In the transfer of infection from person to person, it would seem that much the same mechanism is at work in both bacterial and virus infections. Probably little infection is transferred direct from mouth to mouth, the majority of secondary

infections being produced by bacteria or viruses which have followed a circuitous route. In the case of bacterial infections, possibly because very few infectious particles are expelled, this occurs only when the concentrated output over several hours can be suddenly released into the atmosphere. But in the virus infections, possibly because more infectious particles are present, such concentration is unnecessary and infection can be transferred with extreme ease and as a result of only slight degrees of contact.

In view of this the prevention of virus infections by ultraviolet light or aerosols may prove to be extremely difficult, whereas it may be much easier in the case of bacterial infections. This should be borne in mind before expensive installations are contemplated.

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AMPHETAMINE AND CAFFEINE CITRATE IN ANOXAEMIA

BY

R. C. BROWNE, B.M., M.R.C.P.

Late Squadron Leader, R A F V.R.

and Strumza (1939a, 1939b) showed that the very large of amphetamine of 0.2–0.4 mg. per gramme of body delayed the onset of unconsciousness in anoxaemic guinea-pigs, and also that doses of a similar order revived dogs which were comatose from the same cause. In another series of experiments they found that, although caffeine citrate did not increase a dog's resistance to anoxaemia, as measured by the time of onset of unconsciousness, both ephedrine and amphetamine did so, but excessive doses of the latter augmented the depression brought on by oxygen lack. In men, however, who were breathing an oxygen-nitrogen mixture which simulated climbing from an altitude of 10,000 ft. to about 24,000 ft. (3,000–7,300 m.) in 40 minutes, Knehr (1940) and others were unable to demonstrate any improvement in coding and calculating after subcutaneous injections of 20 mg. of amphetamine.

Early in the recent war it became necessary to investigate the actions of amphetamine (benzedrine—Menley and James) and caffeine upon anoxaemia, and a small-scale attempt was made, therefore, to link up a study of the objective performance of anoxaemic airmen with a survey of their symptoms in order to give a double assessment to the action of these two drugs.

Method

In the present investigation five pilots and one ground instructor (who soon afterwards became a pilot) were the subjects for the test on performance, and six pilots and two ground instructors for the experiment on the symptomatology. The nature and purpose of the tests were carefully explained

to every man, and it was pointed out that it was no part of the investigation to make them ill, and that they were to mention anything untoward which they noticed. At the same time, however, care was taken not to suggest any of the possible symptoms of anoxaemia either by telling them what to notice or by direct question afterwards.

The test used was to keep a Link, or instrument flying trainer, on an even keel and a set course for 45 minutes when it was going through the motions of an aircraft flying in bumpy air. This machine is the standard synthetic training device for teaching instrument or blind flying in the R.A.F., and it forms one of the nearest copies of real flying which can be numerically scored. It is fitted with the same controls and dashboard instruments as a real aircraft, and can assume the positions of a machine which is climbing, diving, banking, or turning. Movements of the controls, moreover, cause corresponding changes in the attitude of the fuselage and in the readings of the blind-flying instruments. There is also a mechanism which makes the machine assume rapid changes in attitude like those of an aircraft which is flying in rough or bumpy air, and it was considered that the continuous correction of these deflections (which were constant in number and amplitude from test to test) provided a suitable task for an experiment of this kind. The errors in making these corrections were measured by three mechanical integrators (one for each dimension) which gave numerical readings upon three dials, and which were all driven by the same constant-speed electric motor. This mechanism automatically stopped every two minutes, and it took about a minute to note the readings and reset the dials to zero, so that repeated samples of the performance could therefore be obtained at three-minute intervals.

The subjects were made anoxaemic by breathing, through a standard Service telephonist's gas-mask (Fig. 1), an oxygen-

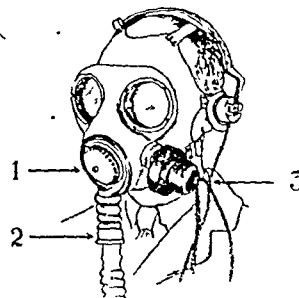


FIG. 1.—Subject wearing Service telephonist's gas-mask. 1, Expiratory valve. 2, Mica valve, closing on expiration. 3, Microphone.

nitrogen mixture containing 11% of the former, which represents an altitude of about 16,200 ft. (5,000 m.). Gas of this composition was fed from large cylinders through a reducing valve and flowmeter into a 10-litre breathing-bag which was slung from the side of the trainer (Fig. 2). A standard time

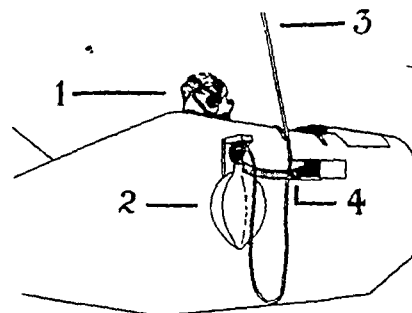


FIG. 2.—Link trainer fuselage with breathing apparatus. 1, Subject in telephonist's gas-mask. 2, 10-litre self-collapsing breathing-bag. 3, Supply pipe from gas cylinders. 4, Flexible rubber hose to mask.

of five minutes was taken to change over from breathing air to this mixture. The mask was fitted with a microphone and connected to the breathing-bag by a piece of wide-bore corrugated hose-pipe, and in its base was a light mica valve which shut on expiration, and which was fitted in such a position as to

reduce the dead space to a minimum, since this might have held a relatively high concentration of CO_2 and thus made the subjects resistant to oxygen lack. Breathing with this apparatus was comfortable, as the bag had a tendency to collapse, which eliminated any inspiratory negative pressure. Preliminary experiments showed that the pressure in the mask never fell below atmospheric, and that wearing it and breathing air had no effect on the performance of the test. There was complete two-way telephonic communication between observer and subject, so that information was gained at once about any symptoms which arose. In one set of tests amphetamine 15 mg was given 3½ hours before starting, and in the other caffeine citrate 10 gr. (0.65 g.) 1½ hours before. In both cases the tests with the drug were compared with similar experiments when the subjects were given inert tablets. Since it was expected that there might be some improvement with practice it was decided that half the subjects should have the active preparations on the first of the two trials and the other half on the second, and the airmen were therefore allocated at random to one or other of these arrangements.

Results

(a) *Objective Performance*—Table I shows the number of errors made by the group of six subjects, both with and without the drugs, in three time intervals of 15 minutes each. Since the integrators were read every three minutes each figure shown is therefore the mean of ($3 \times 6 = 18$) observations. With amphetamine there is a small consistent improvement of 1.9 errors in the first 15 minutes, of 0.4 in the second, and of 1.6 in the third. The overall difference in favour of this substance is, however, only 1.7 ± 1.63 errors, which may easily be a

TABLE I.—The Mean Number of Errors made by a Group of 6 Anoxaemic Subjects with and without Amphetamine and Caffeine Citrate

Time, Minutes	0-15	16-30	31-45
Control	24.0	25.6	26.4
With amphetamine	22.1	24.4	24.8
Control	21.9	26.2	27.4
With caffeine	23.5	25.5	27.1

chance finding. 10 gr. (0.65 g.) of caffeine citrate had no effect on performance, since in the first 15 minutes 1.6 more errors were made with the drug, but in the last 30 minutes 1.0 fewer. There is therefore no evidence, within the limits of this small objective experiment, that either amphetamine or caffeine citrate significantly affects the performance of anoxaemic men.

(b) *Symptomatology*.—Table II and Fig. 3 show the symptoms in the order of frequency in which they were reported, both in the control tests and after the administration of the two drugs. Sleepiness is the commonest in the control series, with 0.776 complaint per hour, being rather more than 2½ times as common as the succeeding dyspnoea, with 0.302 complaint per hour. Various types of visual disturbance are next in order of frequency with 0.135 complaint per hour, and these include dim, misty, blurred, or yellow vision, which usually started at

TABLE II.—The Effect of Amphetamine and Caffeine Citrate upon the Relative Frequency of the Symptoms of Anoxaemia

Symptom	Number of Complaints per Hour of Exposure		
	Control Tablets	Amphetamine	Caffeine Citrate
Sleepiness	0.7760	0.2670	0.5420
Dyspnoea	0.3020	0.3140	0.7000
Visual	0.1350	0.1800	0.2170
Cold limbs	0.0397	0.0397	0.0000
Annoyance	0.0448	0.0448	0.1090
Headache	0.0448	0.1800	0.0000
Faintness	0.0448	0.0397	0.2170
Volubility	0.0448	0.0448	0.1090
Subjective change in ease of test	0.0344	0.0448	0.1090
Euphoria	0.0000	0.1800	0.0000

the edge of the visual field. Next in order of frequency come complaints of cold limbs and manifestations of annoyance from those subjects who were naturally a little irascible—notably from a stocky fighter pilot who had been a nuisance to his superiors during his training and “a bad influence on the rest of the course,” but who, fighting with distinction in the Battle

of Britain, was decorated with the D.F.C. Generalized headache, faintness, volubility, and a subjective feeling that the test was more or less easy to do were next noted in that order.

Amphetamine 15 mg., given 3½ hours before exposure to the anoxaemia, significantly reduced sleepiness by 0.509 ± 0.02 complaint per hour. This drug, however, seemed to increase headache by some 0.135 ± 0.034 complaint per hour. Notwithstanding the fact that chance cannot definitely be ruled out here, it is reasonable to expect this to happen, since both amphetamine and anoxaemia probably tend to increase the blood supply to the brain, thus doubly increasing the calibre of the cerebral vessels, upon the stretching of which there is some evidence (Cohen, 1939) that headache of this nature depends. A similar summation of action may explain the euphoria which was noticed only when amphetamine and anoxaemia coincided.

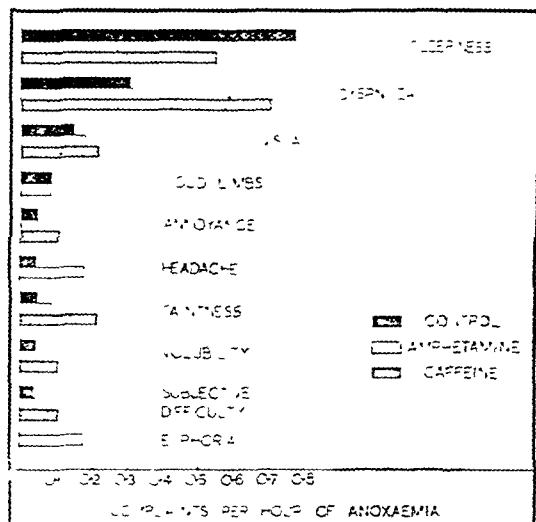


FIG. 3.—The effect of amphetamine and caffeine citrate upon the relative frequency of the symptoms of anoxaemia.

Although caffeine citrate 10 gr. (0.65 g.) 1½ hours before exposure to the anoxaemia produced an insignificant diminution in the complaints of sleepiness, it caused a slight but consistent increase in all the other symptoms upon which it acted at all, producing the most notable increases in the number of complaints of dyspnoea and faintness. Many of the subjects, indeed, felt positively ill when they were made anoxaemic after taking this drug. Although, technically speaking, the differences caused by it upon the individual symptoms are not significant, it is difficult to avoid the conclusion that it made these airmen feel worse than if they had taken nothing at all—and this with a dose well within the normal therapeutic range. In this part of the experiment the subjects were made anoxaemic for a total of 23 hours with the control tablets, for 22½ with amphetamine, and for 9 with caffeine.

Discussion

This small experiment once again emphasizes the difference between the objective and subjective actions of a drug, and the point is illustrated by the slight effect of amphetamine upon performance compared with its relatively large action in diminishing sleepiness, which was the commonest symptom of anoxaemia noted. It is a little surprising that there was not a more marked action upon performance, since it is reasonable to suppose that a diminution in sleepiness would also tend to lessen the number of errors in the test due to this cause. There is, however, an element of “what is gained on the swings is lost on the roundabouts,” in that amphetamine may increase visual symptoms, headache, and euphoria.

The balance of evidence in the case of caffeine, so far as this experiment goes, suggests that it should not be given to men who are likely to become anoxaemic, and vice versa, since it does not seem to improve their performance and, showing a small but consistent increase in a number of diverse symptoms,

makes some of them feel frankly ill. This naturally raises the question whether it is wise to give it to patients who are anoxaemic from clinical causes.

To make them worth using under wartime operational conditions drugs like these must have a very obvious beneficial effect with as few drawbacks or as small a "cost" as possible—and especially when the man who takes them is in charge of a highly complicated piece of machinery such as an aircraft.

It is worth noting here that the relative frequency of the symptoms of anoxaemia in this paper differs somewhat from that set out in two other recent descriptions (Armstrong, 1939; Matthews, 1945), and the three are compared in Table III. The

TABLE III.—A Comparison of Three Recent Descriptions of the Symptoms of Anoxaemia (given in Order of Frequency) for Approximately the Same Altitude

Armstrong	Matthews	— Present Paper
Headache	Reduced night vision	Sleepiness
Altered respiration	Fatigue	Dyspnoea
Psychologic impairment	Headache	Visual symptoms
Euphoria	Errors of judgement	Cold limbs
Sleepiness	Indifferent mental condition	Annoyance
Lassitude	Reduced capacity for physical work	Headache
Fatigue		Faintness
		Volubility
		Subjective change in job

differences may perhaps be in part due to nomenclature rather than to fact, and some may be attributed to the different times spent at a particular level. There may also be less tendency for symptoms to be noticed in an aircraft, or indeed for them to occur, because the external environment is more demanding than the internal and, in the case of sleepiness, there is more to keep a man awake in the air than there is in a laboratory set-up on the ground, where he is under close and safe observation.

Summary

The effects of amphetamine and caffeine citrate upon the performance and symptoms of a small number of anoxaemic airmen have been investigated. Anoxaemia was produced by breathing an atmosphere of 11% oxygen and 89% nitrogen, equivalent to an altitude of 16,200 ft. (5,000 m.). Doses of 15 mg. amphetamine were given 3½ hours and 10 gr. (0.65 g.) caffeine citrate 1½ hours before exposure to this.

Keeping a standard instrument flying or a Link trainer straight and level on a set course for 45 minutes was the test used. A record of the performance was maintained by three mechanical integrators, and of the symptoms by an observer in continuous two-way telephonic communication with each subject.

Amphetamine produced a consistently small but technically insignificant improvement in performance, and caffeine citrate was fully without effect.

Amphetamine reduced the incidence of sleepiness by nearly three times, but had no beneficial effect upon the other symptoms of anoxaemia. It may have increased headache and euphoria. Caffeine citrate may have slightly reduced sleepiness, but it seemed to accentuate all the other symptoms.

This investigation was commissioned by the Flying Personnel Research Committee, and acknowledgements are due to Air Marshal Sir Harold Whittingham, K.C.B., K.B.E., late Director-General, R.A.F. Medical Service, for permission to publish this paper; to Prof. L. J. Wits for his advice and criticism; to Dr. Edwin Schuster for making the integrators; to the Medical Research Council for a personal grant; and to Messrs. Menley and James for a supply of benzedrine.

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All civilians repatriated to Scotland from former enemy-occupied territories are now entitled to free medical treatment for any disability whatever for a period of six months from the date of landing. In a circular to local authorities, the Department of Health for Scotland states that treatment, which includes optical and dental attention, should be obtained wherever possible through the Emergency Hospital Service. After six months, repatriates will receive treatment only for illnesses or disabilities accepted by the Ministry of Pensions as attributable to war operations over-seas or to the effects of internment. Similar arrangements have been made for England and Wales.

THOMAS AND HIS SPLINT*

BY

T. P. McMURRAY, M.Ch., F.R.C.S.Ed.

The war has brought once more to the notice of the surgical world the great advantage which can be obtained from the Thomas splint; its application is easily understood, and the full benefits of the splint follow on adherence to the advice of its designer. Hugh Owen Thomas, who devised the splint, was the descendant of a long line of farmers from Anglesey, in North Wales, where the family were very well known—not so much for their ability in farming as for their secondary and more spectacular occupation of bone-setting. This knowledge, or ability, or knack was apparently taught to every member of the family, the female members being equally active in the work with their brothers. Sixty or seventy years ago it would have been thought that a fracture or dislocation occurring in North Wales had been neglected unless one of the Thomases had been called in and had taken complete charge. This peculiar condition of affairs apparently caused no ill feeling among the local doctors, who seem to have become reconciled to it. Modern developments and improvements in medical training have gradually led to a virtual disappearance of these unqualified practitioners, although there is even to this day an elderly Miss Thomas who carries on the family tradition to a very restricted degree.

It is difficult, under modern conditions, to realize the power and influence which the bone-setter wielded at this time; he usually had a large following among the general public, who considered that the skill of the members of the medical profession was, in this branch of surgery, vastly inferior to that possessed by those who were supposed to have some mysterious gift for setting fractures and reducing dislocations. The public were encouraged in this belief not only by the claims of the bone-setter but in many instances by the teachings and writings of leaders of the surgical world. As an instance, Sir James Paget in his *Clinical Lectures and Essays*, published in 1867, described the skill and success of a particular bone-setter, and stated that by following the practice of the bone-setter, as outlined in the *Essays*, results could be obtained which were in every way superior to those which followed generally accepted surgical methods. This praise of the unqualified practitioner was a common feature of the surgical literature of the time, and Sir Benjamin Brodie, in his monograph *Bone-setters and Bone-setting*, praised the results obtained in joint disease by the manipulative practice of many of the group.

Evan Thomas

One of the Thomas family—Evan—decided, at the age of 19, to leave the Anglesey district and seek a wider field for the practice of his art in Liverpool. He hoped that on his arrival he would be able to start his work, but he soon found that the family reputation had not spread so far, and in order to make a living he went to work in one of the local foundries. His work here lasted only three or four years, and ceased because his increasing reputation in the treatment of the injuries of his fellow-workers enabled him to leave the foundry and devote his whole time to the art which he had learned as a boy. His reputation grew rapidly; patients came to him from every class of society; and in the midst of this activity he looked forward to the day when one or more of his sons would join him in his practice. He realized the disadvantages under which he worked without a medical training or qualifications, and determined that his five sons should not suffer similar handicaps. His eldest son, Hugh Owen, at the age of 21 became a medical student in Edinburgh, where he came under the instruction of Syme and Goodsir; later he was a student at University College, from which school he finally obtained his qualification in 1857. During his schooldays and later during the university holidays he helped in his father's practice—in fact, on one occasion during the father's illness he took control for a short period. Such were the conditions under which the boy grew up, not only seeing and learning his father's work but coming into contact also with the results obtained by the local surgeons and

* Delivered to the British Orthopaedic Association, December, 1945.

by many famous bone-setters of the day. It was natural to expect that during his medical training he would be brought to realize the superiority of the work of the trained surgeon over that of the unqualified and often ignorant bone-setters, but, unfortunately, the teaching given him on this particular subject by Syme, Spencer, Simpson, and Goodwin at Edinburgh University was no improvement on what he had learnt in his father's practice.

During his course at Edinburgh nothing impressed H. O. Thomas so deeply as the frequency with which amputation was the final stage in the treatment of inflammation and disease of joints. As a boy he had seen many similar patients treated conservatively, and apparently successfully, yet here in Edinburgh—the Home of Surgery—amputation seemed to be the invariable rule. Already the conviction was growing in his mind that such wholesale amputations could be avoided if conservative treatment were started early and carried out intelligently.

Hugh Owen Thomas in Practice

Following his qualification Thomas returned to Liverpool to help in his father's practice, and recognized that here he was seeing a more successful application of principles than he had seen while at the medical school. Unlike the curriculum for the training of a surgeon, there was no line of instruction for the bone-setter; each acted according to his belief, or because on occasion relief had been gained by some application or alteration of position of an injured or diseased joint. Many of the bone-setters were simply manipulators; some used massage alone; while others believed in the efficacy of various forms of poultices. Evan Thomas was essentially conservative in outlook, and never attempted to produce movements by means of forced manipulation. Sprained and painful joints were treated by comparative rest; this was obtained by covering the joint with successive layers of pitch plaster, which, fusing together, assumed the rigidity of cardboard. Pulleys and traction were freely used in the treatment of fractures, and when length and symmetry had been restored to the broken limb the position was maintained by well-padded splints. He taught his son that the ideal to be aimed at was restoration of alignment, and that without such perfect correction the result must be classified as failure. Father and son worked well together for a short time, but soon the young man began to make suggestions, and when these were repeated and elaborated the end of the partnership had to come.

After a rather heated parting with his father, Hugh started in practice in a neighbouring street and soon gained a following largely among those who had, formerly been treated by Evan Thomas. Hugh was always a general practitioner, being the doctor to several of the clubs and tontines along the docks. At no period of his life was he attached in any way to a hospital; all his practice and experience came to him as a club doctor, but his power of observation compensated for the absence of hospital experience. Within three years of starting practice he had built for himself a workshop fitted with the most modern tools and jigs, and here he spent most of his evening hours working, planning, correcting, and eventually perfecting his various splints. Just as in the case of the father so in that of the son, the success of his treatment led to constant additions to his work. Because of the inability of many of his patients to pay even the smallest fees he instituted a Free Sunday Clinic, which continued uninterrupted until the beginning of the war of 1914-18. As one would expect, he was not accepted by the surgeons of Liverpool; hard words were spoken on both sides, and only one—the late Rushton Parker—could see any good in his treatment or could refrain from criticism of his methods.

The Thomas Splint

So much for the man, and now I find myself faced with the rather difficult problem of describing his splint. Strictly speaking, there is no such apparatus as the Thomas splint; Thomas perfected at least 10 splints which are still widely used, but the one which is usually known as the Thomas splint was described by him as the *bed knee-splint*. The title indicates quite clearly the use or uses for which it was devised. The splint is extremely simple in its construction, being fashioned from one of three sizes of best round bar iron, iron being preferable to steel

because of its greater rigidity. The main portion of the splint is formed by two straight lateral bars which are joined above to an ovoid ring of the same metal approximating inferiorly where they meet in a W-shaped junction. The two lateral bars exactly bisect the ovoid ring, the curve on each side of the lateral bars being equal. The angle between the inner lateral bar and the ring during construction should be 120° when looked at from either the front or the back (Fig. 1). When the metal framework of the splint has been correctly constructed the padding and leather covering are applied; the padding consists of thin strips of felting which are stretched tightly round the upper ring, the amount of padding depending roughly on the age and development of the patient. The highest portion of the ring requires very little padding, a covering of leather usually being sufficient, but at the bearing points the felting is wound firmly round the groin bars, and tapers off on each side. The amount of padding used depends roughly on the size of the patient, but there is one important proviso—in a very fat patient it is not necessary to increase the padding greatly, as a very bulky mass would tend to retain moisture and so produce pressure sores. The length of the splint should be such that when applied to the patient the W-shaped end should extend at least 6 in. (15 cm.) beyond the foot.

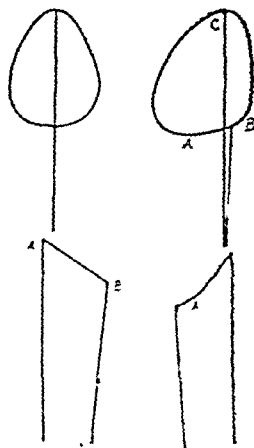


FIG. 1—Left side bed knee-splint, right side calliper, showing metal skeleton of splints.

The introduction of the splint to the surgical world came at an extremely opportune moment; at this period, both in this country and in America, the belief in the inherent evils of immobilization of inflamed or injured joints was widespread. The teaching of the surgical schools was almost unanimous in affirming that the great cause of ankylosis was immobilization. Thus, in Couper's *Dictionary of Surgery* it is stated: "One thing almost essential to the production of ankylosis is the joint being kept motionless, and if persisted in will of itself bring on the changes which produce true or false ankylosis."

Again and again in the surgical literature of the time are these pronouncements given on the evils of rest and the benefits of frequent passive movements in the treatment of arthritis. The error of such teaching would seem to be obvious; the surgeons of the day had not the means of differentiating the various types of chronic arthritis, and, finding that passive movement was of advantage in some, they stressed their faith in it as a panacea for every type.

The simplicity of construction of the Thomas splint might tend to give the impression that here was an apparatus which had been rapidly designed, but, in fact, the exact opposite is true. At least six forms of splint were designed by Thomas before he evolved the final and simple bed knee-splint. I have seen many of these attempts, and it is interesting to realize that almost all the improvements and alterations to the splint which have since been devised were tried by Thomas and discarded on account of some mechanical defect. In the first description of the splint Thomas wrote that he had tested and tried it for ten years before bringing it to the notice of the profession—a test which is unfortunately not always followed by the sponsors of surgical procedures of the present time.

The Fracture Carriage.—The fracture carriage (Fig. 2) is one of the stages in the development of the bed knee-splint; many of the final parts of the finished splint are incorporated in this apparatus, but those that proved faulty were quickly discarded. In this fracture carriage the two straight lateral bars pass through a split in the anterior portion of the groin ring and are threaded along the bars until they come to a notch on its outer and inner margins. From there they pass directly down to be clamped to a transverse bar beyond the patient's foot. Alterations in the size of the ring were provided for either by

altering the sites of attachment of the lateral bars or by opening or closing the groin ring, which was made with a male and female portion similar to the conjurer's ring. As an addition, there is the foot-piece, which maintains its position by pressure

of its two lateral transverse portions on the side bars. The method of extension, or rather of fixation, is the same as in the bed knee-splint, the theory of complete and prolonged immobilization being the basic principle of treatment in both. Other stages of the splint on the way to the final design include a hinged groin ring, movable in all directions, and curving of the lateral bars, each of which was rapidly discarded.

Application of the Splint

The Thomas splint is easily applied, and owing to its simplicity of design there is little which can get out of order or cause anxiety in the course of treatment. The first essential in the use of the splint is the correct fitting; if employed in large numbers a graded series of splints of sizes differing by 1 in. (2.5 cm.) should be kept in stock. If such a large stock is not maintained the patient should be measured, and an accurately fitting splint applied (Figs. 3 and 3A). It would be unreasonable to blame the splint for troubles which might develop unless these details are remembered (Fig. 4). In measuring the patient the circumference of the thigh is taken just below the gluteal fold; to this measurement $1\frac{1}{2}$ in. (3.8 cm.) is added to allow for the obliquity of the ring and the

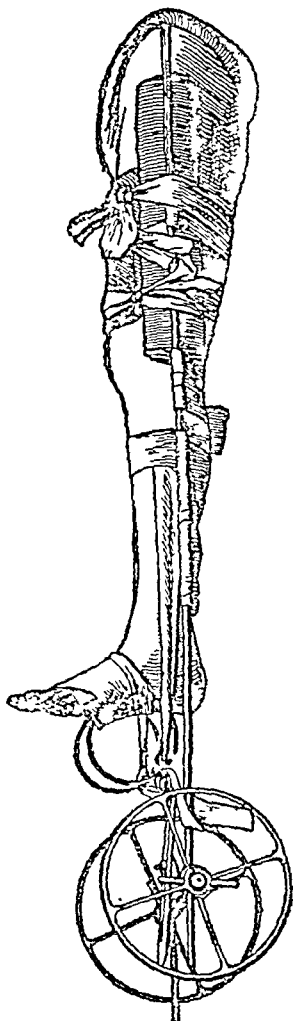


FIG. 2.—The fracture carriage.

kness of the felting. The length is measured from the groin point at least 6 in. (15 cm.) beyond the foot with the knee y extended.

When the correct size of ring is obtained it is threaded over the foot, leg, and thigh until it comes to rest in the area of normal weight-bearing in the ischial region. In this position the padded inner posterior portion of the groin ring is placed directly under the ischial tuberosity, and cannot slide from this area owing to the snug fit of the outer portion of the ring against the upper and outer portions of the thigh.

In action the splint obtains its results by complete immobilization of the injured or inflamed tissues. In Thomas's hands and in those of many of his successors the fixation was obtained by the use of adhesive strapping applied directly to the skin of the leg and thigh. If the correct type of strapping is used there is no irritation of the skin, and the strapping will remain firmly adherent for at least two or three months. The fixation of the extensions to the end of the splint is effective only when the ring is firmly placed on the ischial tuberosity, at which point this counter-pressure need not produce undue pressure or skin injury so long as simple rules of nursing are carefully followed.

The routine is not difficult; the skin under the ring is moved and rubbed gently with methylated spirit and then dusted with some non-irritating powder. This routine, which at first must be followed every two hours, is sufficient to prevent the formation of pressure sores, and the occurrence of this complication must be looked upon as a grave nursing error.

With the splint applied in this way the whole thigh and leg are supported on a posterior metal splint which is slung from the lateral bars. These slings are pulled tight until at least two-thirds of the thigh lies in front of the side bars of the splint, thus retaining the normal anterior curve of the femur (Fig. 5). A pad of wool is placed behind the knee to keep the joint in slight flexion and, by varying the position of the straps round the lateral bars, internal or external rotation of the limb in the splint can be prevented.

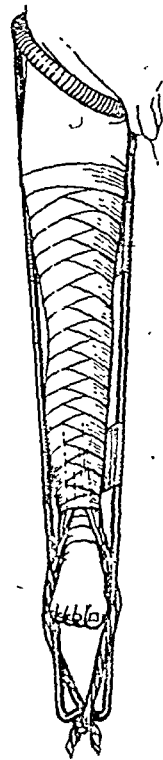


FIG. 3

FIG. 3.—Thomas splint in correct position before applying the posterior and side splints.

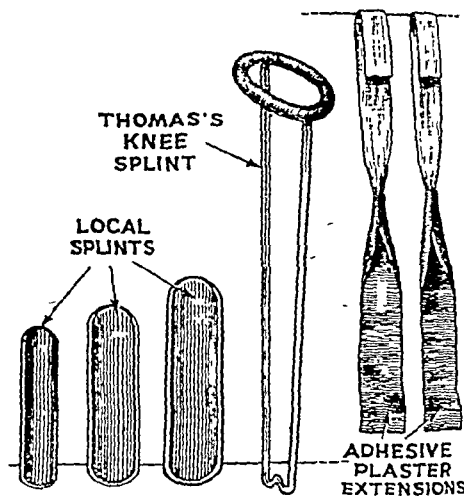


FIG. 3A

FIG. 3A.—Essential requirements for the treatment of fractured femur by Thomas's method.

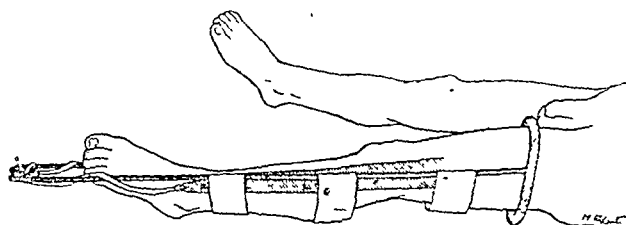


FIG. 4.—Incorrectly applied splint. Most of limb below level of splint bars; extension tapes loose; no support for back of leg and thigh. Hyperextension of knee; leg externally rotated. Ring of bed knee-splint half-way down thigh.

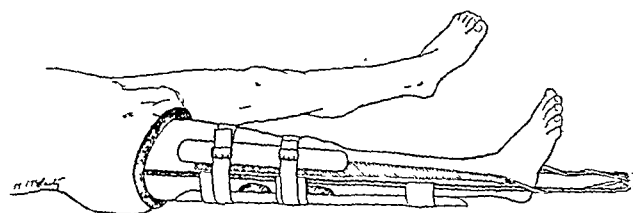


FIG. 5.—Correctly applied Thomas splint with lateral and posterior metal splints, the bandaging being left off to show the correct application.

The Thomas Splint in War

Four years after Thomas first described the bed knee-splint and its uses the Franco-Prussian War of 1870 broke out. Thomas wished to give his splint to the French for use in their hospitals, and was able to get one into the hands of the chief of the Medical Services in Paris. He was thanked politely for his offer, but it was regretted that the splint would not be of any practical value.

At the beginning of the 1914-18 war the use of the Thomas splint was confined almost exclusively to the Liverpool area, and its advantages had not been realized by the Army Medical

Services After two years of war, when the death rate from gunshot wounds of the femur had been found to be in the neighbourhood of 80%, the splint was wholeheartedly adopted largely owing to the enthusiasm of Robert Jones. Demonstrations were given to medical officers and orderlies and as a result of its universal adoption the death rate from compound fractures of the femur was reduced to 23%.

In the years between the wars instructions in the use and application of the Thomas splint were included in the manual of the Royal Army Medical Corps teams for the immediate application of the splint were formed and it was generally considered that this bugbear of war surgery had been overcome.

In the recent war the Thomas splint was again used in most cases of fracture of the femur but unfortunately its full advantages were not always obtained. In the R.A.M.C. the Thomas splint was supplied in only three sizes of ring so that a correct fitting as described by Thomas was as a rule an impossibility.

In his original description of the splint Thomas stated that if, in an emergency, a splint of the proper size could not be supplied a splint with a much larger ring could be used as a temporary measure until a suitable splint could be obtained (Fig 6). In order to keep the ring of such a splint in apposition to the ischial region a large pad of wool or felt was placed between the great trochanter and the outer border of the ring, but such an arrangement must be only temporary, and must not be considered as permanently efficient or satisfactory.

With only three sizes of ring the splints in the Army hospitals were, as a rule temporary makeshifts which could not give the complete fixation

which was essential in the treatment. In the other great branch of wartime medical service, the E.M.S. hospitals, the condition in regard to Thomas splints was equally unsatisfactory. The rings of the splints were badly designed, the groin rings were not fashioned on the Thomas pattern, two curves meeting at a sharp angle in each half of the groin ring, the padding was poor, and after prolonged use the metal of the ring was found to be pressing almost directly on the skin of the ischial area. The Thomas splint is such an outstanding contribution to the treatment of injuries and diseases of the lower limb that the specification of Thomas should be closely followed.

THE IMPORTANCE OF AUTOREGULATION IN NITROGEN METABOLISM

BY

S. M. LEITIS, M.D.

Until recently it was believed that the regulation of metabolism was effected by factors outside the process, the regulating factors were believed to be nerve impulses and hormones. The work of the American physiologist Soskin and of Soviet investigators showed that the products of metabolism play an important part. They regulate metabolic processes and act directly on them, and at the same time they influence the nervous system and the internal secretory glands. This effect we call autoregulation. Here are two examples to illustrate the point.

(a) When 50 to 100 g of glucose are administered to an animal or a human being, within 30 to 40 minutes the sugar level in the blood rises 50-60% above its initial value, if the same quantity of glucose is then administered for a second time the level of sugar in the blood is raised little or not at all. It appears that the increased concentration of sugar caused by the first injection facilitates the

formation of glycogen in the liver. When the second injection is given, therefore, it is retained almost entirely in the liver. The regulation is affected by the sugar in accordance with the concentration obtained.

(b) The injection of fat is accompanied by an increased concentration of the fat and the metabolic product—ketone bodies—in the blood. This is usually the case when the fat concentration and the ketone bodies in the blood are at the normal level. If the initial level of the fat and ketone bodies is above normal the introduction of further fat not only does not increase the existing concentration but, on the contrary, reduces it to the normal level. An increased concentration of fats and ketone bodies increases their retention and consumption in the tissues. It therefore follows that fats and the products of their metabolism are factors that regulate the metabolism.

The Mechanism of Autoregulation

Research carried out for several years has enabled us to study the laws governing the autoregulation of nitrogen protein metabolism and to show its importance for therapeutic purposes. We observed two basic phenomena. First, when proteins are introduced into the stomach or when the products of nitrogen metabolism are introduced internally (uric acid, urea) the amount of nitrogen metabolites—the so-called nitrogen content—in the blood increases. When the nitrogen content of the blood is at its greatest (hyperazotaemia) there will be no further increase if the same substance is again administered, but, on the contrary, there will be a decrease. Secondly, when the initial state is one in which there is a high nitrogen content of the blood (as in certain pathological conditions) the introduction of protein or the products of its metabolism again causes a decrease and not an increase of the nitrogen content. These facts show that a degree of concentration of the nitrogen metabolites in the blood determines and regulates the direction taken by azotaemia.

Further investigations showed that the introduction of a normal quantity of protein and its products led to increased splitting of protein in the tissues (proteolysis), this increases the nitrogen content of the blood. If there is increased proteolysis of the tissues (e.g., in cases of starvation, phosphorus poisoning, fever) the use of proteins decreases the proteolysis. This is why the introduction of protein and its metabolites reduces the nitrogen content in the blood. It is important to note that of the two groups which make up the nitrogen content—urea and non-urea—the urea checks an increase of nitrogen content.

Application in Kidney and Liver Disease

Kidney diseases (nephritis) are often complicated by uraemia, which results from a poisoning of the organism by the products of the non urea component of nitrogen metabolism. The urea is not toxic. If as I have said, the increase in the quantity of urea in the blood prevents an increase in the nitrogen content, then, first, the greater amount of urea present in the blood in cases of nephritis may be regarded as an adaptation preventing an increase in the toxic products of nitrogen metabolism, and, secondly, it is possible to introduce urea in cases of nephritis to reduce uraemia poisoning. Our experiments on rabbits artificially infected with nephritis and on rabbits with the kidneys removed show that the introduction of urea reduces the poisoning and lengthens the lives of the sick animals. The investigations of Dr Brook, of Kharkov, showed that the use of urea had a good effect in the treatment of nephritis. In some liver complaints there is an increase in the nitrogen metabolism in the blood. It was formerly regarded as dangerous to give patients suffering from liver complaints foods containing large quantities of protein. Now that we know the mechanism of autoregulation we may assume that the protein is more likely to be beneficial to these patients. Prof Pevsner of the Clinic of Dietetics has been successful in the use of protein diets in liver complaints. In treating cases of tuberculosis, when there is an intensive disintegration of protein in the organism, the use of large quantities of protein in the food decreases this disintegration and reduces the nitrogen content of the blood.

It has been shown that one of the ways of effecting autoregulation in nitrogen metabolism is the direct influence of the nitrogen metabolites on proteolysis in the tissue. The other way is the effect of nitrogen metabolites on glands of internal

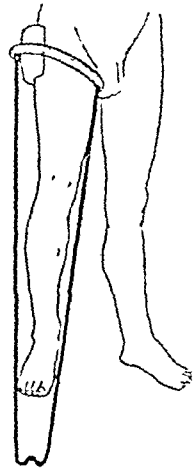


FIG 6—Shows use of the Thomas splint with too large a ring used only in an emergency and for a short period

secretion (hypophysis), in particular on the hormones concerned in protein metabolism. Both of these are very weak in animals that have had the hypophysis removed. When such animals have increased nitrogen content in the blood the introduction of protein or nitrogen metabolites causes a further increase; the same effect is seen when further doses of these substances are administered. On the other hand, healthy people and animals excrete the hormones of protein metabolism of the hypophysis in their urine.

Conclusion

In the light of the foregoing data the mechanism of auto-regulation is apparently the following: when there is an increased quantity of nitrogen metabolites in the blood there is a reduction in the disintegration of protein in the tissues. As a result of the surplus production of the hormones of protein metabolism of the hypophysis, synthetic processes become active in the nitrogen metabolism. All this leads to a reduction of the increased concentration of nitrogen metabolites in the blood and to the reduction of the azotaemia to normal.

The establishment of this new law shows the way for a new method of dietetics and for the functional diagnosis of diseases in which protein metabolism is disturbed.

AGRANULOCYTOSIS DUE TO NOVALDIN (NOVALGIN)

BY

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Among the drugs responsible for agranulocytosis, novalgin—or novaldin, with which it is identical—has received comparatively little notice. This drug is essentially sulphonated aminopyrine, the sulphonation serving merely to increase solubility but not changing the chemical structure in any important respect. Therefore the two drugs would appear to be equally dangerous. The similarity of action is confirmed by a report (Benjamin and Biederman, 1936) of a test dose of novaldin having been given to a patient known to react to aminopyrine with agranulocytosis. There was a mild haematologic and symptomatic response of this nature when novaldin was administered.

Novalgin was originated in Germany, and has been sold under this name by the Bayer company and its subsidiaries, except in the U.S.A., where it is produced under the name "novaldin" by the Winthrop Chemical Co. The drug has in the past been sold without warning of its true nature or potential danger. I have repeatedly seen it advertised to the general public in newspapers in the Far East without caution regarding its use. At the present time the drug is sold with adequate warning in the U.S.A.

Agranulocytosis due to novalgin (Das Gupta, 1936; Donnison, 1936) and novaldin (Blake *et al.*, 1935; Klumpp, 1937; Moloney and Vidoli, 1943) has been reported in the literature five times. All of these cases have been fatal. The case recorded herewith is the first non-fatal one; and, I believe, the first reported instance of agranulocytosis in a haemophilic.

The treatment of agranulocytosis by penicillin has been reported by various authors (Tyson *et al.*, 1946; Boland *et al.*, 1946), and has doubtless been used more extensively for this condition than the number of reports indicates. Although its rationale is evident, since death in agranulocytosis is commonly the result of overwhelming sepsis, it nevertheless seems worth while to call attention to it as a valuable therapeutic procedure.

Case Report

Mr. W., a true haemophilic, aged 52, suffered from frequent severe pain due to haemorrhages into various joints. Since this pain was not satisfactorily controlled by other drugs, limited use of novaldin was allowed. During a period of six months he took a

total of 30 tablets of 5 gr. (0.32 g.) each, seven tablets being taken in the two weeks before onset of acute symptoms; none of the drug was given after fever developed. Several days before onset of fever he complained of a general feeling of malaise, which he found hard to analyse. On Feb. 26, 1945, he developed a fever of 102° F. (38.9° C.), with no other definite symptoms. On Feb. 27 the temperature rose to 103.2° F. (39.55° C.). White blood cells numbered 7,800 (neutrophil polymorphonuclears 5%, lymphocytes 82%, monocytes 13%). On Feb. 28 the temperature varied between 99.4° F. (37.4° C.) and 103.4° F. (39.7° C.). Blood count showed: Hb, 13.5 g. (81%); R.B.C., 4,190,000; W.B.C., 6,700 (neutrophil polymorphonuclears 0.5%, eosinophils 1.5%, normal lymphocytes 48%, large lymphocytes 10%, normal monocytes 35.5%, promonocytes 2.5%, blasts 0.5%, plasma cells 1.5%). There was some redness of the inner part of the left eyelid, extending for two inches (5 cm.) down the face. On March 1 the blood showed W.B.C. 5,400 (neutrophil polymorphonuclears 5%—1 segmenter and 4 stabs—eosinophils 1%, normal lymphocytes 48%, large monocytes 37%). The patient was sent to hospital, and treatment was started with intramuscular injections of 10 ml. of pentose nucleotide every 6 hours and 10,000 units of penicillin every 3 hours. Because of a possibly allergic reaction to one of the pentose nucleotide injections, this was changed to 5 ml. every 3 hours. These two drugs were continued for 48 hours and then stopped because they were no longer necessary. On the day of admission the temperature ranged between 99.4° F. (37.4° C.) and 101° F. (38.3° C.). Next day (March 2) the highest temperature was 100.6° F. (38.1° C.). There was no fever thereafter. On March 2 the white cells numbered 8,100 (with neutrophil polymorphonuclears 31%—2 segmenters and 29 stabs—eosinophils 3%, lymphocytes 40%, monocytes 26%). On March 3 the white cells had risen to 13,300, with neutrophil polymorphonuclears 55%—9 segmenters and 46 stabs—eosinophils 1%, lymphocytes 23%, and monocytes 21%. There was some soreness deep in the left throat on March 2, persisting for two days. It was not severe. Nothing was visible. No ulcerations were seen in the mouth or elsewhere. The redness of the eyelid and face began to subside promptly after penicillin was begun. On March 4 the white cell count was 17,000, with 56% neutrophil polymorphonuclears (22 segmenters, 27 stabs), eosinophils 2%, lymphocytes 26%, and monocytes 16%. On March 8 the patient felt well. The white count was 10,000, with 66% neutrophil polymorphonuclears (29 segmenters, 37 stabs), eosinophils 3%, lymphocytes 27%, and monocytes 4%. The patient remained in good condition after this.

Comment

The eosinophils were explained by the presence of bronchial asthma. It is usual to have leucocytosis after recovery from agranulocytosis. A high monocyte count, if it persists, is usually considered a favourable sign, though not necessarily so (Reznikoff, 1938). There is, however, disagreement about this (Jackson, 1943). The total white count was never very low in this case, and except for the fever there were few symptoms, indicating that this case was a mild one. Penicillin, preferably in larger dosage than used in this case, offers a logical approach to the low resistance against infection always present in agranulocytosis.

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STORAGE OF PENICILLIN

The Ministry of Supply states that the penicillin now produced in the United Kingdom is usually of such potency and of such other characteristics that it can be stored satisfactorily for 12 months under cool dry conditions at a temperature not exceeding 15° C. (60° F.). A dry cellar is suitable for this purpose. If readily available, refrigerated storage should still be generally used. Anhydrous preparations, such as lozenges and ointments made with a greasy base, may be stored in a similar manner, and patients should be advised accordingly. Refrigerated storage is necessary for aqueous preparations such as creams. Patients should be advised to keep penicillin creams in a cool place, under which conditions they may be regarded as effective for one week. Solutions for injection should be used within 48 hours of preparation, and while awaiting use should be stored at a temperature not exceeding 4° C. (40° F.).

A NOTE ON EXTERNAL OTITIS

BY

G. A. JAMESON, M.B., B.S.

Wing Commander, R.A.F.V.R.

External otitis has received no little prominence in contemporary otological literature, largely by reason of the disability occasioned in the Services through this relatively trivial but often intractable complaint. Much of this literature has been devoted to external otitis in hot climates (Daggett, 1942; Gill, 1942; Senturia, 1944; Basil-Jones, 1945; Coghlan, 1945), where, probably owing to the prevalence of the desquamative type described by Daggett (1942) and Morley, the ever-present fungus spores preparing the soil for the growth of bacteria in the macerated surface epithelium as described by Gill (1942) and Senturia (1944) in America, and the intolerance of the eczematous subject to heat, the incidence has been high—according to Daggett (1942) 48% of all ear cases.

It may therefore be of interest, by contrast, to review the exact frequency of external otitis as seen in an E.M.S. hospital over a period of three years in a population of some 70,000 of the three Services in this country—a population that has little changed in total numbers, though, of course, there have been frequent changes in the units that make up the whole.

During the period under review 8,431 new E.N.T. out-patients have been seen, and of these 787 (9.3%) have attended for external otitis. A total of 2,382 E.N.T. cases of all sorts were admitted as in-patients—194 (8.1%) of these with a diagnosis of external otitis. Where there has been a coexistent C.S.O.M. the case has been indexed as such, and these figures relate only to an external otitis in a meatus with an intact tympanic membrane.

Of the in-patients, 97 R.A.F. cases averaged 16.37 days in hospital under treatment, and 85 Army cases 16.4 days, so that this figure can be taken as a fairly accurate estimate of the time required to clear up an external otitis with in-patient treatment as carried out in the E.N.T. department of the hospital. These figures compare unfavourably with those of Daggett (1942)—63% in 4 days; Burrell (1945)—2 to 14 days; Johnston (1944)—7 to 10 days, using zinc peroxide; and Senturia (1944)—1 to 7 days for acute ears treated by sulphonamide insufflation technique. Senturia, however, states that of 12 chronic eczematous ears 11 required over 7 days of treatment.

As this E.M.S. hospital provided the only E.N.T. facilities for Service personnel in the districts occupied by some 30,000 R.A.F. and 35,000 Army troops, practically all cases of external otitis from this Service population requiring in-patient treatment would be included in these figures, and a reasonably exact calculation can be made of the man-power loss occasioned by this complaint. In the R.A.F., 97 men lost 1,407 days while under treatment, and of the Army population 85 men lost 1,394 days—a total of 2,001 man-days lost in a three-year period. In other words, the two Services together were deprived of the services of rather less than 3 men out of a total of 65,000, or 0.0046% of their man-power.

No attempt has been made to index the cases according to their aetiology, but certain well-defined types are readily recognizable.

Types of Case

1. Cases associated with a seborrhoeic dermatitis of the scalp and very frequently a chronic blepharo-conjunctivitis. In this type, treatment of the scalp with sulphur and salicylic acid is essential to success.

2. The allergic eczematous type. In these cases the external otitis appears to be just such an allergic manifestation of a hypersensitive skin as eczematous lesions elsewhere. Phenobarbitone 1/2 gr. (7.5 g) twice daily, as a general sedative, can be given over a prolonged period, and concentrated vitamin A, 100,000 units daily, appears to be helpful in treatment.

3. Cases associated with a pyogenic infection, as in impetigo contagiosa. As the organism is usually a penicillin-sensitive streptococcus or staphylococcus a spreading impetigo responds rapidly to systemic penicillin.

4. Mycotic external otitis. By contrast with the experience of otologists in America (Gill, 1942; Senturia, 1944), mycotic

external otitis is exceedingly uncommon in our experience in this country.

Treatment

The secret of success with all types is regular aural cleansing of the meatus and in particular of the little well of pus that lies where the lower meatal wall dips downwards to meet the inferior margin of the drum. With much meatal oedema fairly tight packing with a gauze wick impregnated with glycerin and ichthylol 10% yields the most useful results, after a few days a 2% aqueous solution of gentian violet lightly applied to the meatal wall is as a rule effective. D'Alibour's paste with gentian violet is a useful application to an excoriated auricle. All other suggested medicaments have been used with varying success—2% phenol in calamine lotion, the sulphonamide powders and pastes, aluminium acetate, silver nitrate, argyrol, and pigmentum castellanum—but there is little to be said for frequent changes in treatment, which should be standardized, so far as is possible, in any E.N.T. department. Penicillin locally has seldom been of any value, as most cases will clear rapidly without resort to a treatment that still has certain practical disadvantages over other dressings, and those that do not clear up seem invariably to culture a profuse growth of penicillin-insensitive bacilli.

Occasionally, and perhaps particularly with the eczematous external otitis, small doses of x rays, repeated at weekly intervals, are helpful, though some care has to be exercised, as overdosage can lead to disastrous results.

Summary

The incidence of external otitis, together with the man-power loss occasioned thereby in 30,000 R.A.F. and 35,000 Army troops, is calculated.

Certain well-defined types are described.

The importance of regular visual aural dressing is stressed and standardization of treatment recommended.

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Medical Memoranda

A Case of Tropical Eosinophilia
(Weingarten's Syndrome)

The following case is reported because of the difficulty of diagnosis in some cases of eosinophilia and the satisfactory response to treatment. Cases of Weingarten's syndrome—eosinophilia, with asthma and temporary changes in the x-ray appearance of the chest—have been reported from India and the Middle East, and doubtless will be increasingly recognized in cases from other tropical countries.

The patient, a European male aged 37, had spent 12 years in Nigeria, during that time his only illnesses were infective jaundice and M.T. malaria. Less than six months after his return to England he began to suffer from attacks of nocturnal asthma with paroxysmal cough; the attacks caused orthopnoea, but were not very severe or prolonged. There were no other symptoms apart from some anæmia. A skiagram of the chest about this time showed no abnormality.

An attack of malaria was the occasion for a blood count, which showed 12,400 white cells, of which 20% were polymorphs and 59% eosinophils; myelocytes were present. There was no evidence of blood or alimentary parasites or any symptoms of filariasis. No treatment was given, and the blood count improved somewhat during the following year. The patient complained of lassitude, and he had another attack of malaria as well as occasional asthma. About eighteen months after the first symptoms there was a febrile attack lasting several days, again with nocturnal asthma and widespread urticaria. A blood count showed 36,200 white cells, of which 10% were polymorphs and 74% eosinophils. Again no parasites were found.

A diagnosis of Weingarten's syndrome was made and three injections of N.A.B. were given at weekly intervals. The patient's health and blood count rapidly improved, and the latest examination showed 5,800 white cells, with 58% of polymorphs and 5% eosinophils.

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E. A. HUNTER, M.R.C.P.

Simultaneous Extra- and Intra-uterine Pregnancy

This condition is still uncommon enough to warrant the recording of a case.

HISTORY OF CASE

An African (Basutu) female, aged about 30, was admitted to the Nigel Hospital on Nov. 29, 1945, complaining of severe intermittent pain in the hypogastrium and the right iliac fossa of a few days' duration. A history of approximately six weeks' amenorrhoea was given. The salient features of the examination were the presence of a very tender moderately mobile oval mass, the size of a hen's egg, just to the right of the midline, continuous with and extending laterally from the fundus uteri, and signs suggestive of early pregnancy. There was no vaginal bleeding. Ectopic pregnancy with threatening rupture was considered in the differential diagnosis and exploratory laparotomy was advised. Here, however, primitive tribal custom, later to have tragic consequences, intervened. No operation could be performed without the consent of the patient's father, and this was withheld. With conservative sedative treatment the pain and tenderness subsided within a week, and the patient was removed from the hospital by her husband.

On Jan. 1, 1946, at 12.30 p.m., the patient was readmitted in an extremely critical state. She was literally "bled white"; the pulse rate was 120, though the tension and volume felt deceptively good. The systolic blood pressure was 80 mm. Hg and the temperature 97° F. (36.1° C.). The abdomen was distended and tender, especially in the lower half. There was guarding but no rigidity. No masses were palpable. Cullen's sign was not detected. There was again no vaginal bleeding.

The history now given was that she had remained free of pain until five days previously, when intermittent lower abdominal pain had recommenced, increasing in severity up to the morning of re-admission. History-taking was difficult, as frequently is the case with Africans, and the presence of shoulder-tip pain was not elicited. A diagnosis of ruptured ectopic pregnancy was made, though the absence of vaginal bleeding was commented upon. Consent to operation was obtained, the father, who was present, recognizing at last the dire straits in which his daughter found herself.

Serum and 10% glucose in saline were administered in the ward and continued in the theatre until blood could be obtained from the nearest transfusion depot, when it was immediately given. Open ethyl chloride and ether anaesthesia, with oxygen, was employed. The abdominal cavity was found filled with blood and clots, the cause being a ruptured ectopic pregnancy on the right side. The interstitial portion of the right Fallopian tube was the site of a pregnancy of about three months' duration, and the adjacent fundus uteri and isthmus of the tube had also been involved. Only the omentum had become adherent to the sac and was freed with ease. There was no difficulty in removing the sac and its liberated contents. The uterus, however, was seen to be much larger than is usual in an ectopic pregnancy, and on deeper exploration of the eroded right half of the fundus uteri a second sac came into view. The opening was enlarged and by gentle traction an intact gestational sac was delivered, the foetus of the same size as that of the extra-uterine pregnancy. A partial removal of the fundus was quickly performed. At this stage the patient's condition deteriorated markedly, and despite all resuscitatory measures death ensued.

COMMENT

King (1943) has classified coexisting intra- and extra-uterine pregnancies into two types: (a) combined or simultaneous, and (b) compound. The combined type is probably the same as a multiple pregnancy except that one or more implantations are extrauterine, and the case above would therefore fall into this group. In the compound type the extrauterine pregnancy may have been present for a long time, usually symptomless and dormant. Superimposed on this an intrauterine pregnancy then occurs.

The fatal outcome was most unfortunate, as ruptured ectopic pregnancies usually respond well once the source of the haemorrhage is under control. To have delayed operation until the beneficial effects of the transfusion, etc., were more pronounced would have been dangerous, and is contrary to the generally held view that immediate operation, with supporting measures, is the procedure of choice (Ware and Winn, 1941). It is a sad thought that operation, when first advised, would probably have given a satisfactory result.

With regard to the pre-operative diagnosis of this combined condition, the absence of vaginal bleeding would appear to be a point worthy of future notice.

My thanks are due to Dr. Magnus G. Myers, the surgeon in charge of the case, for permission to publish this report.

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Reviews

FAMILY HEALTH AND HOUSING

A Home of Their Own. By K. E. Barlow. Preface by George Scott Williamson, M.D. (Pp. 96. 4s. 6d.) London: Faber and Faber. 1946.

Dr. Barlow's book is an excellently written treatise on the rehabilitation of the family, and it has a postscript which in effect is addressed to the Minister of Health urging upon him unusual, extra-departmental, out-of-regulation action in a good cause. Dr. Barlow practises in Coventry, where he and a number of citizens have been inspired by the example of the Pioneer Health Centre at Peckham—the grouping of a whole community round a family health club—and desire to reproduce it in their own devastated town. They desire to do more than this—to integrate the proposed centre with a part of the new housing. In Coventry about 20,000 houses need to be built, and it was felt that one of the new neighbourhoods within the city might be directly related, by the circumstance of householding, to the health community centre. The tenants of this satellite suburb would themselves plan their neighbourhood, with the health centre as its focus. Every one of them could thus be counted upon for at least a minimal participation in the activities of the family health club and the administrative life of the community. For the Peckham idea is not merely a centre, it is also a periphery, manifesting itself in the separate homes as well as in the club activities. It is more even than this; a healthy home requires a healthy environment, and therefore the idea reaches out to town planning and communal life in general. Accordingly Coventry families, mainly of the working class, who were later to be the tenants of the new houses, were recruited. A housing society was promoted for the planning of 2,000 houses, a site marked out, and a mortgage of two millions arranged at a reasonable rate of interest. The city authorities were persuaded of the excellence of the scheme, the good will and co-operation of experts were enlisted, an offer was even forthcoming of some of the housing of the ex-Service men's council. But, of course, questions of priorities arise. Control of housing standards is most effectively exercised by placing housing in the hands of local authorities, and no local authority can make the tenancy of its council houses conditional upon membership of a family health club, nor concede to a group the right to arrange its own housing. Will the Minister permit an experimental deviation from uniformity by delegating certain housing to a non-profit-making society which is able to establish the necessary conditions for social research into health?

In the main body of the book Dr. Barlow discusses courtship, marriage, child-bearing, and education, from the standpoint of a biologist, and indicates very cogently where society has so often gone wrong.

SULPHONAMIDE-RESISTANT GONORRHOEA

Les Gonococcies Sulfamido-Résistantes. By Claude Huriez, R. Dumont, G. Patoir, and J. Leborgne. (Pp. 61. 50 francs.) Paris: Masson et Cie. 1945.

This little book on sulphonamide-resistant gonorrhoea is written by Frenchmen obviously for Frenchmen, because penicillin is included only in an addendum though the book was published in 1945. After a brief introduction the authors deal successively with the history of the treatment of gonorrhoea, sulphonamide resistance in men and women, and the various methods of dealing with resistant cases. It is of interest to note that the resistance is attributed to adaptation of the gonococcus to the drug, and particularly to the fact that prostitutes often use it as a prophylactic, especially before an examination; no mention is made of the possibility that there are naturally resistant strains which have survived while the sensitive ones have been killed off. Many of the methods of treatment are well known, but others are less so, particularly the use of antigenococcal serum locally and of infiltration with a local anaesthetic for epididymitis.

The use of silver salts both for purposes of treatment and for their provocative effect still seems common in France, and British readers will cavil at the use of such expressions as "disinfecting the mucous membrane," particularly when

increasing strengths of potassium permanganate are recommended. Most of the references are to French and American literature, but the authors are somewhat at fault when they suggest that Mac Elligot (sic) was at St. Mary's Hospital in 1941 (actually he was in the Royal Air Force) and that Col. Harrison, who as our readers know was, and is, Adviser in V.D. at the Ministry of Health, was responsible for Army statistics.

This booklet is largely of historical interest, but is worth reading if only to see how French doctors faced their difficulties without the help of penicillin.

ARBUTHNOT LANE

Sir W. Arbuthnot Lane, Bart., C.B., M.S., F.R.C.S. *His Life and Work.* By W. E. Tanner, M.S., F.R.C.S. (Pp. 192, 15s.) London: Baillière, Tindall and Cox, 1946.

If a surgeon's greatness is judged by the threefold standards of originality of mind, manual skill, and power to inspire others, Lane is perhaps the greatest British surgeon of the past hundred years. Lister was an original thinker, but no operator. Macewen was a brilliant craftsman who made outstanding advances, but he never won affection and he left a desert behind him. Moynihan was a technical artist and a gifted orator, but he lacked that humility which great leaders possess. Lane illuminated every branch of surgery by his genius, he operated with a sure dexterity that has never been surpassed, and he had the ability to inspire deep devotion and blind loyalty in all who worked with him, even for short periods and in a humble capacity. Many of the leaders of surgery in this generation and the two before it have been proud to call themselves Lane's men.

Lane was a leader in transforming Listerian antiseptics into modern asepsis. He taught surgeons to change as well as to gown before operating. He was the first, in Britain at all events, to explore the mastoid antrum, to drain the lateral sinus and tie the jugular vein for septic thrombosis, to resect a rib for empyema, to repair cleft palate successfully, to establish a new standard in the treatment of fractures. He was the originator of modern views on skeletal mechanics, the teacher of the "no touch" technique, the designer of a host of instruments which have been modified but never improved upon. As orthopaedics passes from a dignified descendant of bone-setting to a major branch of surgery, Lane emerges as its founder and first high priest. Beside these lasting achievements his failures and his foibles pass into insignificance.

Those who knew Lane will find much of the man they loved and honoured in this book, but it is doubtful if strangers will do so. Tanner's real admiration for his old chief is apparent, but in a desire for completeness he has lost proportion in detail. On page 3, just when a picture of the central figure is emerging, he breaks off to mention Hoeffticke and Horniman, names that mean nothing to-day, and to quote at length Lane's views on liquid paraffin. Appreciations of his vivid and simple character are there: so also are long quotations from the laudatory speeches that greeted him in America and from the letters of his admirers in this country. His glories and his failings stand side by side in equal prominence.

THE MIND OF THE CHILD

The Psychoanalytic Study of the Child. Volume I. 1945. (Pp. 423, 30s.) London: Imago Publishing Co., Ltd.

This is the first annual volume of papers on the psychology of the child from the point of view of the strict psychoanalytic discipline. There is not a great deal of coherence in the sum total of the papers, so that each must be read on its own merits, but it is no doubt useful to have them collected in one volume.

The first section deals with so-called genetic problems—that is, the causal influences which promote neuroses and disturbed behaviour in general. Perhaps the most important of these is a criticism of Melanie Klein's theories by Dr. Glover, who disapproves of them inasmuch as they tend to destroy the coherence of the original Freudian doctrine. There is an interesting comparison between children brought up in a founding home and in a nursery. In the former protection is at a minimum and frustration at a maximum; in the latter the reverse is the case. Both extremes are held to be bad for the future emotional development of the child, over-protection being specially deleterious after the first year.

In the second section child analysis is discussed by Anna Freud in a paper on the indications for child analysis and in several clinical case records. Case records and commentaries illustrate the third part, which is given up to guidance work. The fourth part deals with education and the contributions of psychoanalysis to this end. These contributions are slowly building up a collection of observations which should eventually allow of a practical formulation of the goals of education and the methods which are most likely to be successful in achieving these goals. The fifth section considers problems of group life, the most important of which are the gangs of young delinquents, whose influence on the mind of the individual member must be understood if successful reclamation is to be achieved. Finally there are some reviews of books and commentaries, including one on the literature dealing with the evacuation of children in wartime.

This book will be useful only to those who understand the technical terms used by psychoanalysts and appreciate their full implications.

A BOOK ON REFRACTION

Refraction of the Eye. By Alfred Cowan, M.D. Second edition, thoroughly revised. (Pp. 278; 181 engravings and 3 coloured plates. 24s.) London: Henry Kimpton.

Refraction of the Eye, by Dr. Alfred Cowan of Philadelphia, covers a rather wider field than do books on the subject in this country. The purely clinical aspects of refraction work are discussed in the concluding third of the text, and the teaching does not differ materially from the current practice here, though simplification is carried to lengths where it becomes confusing. This is seen from the advice given in omitting the conventional symbols for sphere and cylinder in the prescription. None the less the text is remarkably complete and contains aspects not well known to the English reader. This applies less to the objective than to the subjective methods, which include accounts of cyclodamia (a modified form of fogging) and velonoscioscopy. Many practical points reveal the experienced refractionist and teacher. The concluding chapter on contact lenses and telescopic spectacles is lucid and brief.

The greater part of the book is taken up with a geometrical exposition of optics. The subject-matter is rather more advanced than is expected here of candidates for the diploma examinations. It is, however, well presented and adequately illustrated. The book contains a bibliography with about three hundred items (selected on no obvious principle).

Notes on Books

In *Brompton Hospital Reports*, vol. xiii, 1944, the physicians and surgeons of the hospital make their annual bow with a series of exceptionally interesting papers. Mr. J. E. H. Roberts inquires "What is the right time, please?" and discusses the best moment for operation in various tuberculous conditions. Dr. W. D. W. Brooks analyses nearly half a million mass radiography figures from the Navy and discusses the management of early cases. Dr. A. Margaret Macpherson reports on the subject of the supervision of the child in the tuberculous household. Dr. Clifford Hoyle describes with great charm the part which disease has played in the lives and works of great men. But these are only some of a series of interesting contributions. The volume concludes with a sub-committee's report from the hospital upon the incidence of tuberculosis among the nursing staff, together with recommendations for hygiene. Altogether a useful volume, obtainable, price 10s. post free, from the Secretary, Hospital for Consumption, Brompton, London, S.W.3.

Sir LIONEL WHITBY and Dr. C. J. C. BRITTON are to be congratulated on the appearance of a fifth edition of their textbook on *Disorders of the Blood* (J. and A. Churchill, 30s.) only ten years after the first edition. The success of their book is due to two things. The first is the personal experience of the authors and the shrewd judgment with which they have been able to marshal the literature of haematology. The second is the remarkably reasonable price. This edition contains some new plates, and recent work on the rhesus factor has been well summarized. Future editions will probably pay less attention to lysocleithin, as Fahræus's attractive theory of haemolysis has been generally abandoned for want of confirmation, and more attention to the value of penicillin in agranulocytosis. This book still contains all that anyone but a professional haematologist need know about the diseases of the blood.

Nova et Vetera

SIR MORELL MACKENZIE

Morell Mackenzie. *The Story of a Victorian Tragedy*. By R. Scott Stevenson. (Pp. 194. 13s.) London: William Heinemann Medical Books Ltd. 1946.

Almost sixty years have elapsed since the death of the Emperor Frederick III, from cancer of the larynx, after an illness which was then, and to a small extent still remains, a topic of discussion throughout the civilized world. Medicine and politics have often been strangely intermingled. The diseases of kings and emperors and dictators exercise an influence which extends far beyond the individual sufferer. So it was with the case of the Emperor Frederick: fatal to the patient to be sure, but fatal also to the reputation of the London physician who attended him.

Summoned to Berlin on May 18, 1887, to attend the Crown Prince, as he then was, Morell Mackenzie found the German doctors prepared to operate, having diagnosed the case as one of cancer of the larynx. It would be a formidable undertaking, but the final decision was to rest with Mackenzie, who had been chosen for this task by his German colleagues. Mackenzie wisely advised that first of all a portion of the growth be removed and submitted to Prof. Virchow for microscopical examination. The result was inconclusive. The doctors differed. The case became a subject for argument, not only in medical circles but even in drawing-rooms and salons throughout Europe. No operation was performed, save that of palliative tracheotomy, and eventually the Emperor died, on June 15, 1888, having reigned for only ninety-nine days. It was a tragic illness, tragic alike to the Emperor, to Sir Morell Mackenzie, who attended him throughout, and to the German nation, just about to shake off the regime of Bismarck and to adopt a Liberal policy under the guidance of a new ruler.

Such, in brief, is the theme so clearly and logically surveyed in this interesting work. The author, well known as a laryngologist and as a writer, possesses all the qualifications which his task demanded. He traces the career of Sir Morell Mackenzie, the "Father of British Laryngology," whose textbook is still in daily use and who founded the first hospital for diseases of the throat. He acknowledges that Mackenzie was indiscreet, vain, and polemical, but he denies that he was ever insincere. The hasty and ill-advised publication by Mackenzie of a popular work entitled *Frederick the Noble*, in which he attempted to vindicate his own conduct, only added fuel to the fire of controversy.

The author, championing the cause of the tragic laryngologist, concludes that Morell Mackenzie will be remembered "as the chivalrous physician who, single-handed and in the face of overwhelming opposition and intrigue, by his determined intervention prolonged the life and effected the accession of an Emperor." It is for each reader to make up his mind, ere he reaches the last page, whether such a conclusion is justified. Of supreme interest to every medical man, the book is sure to attract many non-medical readers who will have no difficulty in following the argument and the story, so graphically unfolded under such headings as "The Legend," "The Physician," "The Patient," and so on, throughout eight chapters. This fresh account of the career of Sir Morell Mackenzie, viewed in the light of half a century, ably expounded and well portrayed, is an interesting commentary on subsequent events, both medical and political, and as such it is certain to be widely read and as widely discussed. The bibliography relating to each chapter shows that the author has tapped every available source of information, and the illustrations are interesting and well chosen.

SIXTEENTH-CENTURY FRENCH DOCTORS

The Doctor in the French Literature of the Sixteenth Century. By Nancy F. Osborne. (Pp. 140. \$2.00 or 13s. 6d.) New York: King's Crown Press; London: Oxford University Press.

The extensive bibliography of this scholarly book deals with the "doctor" as seen by a satirist and some poets of the sixteenth century in France. It was not a good period. Medical science had fallen away from the times of Hippocrates and Galen, when rival schools of medical thought indulged in philosophic speculation and argument. Then rational medicine was backed up by observation of facts and experimentation,

which gave an impetus to various works in anatomy, physiology, and cognate subjects. When Greek medicine reached Europe it was enthusiastically received until the end of the fifteenth century, when it gradually fell from the peak of Greek and Arabic doctrines into the morass of astrology, magic, and alchemy.

It had been the custom of the Arabs to absorb the culture of nations whom they conquered. The medical discoveries of the Greeks interested them greatly. It was not until Ambroise Paré (1517-90), the father of surgery, with his work on the control of haemorrhage, that the first effective steps in surgery came forward. Leonardo Da Vinci was the first to dissect human bodies; he illustrated his findings in accurate drawings. Syphilis raged during the sixteenth century. Neglect of the simplest rules of health disseminated disease and death throughout France. The profession was in bondage to the belief in the divine origin of sickness and in the prevention of healing of diseases by supernatural powers. After sketching the background of this period the author goes on to deal with the physicians and their helpers—the apothecaries. We laugh at the charlatans, puffed up with Falstaffian egotism and bombast, and look with compassion on their patients. The general review of the sixteenth century shows it to have been a time of medical chicanery and fraud, which was followed by the European Renaissance that gave birth to modern medical science.

ANGELO MOSSO, 1846-1910

One of the founders of the experimental physiology of man, Angelo Mosso, the centenary of whose birth occurred on May 30, received his physiological training from such giants as Schiff, Ludwig, and Claude Bernard. His short life, crowded with achievements and honours, was lived in Turin, where he graduated M.D. in 1870 and eight years later succeeded Moleschott as professor of physiology. While his name is eponymously linked with the ergograph (1898) and the Istituto Angelo Mosso, he was a versatile and tireless worker, possessed of remarkable technical skill, in such fields as fatigue, sleep, movements of the intestine, temperature of the brain, and respiration at high altitudes. Failing to appreciate Paul Bert's correct hypothesis that mountain-sickness is 'due to actual want of sufficient oxygen in the air inspired into the lungs, he advanced his acapna theory of 1897, which was to hold up progress for 20 years.

Founder of the *Archives Italiennes de Biologie* (1883), president of the International Physiological Congress (1901), Rector Magnificus of his Alma Mater, and Senator, Mosso devoted his scant leisure to promoting public hygiene and popular health education, and to founding football clubs, mainly on English lines. He died on Nov. 24, 1910, of diabetes, an illness which he had borne philosophically for many years.

EARLY MEDICAL MSS. AND BOOKS AT EDINBURGH UNIVERSITY

A selection of books and manuscripts, to illustrate the current series of lectures on the history of medicine, has been placed on view in the Upper Library Hall of Edinburgh University. Included among manuscripts of the thirteenth century are beautifully written copies of the *Breviarium Medicum* of Serapion, a Syrian physician of the ninth century, and of Avicenna's *Canon of Medicine*, a favourite textbook, by the "Prince of Arabian Physicians," which retained its popularity for many centuries and is said to be still used by native practitioners in India. Of slightly later date is a fifteenth century manuscript of the *Regimen of Health of Salerno*, the best-known work of that famous School of Medicine. It contains a full-page illustration of a mediaeval physician and one of his patients.

A modern manuscript of much interest, on loan from the Royal College of Surgeons, is a volume of notes of lectures on surgery, delivered by Lister while he was professor in Glasgow, containing the first written account of his "antiseptic principle."

Among the printed books the greatest rarity is *Christianismi Restitutio*, published in 1553 by Michael Servetus, who suffered death by burning at the hands of Calvin. Although it is a theological work, it contains an account of the pulmonary circulation. Only two other copies of the book are known to exist. There are also on view first editions of *De Re Medicina* by Celsus, dated 1478; of Vesalius's *Fabrica*, 1543; of Harvey's *De Motu Cordis*, 1628 (from the library of Alexander Monro tertius); of Willis's *Cerebri Anatome*, with illustrations by Sir Christopher Wren; of Jenner's *Inquiry into the Causes, etc., of Cowpox*, 1798; and of W. T. G. Morton's pamphlet on the use of ether as an anaesthetic, 1847. One of the cases contains an interesting collection of illustrated "Herbals" and a catalogue, dated 1683, of the Edinburgh Physic Garden, which occupied part of the present site of Waverley Station.

The exhibition is to remain open, during library hours, until the end of June.

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THE MECHANISM OF AIR-BORNE INFECTION

What is the nature of the particles inhaled when infection is air-borne? There have been three periods of belief on this subject. Fifty years ago the vehicle exclusively considered appears to have been dust, but at the end of the last century Flügge introduced the conception of droplet infection. When Wells in 1935 showed that fluid particles either fell to the ground or evaporated, according to whether they were large or small, the droplet nucleus replaced the droplet as the supposed vehicle of aerial transmission. The finer particles of secretion expelled from the mouth and nose were supposed to dry in the atmosphere, being thus converted into minute particles of solid mucus, which floated in the air and in which bacteria survived. That many did in fact remain in suspension, and that even the more delicate respiratory pathogens could survive in this form for at least two days, Wells was able to show experimentally. This was the third phase of belief. It now appears that we may be entering upon a fourth, which is really nothing more or less than a reversion to the nineteenth-century doctrine that the vehicle of air-borne infection is dust. Studies made during the war of the mechanism of cross-infection in surgical wards have incriminated dust to an astonishing degree: the ease with which haemolytic streptococci can be recovered from the dust of septic wards, and the formidable rise in their numbers in the atmosphere itself consequent on floor-sweeping and bed-making, have been repeatedly demonstrated. The source in these circumstances may be the soiled dressing of a septic wound. How far are these findings applicable to infection exclusively derived from the upper air-passages?

A decided answer to this question is given in the paper by Ronald Hare and Dorothy M. Mackenzie on page 865. They take the extreme view that the dangers of direct air-borne infection are comparatively slight, and that the contamination of clothing and other fabrics, with subsequent liberation from them of infected particles, is the usual mechanism of respiratory tract infection. In support of this thesis they advance evidence which is in part experimental and in part circumstantial. Their experimental studies consisted in collecting bacteria expelled from the mouth and nose in such a way as to estimate their number and distribution in space. By arranging a series of culture plates in an arc facing the experimental subject, giving positions ranging from level with the mouth to vertically below it, and by counting colonies in the cultures so obtained, they determined the direction taken by particles of expelled secretion. Two features are noteworthy in the

results so obtained. One is the overwhelming importance of the sneeze in scattering possibly infected secretion: it produced thousands of colonies, while other forms of movement furnished total colony counts of the order of one hundred or less. The second point is the pronounced downward path taken by expelled particles, even at the short range of 1 ft. (30 cm.) used in most of these experiments. The highest colony counts after coughing and sneezing were in plates in the half-way position, at an angle of 45° with the mouth; only blowing gave the highest count in the next plate above this, and the majority of bacteria expelled by talking fell almost vertically. The proportion in the horizontally situated plates was exceedingly small, except in those obtained by the unusual and perhaps practically unimportant act of blowing. Another type of experiment designed to ascertain how much secretion remains in the atmosphere at least for a time instead of falling immediately was the exposure of plates in a closed box, through an aperture in which the subject had talked, coughed, or sneezed five minutes previously. From these results it again appears that the sneeze is of outstanding significance; how they should be interpreted in relation to the authors' main argument is not altogether clear. The practical reality of Wells's droplet nucleus and the extent of its natural formation are vital questions which deserve still further study.

Other experiments were made to determine how many actually pathogenic organisms are expelled by talking and coughing, and it was found that the output of haemolytic streptococci by throat carriers demonstrable by the same methods is exceedingly small. This observation, which has been confirmed by others, is doubtless due to the localization of this infection in an area where particles are presumably not formed; it involves neither the larynx, the source of cough droplets, nor the tongue and lips, which form them in talking. But in some infections, notably those due to viruses, the infection of secretions is believed to be more widespread; hence the experiments with an indicator organism described in this paper. Those performed with plates at different angles to the mouth gave substantially the same results as before; the more interesting are those in which the organism was recovered from the subjects' clothing and pieces of fabric attached to it after instillation of culture into the mouth and nose, together with irritants to induce a condition resembling a cold. The recovery of the organism was highly erratic: it should not, for instance, be concluded, as some of the figures suggest, that the right and left lapels of the coat are selectively contaminated from the nose and mouth respectively. Nevertheless it seems to have been shown clearly that clothing is readily contaminated, and releases the infection on shaking when the secretion has dried; and, secondly, that the nose is the more prolific source of this contamination.

The circumstantial evidence that dust from contaminated fabrics plays a major part in the spread of respiratory infections is ingeniously assembled and of two principal kinds. First is the well-attested importance of dormitory infection, as distinct from most forms of exposure during the day. Here the infected fabrics are chiefly bed-clothes, and the commotion of morning rising causes a "sudden

release of the concentrated output of the night." There are then a series of episodes in which apparently unaffected persons have conveyed infection to another community, the inference being that their belongings and not their mucous membranes were at fault. It should perhaps be pointed out that these people may have been carriers in the ordinary sense; such evidence, apart from the striking instance of Shackleton's bale of blankets, is no more than suggestive. Nevertheless this paper presents an impressive bulk of evidence for revising our views about the mechanism of air-borne infection. We may not go so far as the authors in minimizing the danger of direct aerial spread, but we must recognize that the effects they have demonstrated are of great importance—notably the rapid rate of fall of the greater part of the secretion ejected from the mouth and nose. An interesting point is the distinction made between bacterial infections, in which infected particles are few and special conditions are therefore necessary for ready spread, and virus infections, whose transmission is relatively easy owing to the greater concentration of the virus in secretions. The authors point out that these matters must be taken into account in any attempts to arrest air-borne infection by means of ultra-violet light or germicidal mists and vapours. In view of the likelihood that such attempts will be a prominent feature of progress in hygiene during the coming years, any addition to our knowledge of how infection is transmitted is valuable. If the conclusions of Hare and Mackenzie are not fully accepted they should be a challenge to others to produce further proof that direct aerial transmission has at least some of the importance which has so long been attached to it.

ARTIFICIAL SUNLIGHT TREATMENT IN INDUSTRY

Artificial sunlight treatment has been hailed as a valuable tonic for industrial and office workers. It is claimed that this treatment lessens the incidence of sickness and accidents, reduces absenteeism, hastens recovery from illness and injury, and increases production. Such claims have encouraged managers in commerce and industry to install solaria for the benefit of their workers. Nevertheless, the more critical members of the medical profession who are able to advise industry have asked for more convincing evidence than that to be found in the published results of previous trials of the effects of collective irradiation of industrial workers and Service personnel.

A large-scale and controlled inquiry, the results of which have now been published, was planned and carried out by Dr. Dora Colebrook¹ under the guidance of a special committee of the Industrial Health Research Board of the Medical Research Council. The object was "to ascertain in a scientifically controlled experiment whether the collective irradiation of workers by ultra-violet light from quartz mercury arc lamps, using a minimum perceptible erythema dose, will reduce their rates of sickness absence and the duration of their colds." The technique of col-

lective irradiation adopted was one that has been advocated by medical and other observers for use in industry. Trials were made in three separate communities—viz., the clerical staff of various departments in the Admiralty, workers in a large factory making tanks and lorries, and those working above and below ground in a Yorkshire colliery. In all over 3,000 volunteers took part in the trials. In each of these three communities volunteers were allocated at random to one of four groups. The first received the full range of ultra-violet rays. The second and third groups were irradiated with lamps which had been fitted with screens to cut off the shorter ultra-violet rays—i.e., those with a wave-length of less than 3,300 A.U.—which are claimed to be responsible for the tonic effects. Each individual in the second group was given a weekly dose of vitamin D as 3,500 international units of calciferol, and those in the first and third groups were given an inert oil as a control. Thus, if there had been any evidence of vitamin D deficiency in the communities treated it would have been possible to decide whether the rays of the un-screened lamps were able to compensate for this. (It is known from previous work by Rosenheim and Webster² that the shorter ultra-violet rays falling in sufficient amount on the naked skin can prevent and cure rickets by converting ergosterol into vitamin D.) The fourth group received no treatment at all. The first three groups shared any possible psychological advantage in having "light treatment," in visiting the clinic, and in the resultant rest pause from work which the office and factory workers enjoyed. Such advantage, if any, might be illustrated by differences in sickness incidence and absenteeism between those who attended the clinic and those who received no treatment at all.

The results of these extensive and carefully controlled trials do not confirm the claim that the commonly accepted technique for the irradiation of factory, mine, and office workers with artificial sunlight is effective in reducing sickness and accident incidence and increasing efficiency. Those chosen for the trials had every opportunity of benefiting from the treatment, because half the clerical workers, many of the factory workers, and all the underground workers at the colliery spent the whole of their working time in artificial light. In none of these communities was the average amount of sickness absence found to be significantly less among those who had ultra-violet light treatment than among those who were exposed only to the screened lamps. In the two communities in which the duration of colds was studied, and in the colliery where injury and total absence were measured, the three treated groups did not differ significantly. Nor did any of the communities show any evidence, in the characteristics measured, of a vitamin D deficiency. A third of the people treated stated that their health had been better during their attendance for treatment, but there was no evidence that this benefit was due to the shorter rays, since the numbers were almost equally distributed in the treated groups. The treated groups in the colliery—i.e., those receiving and those not receiving the shorter ultra-violet rays—had a significant advantage over the untreated controls in respect

¹ Industr. Hlth. Res. Bd. Report No. 89. H.M. Stationery Office. (1s.)

² *Lancet*, 1925, 1, 1025.

of sickness, and total absence, but it was not possible to select at random the untreated group whose health in the previous year, when there was no sunlight treatment, was found to be less good than that of the treated men. In the office and factory those given no treatment at all showed fewer days with colds than those who were treated. This result probably has no significance, but was due to a greater accuracy in the records of those who attended the clinics.

The results of this investigation "debunk" some of the claims made by manufacturers and doctors for using a particular type of artificial sunlight as a tonic to prevent absence from work, but they provide no evidence as to the value of ultra-violet light for treating particular diseases, other than perhaps the common cold. A negative result such as this may be less satisfactory to the research worker than a positive one, but this inquiry will have been fully justified if it serves to illustrate both the method of and the difficulties inherent in carrying out such a carefully controlled and large-scale trial in an industrial population. Finally, it is hoped that it may succeed in diverting the attention of management and workers from what could at best be hardly more than a placebo to the more radical methods of preventing sickness and absenteeism in industry.

A STUDY IN MENTAL DEFICIENCY

In 1938 Penrose¹ published the results of a detailed clinical and genetic study of 1,280 cases of mental defect. Many important conclusions emerged, and it is to be hoped that the author may perhaps subject his material to yet further study, for it should remain a valuable storehouse of information for years to come. The excellent plan was adopted of publishing much of the original data *in extenso*, so that others with hypotheses to test can also benefit from Penrose's careful work. A similar study in the United States by Halperin² follows closely the lines of the parent work, Penrose's personal assistance being warmly acknowledged. Halperin's paper should, therefore, be considered in the light of the original work at Colchester, the main conclusions of which it strongly substantiates; in some directions further information has been obtained.

Halperin's sample consisted of 338 institutional mental defectives, thorough family and social investigations being carried out. As in Penrose's work, it was found that more mothers than fathers were mentally defective, which is probably due to the fact that the mentally defective woman more easily secures a husband than the mentally defective man secures a wife. Once again a clear distinction emerges between high- and low-grade mental defect. Idiots tend to have parents of normal mentality and to come from homes which are at least average. The feeble-minded have many similarly affected relatives and tend to come from inferior homes. Imbeciles are intermediate in these respects, but lie closer to the idiots. The suggestion is strong that low-grade deficiency is due to such influences as recessive genes, major accidents of development, and the like, whereas high-grade deficiency is to be attributed to intermediate inheritance involving many genes, aided by unfavourable environment. The interaction between poor heredity and poor environment may well set up a vicious circle and so be responsible for the

"social problem group" of the Wood report. A striking finding is the relatively high proportion of cases showing rare inherited defects, not always, or indeed usually, associated with mental deficiency. These include Friedreich's ataxia, deaf-mutism, anhidrotic ectodermal dysplasia, pseudo-hypertrophic muscular dystrophy, Hirschsprung's disease, and certain eye conditions. The presence of an abnormal gene may well make the whole process of early development precarious, so that in some instances the central nervous system suffers, leading to frank mental deficiency.

Halperin finds a notable association between intelligence of parents and their fertility. The number of registered births falls steadily from the 5.03 of defective x defective to 1.27 in above-average x above-average. It is remarkable, therefore, that Halperin should say: "... it is doubtful, however, if much significance can be placed upon this fact," and again, in his summary, "... but such differentials are not regarded as significant." His justification is another assertion: "It is difficult to foresee, under such circumstances, any tragic consequences in the distribution of genes for intelligence for years to come." This is followed by the one concrete suggestion: "Moreover, the fact that people of lower mentality generally come from the less favourable socio-economic status in society would suggest that perhaps some of the differences in intelligence test scores may yet be attributable to differences in environment as yet unrecognized." In this particular matter many readers will probably be considerably more impressed by Halperin's facts than by his opinions.

A test devised by Penrose is used to determine whether sex-linked genes may contribute to the determination of intelligence. The result is negative. The similarity in intelligence between husbands and wives among the parents is pronounced; it is one of the highest associations yet reported. It is pointed out that this must greatly increase the scatter of intelligence in the population. A large increase in the tendency for like to marry like would therefore much increase the incidence of mental deficiency. This may be one of the causes of the suspected increase of recent years.

CALCIFIED PULMONARY NODULES AND FUNGUS INFECTION

In an investigation for tuberculosis in student nurses in the U.S.A. Palmer¹ found a relatively high incidence of calcified pulmonary nodules, but the majority of the nurses with these lesions did not react to the tuberculin skin test. The diagnostic value of the test is not questioned, and therefore some other cause of the pulmonary lesions must be sought, such as a fungous disease. *Coccidioidomycosis* causes pulmonary lesions which may eventually become calcified.

It seems significant that the majority of the tuberculin-negative cases of pulmonary calcification were found in certain areas in the central-eastern States, which, however, do not contain any endemic focus of *Coccidioides immitis* infection but correspond to the region in which the greater number of cases of histoplasmosis have been found. In view of this observation the histoplasmin skin test was applied on a large scale to residents in this region, with the result that a high incidence of histoplasmin-positive reactors was found in certain districts and a relatively low incidence in others—for example, in Kansas City, Mo., there were 397 positive reactors and 28 doubtful reactors among 647 persons examined (61.5% positive), while in

¹ Med. Res. Cncl. Sp. Rep. Ser. No. 229, 1938, London.
² *Amer. J. ment. Deficiency*, 1945, 40, 8.

¹ *Publ. Hlth. Rep. Wash.*, 1945, 60, 513.

Minneapolis only 46 out of 971 persons examined gave positive reactions (4.7%). Palmer points out that the peculiar geographical distribution of the reactors is strongly suggestive of a specific cause of some kind, and if the reaction is significant of previous histoplasmosis it would imply a widespread distribution of the disease in a mild or subclinical form in the central-eastern States. Christie and Peterson² confirmed the findings of Palmer and furnished further evidence in support of the thesis that calcified nodules in the lungs of tuberculin-negative subjects, especially young children, living on the Appalachian plateau and the adjacent part of the Mississippi basin may be associated with undiagnosed *Histoplasma* infection. They gave instances of the close association between the histoplasmin reaction and residence in particular areas, and they described the case of an infant aged 10 months in whose lungs, at necropsy, early nodules were found and *Histoplasma capsulatum* was isolated from a hilar lymph node, although the child was not known to have suffered from histoplasmosis and had not died of that disease.

There is apparently nothing characteristic in the x-ray picture of the pulmonary nodules in histoplasmin-positive, tuberculin-negative cases, but the nodules tend to be multiple and are often bilateral; in contrast to the single nodules usually associated with the tuberculin-positive, histoplasmin-negative cases. Referring to the relatively high incidence of calcified lung nodules and histoplasmin sensitivity in young children, Christie and Peterson remark that "the age at which histoplasmin sensitivity develops and the age at which calcification appears are in such relationship that they might be cause and effect, while the age at which tuberculin sensitivity appears lags far behind the deposition of calcium."

Up to the present stage of the investigation the presumption of a clinically mild and unrecognized form of histoplasmosis is based entirely on the histoplasmin reaction, but the specific value of this reaction has yet to be determined. To this end, Emmons, Olson, and Eldridge³ conducted direct and cross sensitivity tests with histoplasmin, blastomycin, coccidioidin, and haplosporangin on artificially infected animals and on human patients, and the results of these tests showed an intimate allergenic relationship between histoplasmin and blastomycin, so that, under the conditions of the test, neither reaction could be considered specific. Blastomycosis (Gilchrist's disease) is found in the greater part of the Mississippi valley, and this disease, and perhaps other mycoses, should be considered alternatively to histoplasmosis as a possible cause of pulmonary calcification in persons who are histoplasmin-positive and tuberculin-negative.

The development of mass miniature radiography provides an opportunity to conduct a similar kind of investigation in England which would serve as a control to the American investigation.

"TROPICAL" EOSINOPHILIA

The condition known generally as tropical eosinophilia has for many years been recognized as a clinical entity, especially occurring along the western sea-coast of India; but its exact pathological basis has only lately been determined. A recent paper on eosinophilic lung by P. J. Hodes and F. C. Wood⁴ forms a further useful contribution to the literature on the subject. The association of lung symptoms with x-ray findings of a peculiar type and eosinophilia was at first recognized in 1939, and since then many other reports have been made. The aetiology is

obscure. Climatic and geographical factors would appear to play a part, and most patients live in areas near the sea. The occurrence of bronchospasm and eosinophilia has naturally led to a search for allergens, but so far no sensitizing factor has been identified. Carter, Wedd, and D'Abrera⁵ found several strains of the *Tyroglyphus* (cheese-mite) group in the sputum of patients with eosinophilic lung, but their observations have not yet been confirmed by others. The mites are, so far as is known, non-parasitic types such as normally are found in stored products, debris, etc. On the other hand, disease of the lungs due to parasites is known to occur in certain animals, including monkeys; and the possibility of similar infestation in man cannot by any means be ruled out. Coccidioidomycosis is known to be associated with lung symptoms and eosinophilia, but no mycelium has been found in association with tropical lung.

The signs and symptoms of the disease are variable. In most cases an initial fever is followed by a dry cough which gradually becomes more severe. Often the clinical picture becomes that of a patient with asthmatic bronchitis, and the symptoms tend to be worse at night and to respond to adrenaline. If untreated, the fever subsides in a few weeks, but the lung symptoms may persist and become chronic. In some cases, however, both fever and pulmonary symptoms may be entirely absent, and the condition is one of vague ill-health until examination of the blood establishes the diagnosis.

Eosinophilia occurs in all cases. The total white count is usually over 20,000 per c.mm. and can be much higher, and the percentage of eosinophils commonly in the region of 90. There is no gross change in the red cell count. The spleen is usually palpable. In febrile patients with pulmonary symptoms x-ray changes are the rule. Films usually show discrete lesions 2 to 5 mm. in size situated especially round the lung roots and bases. Even in untreated cases this x-ray picture tends to vanish spontaneously. But the x-ray appearances of the lung may be normal throughout in cases in which a firm diagnosis of tropical eosinophilia can be made by the blood count and the response to treatment. Neoarsphenamine or its allied compounds appears to be remarkably successful, and some four to six injections usually suffice to effect a cure. The specific nature of arsenical therapy was accidentally discovered during the treatment of a patient suffering from the dual complaints of syphilis and tropical eosinophilia.

Loeffler's syndrome presents many similarities to the condition described above, but there is doubt whether they both are the same or different diseases. Loeffler's syndrome differs in that it occurs in dry and temperate climates and tends to be mild and transient and to recover rapidly and spontaneously; on the other hand, eosinophilia and x-ray changes in the lungs are common. Until the aetiology of the two conditions has been worked out their relationship to one another must remain undecided.

Europeans returning from India may, it should be remembered, be suffering from tropical eosinophilia. A high eosinophilia in the absence of intestinal parasites or other obvious cause would seem to justify treatment with arsenic.

⁵ *Ind. med. Gaz.*, 1944, 79, 163.

² *Amer. J. publ. Hlth.*, 1945, 35, 1131.

³ *Publ. Hlth. Rep. Wash.*, 1945, 60, 1383.

⁴ *Amer. J. med. Sci.*, 1945, 210, 288.

The Lloyd Roberts Lecture, 1946, under the auspices of the Royal Society of Medicine, will be delivered at 1, Wimpole Street, W., on Monday, Oct. 28, at 3 p.m., by Field-Marshal Viscount Montgomery of Alamein, the subject being "Morale: with Particular Reference to the British Soldier." Admission will be by ticket only, which will not be issued until early October.

DEVASTATED MEDICAL LIBRARIES

The Minister of Health attended at the Royal Society of Medicine on May 17 to give his blessing to a project for sending microfilm reproductions of medical literature published during the war years, of sufficient continuity to be instructive in the subjects with which they deal, to replenish the devastated medical libraries of Europe. Mr. Bevan spoke appreciatively of the natural apprehensions of publishers in this connexion, but he thought it would be easy to obtain assurances from the recipients of the microfilms that they would not be used for piratical purposes in the countries concerned. Medical learning in these countries, he said, was suffering not only from the loss of libraries representing the accumulations of the past, but also from the fact that for six years it had been impossible to keep abreast of medical publications elsewhere, and he thought the project must appeal to every civilized intelligence.

Dr. N. M. Goodman, medical director of U.N.R.R.A., said that in his contacts with medical men on the Continent during the last twelve months, when he asked them what was their greatest need, their almost invariable reply was "To be brought up to date." These doctors had been cut off from Western medicine, and many of their libraries had been destroyed. He remarked to the director of the university dermatological clinic in Warsaw: "At least you have got your records and textbooks," and the reply was: "Yes, but I had to take seven trips through the German lines to preserve them." In country after country there had been most serious deprivation. Medical schools complained that their libraries were not up-to-date, no books or periodicals having been received since 1939. Educational rehabilitation was not within the province of U.N.R.R.A. All it could do in this direction was to supply what he called "*ad hoc* literature"—directions, for example, on the use of penicillin or D.D.T. or whatever was supplied. Some 21 journals were needed, two-thirds of them American and one-third British, but there was no possibility of filling the British quota owing to shortage here, and it was obviously undesirable that the vacuum should be made up solely by the publications of one country.

A number of representatives of other countries then spoke briefly. The Yugoslav Ambassador, M. Leontitch, declared that in the University of Belgrade "not one book remains." Count Reventlow, the Danish Minister, said that his country had not suffered nearly as much as others, but it welcomed the opportunity of renewed contact with British and American culture. The Polish Chargé d'Affaires, M. Winiewicz, described the great destruction in Warsaw, where, before the war, the medical libraries contained half a million volumes. One of them, in the Ministry of Health, was now being reassembled, book by book, from second-hand shops. The First Secretary of the Netherlands Embassy said that not only had the libraries of Holland suffered from bombing and fire, but many doctors who had had to go into hiding had been deprived by a spiteful enemy of their library as well as of their other possessions. Prof. Soloviev, head of the Soviet Red Cross in London, representing the U.S.S.R. Embassy, and a representative of the Czechoslovak Embassy spoke in similar terms. A representative of the French Embassy said that in France the medical libraries, with one exception, had escaped major destruction in the war, and France would be quite ready to do what it could to fill gaps in other countries. Dr. Lynne A. Fullerton, representing the United States Embassy, was sure that the remarks of the Minister of Health, which he would transmit to the Surgeon-General, would be received sympathetically in America.

Sir Stanley Unwin said on behalf of his fellow publishers that there was not the slightest need for any personal appeal to them to do what was necessary. On the other hand, the question of copyright did arise, and the matter must be done in proper form. He was uncertain of the attitude of the Royal Society of Medicine on this question of copyright, but obviously the Publishers Association could not give away the property of its members to anyone; it was not theirs to give. If properly approached he was sure that those concerned would take the same attitude as they had done when approached by societies representing the blind, in which case permission was at once

given. He reminded the meeting that literary property was just the same as any other property, and permission was required for its use. The hon. librarian of the Royal Society of Medicine gave the assurance that everything required would be done to secure the necessary permissions before microfilming took place, and the meeting closed with expressions of general approval of the scheme.

HEALTH SERVICE FORESHADOWED IN NORTHERN IRELAND

The Minister of Health of Northern Ireland (Mr. William Grant) has announced that the Government will accept financial responsibility for providing a site for a new hospital to serve Londonderry and the north-west area. The Parliamentary Select Committee on Health Services recommended extension and improvement of the hospital arrangements in the north-west, and the question has been discussed with representatives of the few hospitals and local authorities concerned. The advice tendered to the Ministry is that the hospital needs of Londonderry and the north-west are urgent and can best be met by setting up a new provincial hospital of between 400 and 500 beds on the outskirts of Londonderry. It is considered that no further building work should be undertaken at the city and county hospital in the town and also that the Waterside Hospital should not continue indefinitely as a general hospital. The most immediate need is for maternity accommodation, and as soon as the site of the new hospital is chosen and the general plan agreed, work will be started on a maternity wing or block.

The scheme will eventually form part of the framework of the Government's plan for a comprehensive health service for Northern Ireland. The Minister, in a speech at Londonderry, stated that the time was approaching when there would necessarily be a substantial alteration in the scope, and perhaps the administration, of health services. He could give no indication of the Government's policy in the matter, but the Government was, of course, examining the proposals for England and Wales, and was determined that Northern Ireland should have a suitable health service no less efficient than the corresponding service in Great Britain. He could not say what authority or authorities would in future be responsible for the provision and administration of the hospital service, but in the meantime the Government would take financial responsibility for initiating this development at Londonderry. He made it clear that this assistance was not necessarily the only help which the Government would give towards meeting the cost of the new hospital. That cost would fall to be met under the general arrangements for the National Health Service when these were formulated. The most urgent need in Northern Ireland to-day was housing, and it would be some years before the hospital could be completed, but it would be so planned that the maternity section could proceed without delay.

The north-west of Ireland is poorly supplied with hospitals. The city and county hospital, Londonderry, has about 100 beds, the Tyrone county hospital, Omagh, is of about the same size, and there are district hospitals at Limavady and Strabane and a cottage hospital at Coleraine.

MATERNITY PROVISION IN N.E. ENGLAND

The fourth annual report of the North-Eastern Regional Hospitals Advisory Council, which promotes surveys of hospital facilities and ancillary needs in the counties of Northumberland and Durham and part of the North Riding, contains a memorandum on maternity service provision in this region.

The standard of institutional maternity provision suggested by the Ministry of Health is understood to be 50% of births, but there is a general feeling that the standard is too low, and that the desirable provision is more nearly 70%. But even by the lower standard, and reckoning one bed to serve 20 births in a year, six of the eight county boroughs in the region have too few beds, another—Tynemouth—has a small surplus, and Newcastle has a surplus of 170 beds, but many of these are temporary, cannot be kept open indefinitely, and may be closed quite soon. County Durham shows

the most marked deficiency; the county council is said to be keenly alive to the gravity of the problem and the need for the immediate provision of additional maternity accommodation. The position in the North Riding is also disquieting, but the county council is understood to have a scheme for the provision of a new maternity hospital of 80 beds, and the local authority at Middlesbrough is also desirous of increasing its provision from 50 to 150 beds.

The facilities for training midwives in this region are also generally regarded as inadequate. Part I training is provided at a number of hospitals, but the quality of the entrants is poor, and greater encouragement needs to be given to local authorities and hospitals generally to give Part I training. The more serious deficiency, however, is in Part II training. The only Part II training now given is in Newcastle, Sunderland, and Darlington, and by the Northumberland County Nursing Association. It is remarked that the Central Midwives Board appears to discourage the same hospital giving both parts of the training. There is a strong feeling that local authorities already giving Part I training should also be encouraged to give Part II.

An interim report by the Newcastle Hospital Centre Joint Committee on the allocation of a hospital centre on eight acres of land lying north-west of the Royal Victoria Infirmary, Newcastle; a report on the five-year programme of the Health Committee of the city and county of Newcastle, including a scheme for the development of Newcastle General Hospital; and a memorandum by the county medical officer of Northumberland on general hospital accommodation in the county are appended to this document.

FIRST AID ON THE HIGHWAY

The Standing International Commission on Highway First Aid has held its first meeting since the war. It was convened at the headquarters of the League of Red Cross Societies in Geneva under the chairmanship of its founder, Dr. P. Behague, vice-chairman of the French National Union of Touring Associations. This commission was established fifteen years ago and is composed of representatives of the major international touring and automobile organizations, the League of Red Cross Societies, the International Red Cross Committee, and certain national Red Cross Societies. Before World War II it fostered the establishment of first-aid posts on highways and issued rules for their organization. In addition to Dr. Behague and M. de Rouge, Secretary-General of the League, the following persons attended the meeting: M. E. Dronsart, Director-General of the Belgian Red Cross; M. P. Duchaine, Secretary-General of the International Touring Alliance, President of the Belgian Touring Club; Dr. E. Mende, delegate of the International Association of Recognized Automobile Clubs, central president of the Swiss Automobile Club; Mr. G. Milsom, Under-Secretary-General of the League of Red Cross Societies; Prof. E. J. Pampana, director of the Health and Relief Bureau of the League; M. J. Pictet, Assistant Secretary-General of the International Committee of the Red Cross; Col. E. Primault, Director-General of the Swiss Automobile Club, vice-chairman of the technical committee of the International Association of Recognized Automobile Clubs.

The Commission adopted a number of resolutions, advocating the more efficacious prosecution of the campaign against road accidents and the provision of the most modern therapeutic aids for injured people. The Commission has recommended the establishment in the various countries of traumatology services whither road victims could be transported directly and given every possible medical assistance, radiological examinations, special surgery, penicillin, blood and plasma transfusion, and adequate treatment for shock, burns, or complicated fractures. Furthermore, the Commission desired to see closer co-operation between the Red Cross and the touring and automobile organizations.

Many of the Red Cross and St. John ambulances carry on the work for which they were given in wartime. They now render a vital service to the community, especially in rural areas where problems of moving patients from home to hospital are often difficult. This service of invalid transport has grown to greater dimensions as a result of the 1939-45 war. Expansion of the services is developing in various parts of the country, and the St. John and Red Cross Home Ambulance Service is able to meet additional local needs because it has recently received nearly 500 ambulances no longer required for war service. Since its inception the service has carried hundreds of thousands of patients, either illness or accident cases; before 1914 there was practically no ambulance service for the civilian population. The headquarters of the St. John and Red Cross Home Ambulance Department at 12, Grosvenor Crescent, London, S.W.1, is a central bureau of information on all matters relating to ambulance transport. With the recent additions its fleet of vehicles now numbers nearly 1,000.

Reports of Societies

RADIOLOGY IN THE NATIONAL HEALTH SERVICE

The Section of Radiology of the Royal Society of Medicine, with Dr. W. M. LEVITT in the chair, devoted its meeting on May 17 to a consideration of the place of radiology in the National Health Service.

Dr. S. COCHRANE SHANKS claimed that "radiologists should have 'a finger in as many pies as possible,' not only in the hospital, but in the Central Health Services Council, the regional hospital boards, the hospital management committees, and even the health centres if these had x-ray installations. The Central Council was to consist of 41 members, 15 of whom must be medical practitioners, and radiologists should press strongly for one of these places on the ground of the importance of their specialty to all other branches and the magnitude of their work in the hospital. They should also have a footing in the regional hospital board. One solution might be to give the chief radiologist administrative authority in the region, but such a man might not have administrative ability, and a better arrangement would be to have a committee elected by the regional radiologists, such a committee to have a say in appointments and in such matters as the bulk ordering of equipment.

In the executive part of the service radiologists should be eligible to serve on committees of management of the hospital and to take part in the management of the medical school. The radiotherapy of malignant disease should be carried on in well-equipped centres, which would naturally be the university centres—a simple matter in the Provinces, but not so simple in London with its twelve teaching hospitals. Here some dilution of the concentrated doctrine of the therapist might be necessary, with therapy centres in each teaching hospital, but linked together for staffing, research, and record purposes. Radiologists should rank equally with their colleagues on the consultant staff, which meant more than the possession of a diploma—the D.M.R. was simply a stage in the process. In the initial stages of the service there would be but one yardstick—recognition by his compeers that a man was *de facto* of consulting rank. Where there was a private wing in a hospital it seemed only right that the hospital radiotherapist should have the privilege of treating private patients. The case of the diagnostician was more complicated, as so much of his work was with out-patients. In future there would be an inevitable diminution of private work, and with the mounting cost of installations few radiologists would care to face the expense of private consulting-rooms and would be driven to do their private work at hospitals.

The radiologist should have effective charge of all the x-ray services of the institution in which he worked. There was a growing tendency in diagnostic departments to "nuclear fission, particularly under the impact of orthopaedic neutrons." If there were subsidiary units, such units and the radiographers working in them should be part of the main department and under the direction and control of the radiologist, and every film taken in the subsidiary unit should be seen and reported on by the radiological staff. As to academic status, radiologists were called upon to do little undergraduate teaching, but postgraduate teaching was a different story. In London there were about 80 postgraduates under training this year for the D.M.R. A chair of radiotherapy was established in London, but there should also be a professor of x-ray diagnosis, and professors in these subjects should be established in other university centres wherever systematized postgraduate instruction in radiology was given. The distribution of radiology in the future would be not only in teaching and in district hospitals but also in cottage hospitals, special hospitals, health centres, tuberculosis clinics, and mass radiography units, as well as in domiciliary service in the patient's home. Dr. Shanks expressed the view that 2,000 radiologists might be necessary to carry out the service of the future—a multiplication of present numbers by three.

Need for More Radiologists

Dr. A. E. BARCLAY wrote agreeing with Dr. Cochrane Shanks that an adequate radiological service on a consultant basis would need three times the present number of radiologists. Nothing had impressed him more during the war than the

reed for more radiologists. It had been distressing to see men endeavouring to cover more work than could properly be accomplished and being compelled to delegate far too much to the radiographer.

Dr RICHARD FAWCETT described the results of a questionnaire which he had addressed to a number of his fellow radiologists in non-teaching hospitals in different parts of the country. Most of the radiologists of whom inquiry was made—30 out of 35—served more than one hospital, a number served far too many hospitals occasionally in more than one county. The overwhelming majority of those approached carried out private practice at their hospitals. In the larger number of non-teaching hospitals, radiotherapy, except for superficial work, such as the treatment of skin conditions, was seldom justified unless under the direct supervision of a member of the staff of a recognized therapy centre usually a university centre. Normally the non-teaching hospitals particularly the smaller ones had no physicist and in many cases only restricted pathological facilities. They were accordingly often not in a position to make a diagnosis of—let alone to treat—cases requiring deep therapy and radium. This view was endorsed very widely by those whom he had approached.

Dr G B STEBBING said that in the Bill the composition of the regional hospital board was left vague, they should do all they could to see that the board was composed of people really expert in hospital management. As to the functions of local management committees, he recognized that local government hospitals were as a rule inferior to voluntary hospitals owing to over-centralization of management. The management committees in local authority hospitals should have as much power as voluntary hospital management committees had now. One of the reasons why there should be more radiologists was the consultant status of the radiologist, the best service would never be obtained until consultations took place in front of the patient instead of on the basis of reports.

Dr WHATELY DAVIDSON said that it was wrong to think of treatment or investigation of patients in terms of standardization. The only standardization which was justifiable was the establishment of minimum standards of staffing and equipment. He was quite certain that radiological control of technique was essential. Dr A S JOHNSTONE said that large numbers of highly trained young men in medicine who had had adequate hospital experience were frightened off diagnostic radiology because they had to turn back and take their physics over again. He suggested that some of the knowledge of physics demanded of the radiologist was unnecessary. In a well-planned department there should be sufficient radiologists for each to be attached to one physician or surgeon or to a special department and to carry on consultation work within his own orbit.

Dr GRACE BATTEN agreed with Dr Stebbing as to the disadvantage of over-centralization as seen in local authority hospitals. It often meant that no notice was taken of the opinion of the person on the spot. It ought to be insisted that full account be taken of local expert opinion so that really essential matters were not liable to be set aside by lay people who knew nothing about the subject. Radiologists should insist on the localization, not the centralization, of authority. Dr H C H BULL referred to the conditions in Sweden, where the rule was for the radiologist himself to see every patient. Radiology, he said held a higher position in Scandinavia than it did in Great Britain. In Scandinavian provincial hospitals the first specialist to be appointed was the surgeon, but the second was the diagnostic radiologist.

The PRESIDENT (Dr LEVITT) said that evidently all was not well in the realm of radiology. Whether the proposed new scheme would remedy matters remained to be seen, but there was this to be said for a planned service, that the responsibility did rest with one person. He felt that the introduction of a service with responsibility centralized did at least offer the hope of a remedy.

The British Standards Institution has recently issued specifications for high carbon steel cylinders and manganese steel cylinders for the storage and transport of carbon dioxide, nitrous oxide, and ethylene. Copies of these British Standards No 1287 and No 1288 may be obtained from the British Standards Institution, 28, Victoria Street, S.W. 1, price 2s. each post free.

Correspondence

Correction of Medical Register

SIR—I am desired by the Returning Officer to say that voting papers for the purpose of the election of five members of the General Medical Council to represent the registered medical practitioners resident in England were issued on May 28 to all practitioners having registered addresses in England, and that the authorities of the Council would be glad if any such practitioner who did not receive a voting paper would communicate with the office of the Council (44, Hallam Street, London, W. 1), in order to ascertain that his address is correctly entered in the *Medical Register*—I am etc.,

C WESTON,
for Registrar

London W. 1

Epidemiology of Influenza and Cholera

SIR,—My attention has recently been drawn to your annotation (Aug. 7 1943 p. 175) on "The Nature of the Influenza Virus," in which you write that one of the great mysteries in the epidemiology of influenza is the mechanism whereby the virus survives through long interepidemic periods. At the same time you refer to the then recent work of Shope (*J. exp. Med.* 1943, 77, 111) on swine influenza and express the opinion that the most interesting feature of Shope's work is his demonstration that swine influenza virus, while in the lung worm, exists in a masked form and is totally non-infective until awakened to activity by some provoking stimulus. You state that Shope thinks that the onset of a swine epizootic is determined, not by the acquisition of the causative virus, but by meteorological or physical conditions which favour virus activation, and express the opinion that it would be unwise to ignore the possibility of a similar mechanism existing in human beings. Finally, you draw attention to the fact that human epidemics like swine epizootics, usually occur during a particular season of the year and that epidemic foci often arise simultaneously and apparently independently, suggesting some activation of previously acquired infection rather than direct case-to-case transmission.

In their joint investigation into the bacteriology and epidemiology of cholera in the Asansol Mining Settlement, Bengal on behalf of the Indian Research Fund Association and the Calcutta School of Tropical Medicine Tomb and Maitra (*Indian med. Gaz.* November, 1926 p. 537) arrived at a conclusion regarding the epidemiology of cholera in close accord with that subsequently arrived at by Shope regarding swine influenza. In an article entitled "A New Conception of the Epidemiology and Endemology of Cholera" (*Indian med. Gaz.*, February, 1927, p. 61) they wrote as follows:

"We have therefore been driven to the inevitable conclusion that the non-agglutinating (non-infective) vibrio takes on the agglutinating (infective) characteristic under certain biochemical-physical conditions [often seasonal] in the human intestine, the nature of which is at present unknown, and in this mutation or infective form is the cause of epidemic cholera. Non-agglutinating (non-infective) intestinal vibrios, therefore, in our opinion constitute the reservoir of cholera both epidemic and endemic."

In the previous article (1926) they also wrote "During our investigations in the Asansol Mining Settlement we have met with several outbreaks of epidemic cholera in distant and isolated villages the inhabitants of which had not been in contact either recently or remotely with any case of epidemic cholera. Spontaneous outbreaks of epidemic cholera have also been noted by other observers in other localities. Hitherto the explanation of such outbreaks has been that they owed their origin to some carrier of Koch's (infective) vibrio who existed unknown in the community. Our suggested explanation of such outbreaks now is that owing to favouring circumstances [often seasonal] the non-agglutinating (non-infective) vibrio changes into the agglutinating or epidemic form in one of the numerous chronic carriers of non-agglutinating vibrios in endemic areas [such as the Mining Settlement], the epidemic spreading in the usual manner by contamination of water and by contact." I am, etc.,

Sydney N.S.W.

J. WALKER TOMB.

Hernia and Strain

SIR,—During the last five or six years it fell to my lot to operate on large numbers of recently acquired inguinal herniae in young men. Not infrequently the history was of the sudden appearance of a swelling in the groin consequent upon some particular effort. In these cases it was no uncommon thing to find, after removal of the sac, that the internal ring was much enlarged, and on displacement of the cord it was apparent that this enlargement was caused by an actual tear of the transversalis fascia, which extended through the thickened inner margin of the ring for a variable distance across the canal. The tear exposed the deep epigastric and iliac vessels and allowed a finger-tip to slip back quite easily into the extraperitoneal cellular planes of the pelvis. Moreover, its edges were clearly defined, and a single line of suture uniting them was sufficient to restore the normal anatomy of the canal. Oddly enough, the resulting hernia was not always "direct." Protrusion still took place laterally to the deep epigastric vessels, which, of course, offered no resistance and were displaced medially.

Obviously, with a lesion of this kind the first step towards cure after removal of the sac must be directed towards closing the tear, preferably with unabsorbable material. To hope for success by building up a barrier at an anterior level would be on a par with trying to keep the horse in the stable by shutting the yard gate. The other point that arises in connexion with these cases concerns liability. I believe that with a clear history and the operative findings which I have described the surgeon would have no choice but to describe the lesion as "attributable."—I am, etc.,

London, W.1.

STEPHEN POWER.

The Catheter and the Prostate

SIR,—Mr. Wilson Hey states (May 18, p. 757) that the mortality rate in 565 consecutive cases of prostatectomy performed by him was 4.3%, and also that "suprapubic drainage for any form of prostatic obstruction should be abandoned." It is a matter of historical interest and clinical significance (*Enlargement of the Prostate*, Freyer, 5th edition) that the late Sir Peter Freyer performed 1,337 prostatectomies, every one of which had suprapubic drainage, with a mortality rate of 4.77%.—I am, etc.,

CLIFFORD MORSON.

Suprapubic Drainage of Bladder

SIR,—As the controversy over the merits or demerits of blind (trocar) or open exposure of the bladder appears to be resolving itself into a matter of "ozs." capacity of the bladder or its "cms." distance from the upper border of the symphysis pubis, variously estimated by the anatomist or the surgeon, I feel what matters materially is the danger element—the peritoneum. The trocar method merely has a dramatic appeal, despite its occasional failure or subsequent obviously possible complications of a serious or even fatal nature. The latter method should have a greater appeal to the operator well acquainted with anatomy, in that its simple technique under local anaesthesia is a "precise" operation, requiring very few minutes in its performance. The late Mr. Wilfred Trotter instilled the teaching, "When you operate, do something definite," and again insisted upon "exposing the danger in the field of operation," and "so avoiding it during the subsequent steps of the operation." Bearing this in mind, the choice of open operation is undoubtedly the more safe procedure.—I am, etc.,

Bridgwater.

G. C. SNEYD.

Treatment of Syphilis

SIR,—In your leading article entitled "Progress in the Treatment of Syphilis" (May 18, p. 766) you state that "60 mg. mapharside is the equivalent of 600 mg. neosarsphenamine." I am aware that this statement has been made before, but I should like to know on what grounds, because (1) you say that if one injection is given per week neosarsphenamine (600 mg.) is superior to mapharside (60 mg.), and (2) in the only straight comparison between the two drugs of which I am aware—the 5-day intensive method—about three and a half times as much neosarsphenamine as mapharsen was required to produce equal

results. Your reference to "the poverty of the data recorded in papers from this country" is hardly fair on British syphilologists because (1) penicillin was not available for the treatment of syphilis in this country nearly so early as it was in the U.S.A., and (2) we hesitate to publish until we are sure of our ground.

Incidentally you make no reference to the brilliant work of Nicol *et al.* in the malaria treatment of G.P.I., which in my opinion is far more valuable than the report of a committee in 1940 which you quote. I worked in the closest co-operation with the Americans during the war and saw their methods both in England and in the U.S.A., and consequently have the greatest admiration for them, but I see no reason why you should disparage our own workers by making "odorous" comparisons.—I am, etc.,

Ashford, Middlesex.

T. E. OSMOND.

SIR,—May I venture to point out that your leading article on progress in the treatment of syphilis (May 18, p. 766) does less than justice to the contributions of British workers. No one would wish to minimize the achievements of our American colleagues, but it is difficult to avoid the feeling that you, Sir, have perhaps been over-impressed by the mere wholesale scale of their experiments. Is there any real justification for crediting the Americans with "greater grasp of the principles of drug action" than workers in this country? You praise them for having already by 1944 published results in 1,418 cases of early syphilis treated with penicillin,¹ and lament the paucity of data from this country. These 1,418 cases were treated by total dosage schedules ranging from 60,000 to 1,200,000 units—that is, ranging from grossly inadequate to inadequate—and you point out that high hopes had later to give way to more modest expectations. I find it difficult to share your enthusiasm for an experiment in which 1,418 patients were used in order to point the moral which was reached by ourselves² in the same year with only 5 patients—namely, that 1,200,000 units is probably insufficient for cases of early syphilis; in other words, that 1,418 patients had been inadequately treated by a substance which could quite safely have been given in considerably higher doses. Let us hope that your enthusiasm for this experiment will not encourage similar methods of investigation in Britain.

Again, you write that it is not very surprising that it was the Americans who first discovered the value of penicillin in syphilis. Indeed it is not very surprising, since it was in the United States alone that sufficient penicillin could be spared in 1943 for trials in human syphilis. It is, however, unjust to give exclusive credit to American workers for this development of penicillin therapy. The initial discovery of the activity of penicillin in spirochaetal infections in laboratory animals was made in Liverpool in August, 1942. The late Prof. Warrington Yorke made no secret of this information, or of its significance for human syphilis, during his visit to the United States on behalf of the Ministry of Supply in September and October, 1942. It was mentioned in the published annual report of the Liverpool School of Tropical Medicine for the year ending July 31, 1943,³ and full details were given in the *Annals of Tropical Medicine and Parasitology* for December, 1943.⁴ It was in the latter month that the American announcement was made of successful trials in man.⁵ Now it is well known that during this period—August, 1942, to December, 1943—there was the utmost stringency in the allocation of penicillin in this country on account of the need for conserving stocks for the treatment of battle casualties in the impending invasion of Europe and elsewhere. In the United States, on the other hand, penicillin was already available in relative abundance during this period, thanks to activities aroused there by the visit of Sir Howard Florey in 1941. It is for these reasons that we need not be surprised that it was the Americans and not ourselves who were to follow the lead given by the prior discovery of the activity of penicillin in experimental spirochaetoses.

In your recapitulation of the development of intensive schemes of treatment the impression is conveyed that this has been an exclusively American field of enterprise. (You quote eight American and no British papers in this connexion.) May I remind you of at least one scheme of intensive therapy which was initiated in this country. For more than 20 years

I have, against official opposition, fostered here in Liverpool courses of intensive treatment lasting only 39 days"—a scheme which, with only slight modifications, was at last officially recommended in 1943 by the Ministry of Health.—I am, etc.,

A. O. F. ROSS.

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- ³ 44th Annual Report of the Incorporated Liverpool School of Tropical Medicine, 1942-3, p. 9.
- ⁴ Louie, E. M., and Collier, H. O. J. (1943) *Ann. trop. Med. Parasit.*, 37, 200.
- ⁵ Mahoney, J. F., Arnold, R. C., and Harris, A. (1943) *Veren. Dis. Inform.*, 24, 355.
- ⁶ Ross, A. O. F. (1930). *Lancet*, 2, 1206.
- ⁷ Pebble, E. E. (1933) *Brit. J. veter. Dis.*, 9, 119.
- ⁸ Ross, A. O. F. (1943). *Lancet*, 1, 704.
- ⁹ Recommendations of the Ministry of Health on the Treatment of Merchant Seamen (1943). *Brit. J. veter. Dis.*, 19, 77.

* The views expressed on May 18 were based on observation of American work at close quarters, and the purpose of the article was to stimulate further activity in this country. There seemed good reasons for believing that the experimental trials in America were conducted with great care and that the results were considered most critically. There is no doubt that the Americans, in devising their clinical trials of short courses of mapharside, paid great attention to the laboratory findings in experimental syphilis and based their trials on the principles which the laboratory results established. Hence the reference to the "greater grasp of the principles of drug action." The collaboration, for example, between Dr. Earle Moore on the one hand, who is able to plan large-scale clinical experiments, and Dr. Eagle on the other, to advise on the laboratory findings, has no real parallel in this country. It is difficult to reply briefly to Brig. Osmond's question concerning the relative value of mapharside and neosarsphenamine, but it can at least be said that the statement made in the article is fully accepted in the United States.—ED., *B.M.J.*

The Teaching of Human Anatomy

SIR.—I have just read the letter (Nov. 24, 1945, p. 740) on this topic. It would give me great pleasure to add my name to the 30 signatures among which I note the names of many friends, including one of my own teachers. May I send a greeting to all?

I should view the position in which the teaching and examining of medical students in anatomy were undertaken by one who did not possess medical qualifications with the gravest misgivings. The stress of war with the will to victory at any cost no doubt has led to shortage of teachers and improvisations in teaching which can be excused. The possibility that this practice might find a permanent niche in our teaching arrangements should be resisted with resolution if the high standard of our British medical curriculum with its traditional anatomical bias is to be maintained.

It frequently happens that I, being a teacher of anatomy, am addressed as if I were possessed of the highest of diplomas in surgery. I wish it were so; but it is the *non sequitur* that I do not understand. In my opinion a knowledge of anatomy with physiology and pathology lies at the root of rational diagnosis. The application and usefulness of this knowledge are very far from being limited by the artificial procedures of the surgeon. It only strengthens my view on the main thesis regarding the teaching of anatomy. These remarks may be trite, but an anatomical *credo* at times can be of no harm.—I am, etc.,

L. R. SHORE, (ex-P.O.W.).

Professor of Anatomy, University of Hong Kong.

* Prof. Shore's letter is written from the General Hospital, Lower Hutt, New Zealand.—ED., *B.M.J.*

Fibrositis

SIR.—Unlike Dr. H. G. Garland (May 18, p. 774), I believe that the term "fibrositis," in its modern usage, describes a clinical entity. Dr. Garland offers no alternative term. In fact one gets the impression that Dr. Garland believes there is no such condition, and that when the term is used a misdiagnosis has been made.

Dr. Garland is a neurologist, and in that quiet backwater of medical practice the flotsam and jetsam of everyday experience

is seldom found. I can assure him that orthopaedic surgeons see many painful conditions of the muscular parts of the body, unassociated with other discoverable pathology, and which recover even without treatment. I myself have recently suffered from a painful right trapezius, following a long cold day at an open driving-window, and I can assure Dr. Garland that I have enjoyed excellent health since and that so far I have no symptoms or signs of chronic empyema, lobar pneumonia, metastatic carcinoma of the spine, or prolapsed cervical intervertebral disk. I have also seen many patients complaining of a painful back and of pain down the backs of the thighs ("sciatica"), who attributed the condition to "sitting in a draught," and the absence of other abnormal signs and subsequent recovery gave me no reason to suppose that their explanation probably was not the correct one.

Isn't there now merely a fashionable tendency to label the conditions hitherto called "fibrositis" and "sciatica" "prolapsed intervertebral disk"? Dr. Garland knows that when such a label is attached, even by a neurologist, a prolapsed disk is not always found at operation. If in the past a rubbish heap has been made of "fibrositis," I maintain that there is a danger of the neurologists making a rubbish heap of "prolapsed intervertebral disk."

I know Dr. Garland will be the first to agree with me that what his letter really emphasizes is the necessity for accurate diagnosis. Then no longer will chronic empyema, lobar pneumonia, metastatic carcinoma, and prolapsed disk be misdiagnosed as "fibrositis" or "fibrositis" as prolapsed disk.—I am, etc.,

London, N 15.

J. S. MAXWELL.

Smallpox in the Vaccinated

SIR.—The following report on four cases of smallpox may be of interest. The cases occurred on a troopship returning from Bombay in February, 1946, where smallpox was present in epidemic form at that time. Only the salient features of each case are given, as this letter is not intended as a clinical description of smallpox but rather to stress the necessity for the adequate vaccination of those coming from, or going to, areas where smallpox is endemic.

Case No. 1.—An airman reported sick on Feb. 12 with a rash. Temperature normal; no increase in pulse rate; appetite good; no constitutional disturbances. Diagnosed as "infective acne." Three days later on routine inspection of troops on board discovered with a pustular eruption; isolated immediately for the remainder of the voyage. I saw him the day following isolation, and he certainly had marked acne on the chest wall and back, but he now had a definite pustular eruption, mainly on the scalp, face, arms, legs, and trunk, with two or three definite pustules on the palms of both hands and feet. He had never had chicken-pox and had been vaccinated two or three times during the war, the last vaccination being eight months previous to embarkation; one scarification only, but, from the appearance and extent of the scar, could be considered to have quite a good "take." At no time during his illness did he suffer any constitutional disturbances; in fact it took a good deal of explaining to him why he was held in isolation.

Case No. 2.—The medical officer who first saw case No. 1 was taken ill on Feb. 23, 1946, complaining of severe headache and backache. Evening temperature swinging between 102° and 104° F. (38.9° and 40° C.). Repeated bloods were taken and examined for malaria parasites; all were negative. He was treated as a clinical malaria. On the fourth day the temperature dropped to normal and the eruption appeared, mainly on the trunk, thighs, and arms. Feet and hands were clear. The eruption was definitely "shotty" to the touch and was all at the same stage. The patient had been vaccinated in 1945 but had not taken.

Case No. 3.—Admitted to ship's hospital Feb. 25 with pain in the right epigastrium and high fever. Diagnosed as diaphragmatic pleurisy. The patient was put on sulphapyridine, and after twenty-four hours developed a scarlatiniform rash which at the time was attributed to sulphapyridine. On the fourth day a massive eruption appeared all over the man's body; in fact it was hardly possible to place a pin anywhere free from the eruption. The patient was extremely ill and subsequently died. He had been vaccinated during the war, but I am not in a position to say whether he had "taken."

Case No. 4.—Mild general disturbance with minimal rash. Hospitalized Feb. 25.

Cases Nos. 1, 3, and 4 were all from one troop section, and case No. 2 was a direct contact with case No. 1. Gordon's

test was positive in all four cases. These four cases illustrate what is already well known, but it might not come amiss to stress again that a modified attack of smallpox may be handed on in malignant form to an inadequately vaccinated person, and, secondly, that inadequate vaccination by one scarification can so modify typical smallpox as to render it easily missed. The primary defence line in these islands is the Port Health Authority; behind them lies a mainly unvaccinated population, likely to be more unvaccinated still in the near future. There are different opinions amongst the medical profession as to when and how often vaccination should be performed, but no one doubts the efficacy of vaccination against smallpox.

There will, in the near future, be large movements of troops and civilians to and from countries where smallpox is endemic, and this letter is a plea that the persons involved in these movements should be adequately vaccinated. By adequate vaccination I mean at least three scarifications. How many of us are content to make one scarification only? How many of us are content to give a certificate of vaccination if there is no "take" without repeating vaccination three times? How many of us are particular that the vaccine used is of recent date of manufacture?—I am, etc.,

F. K. BEAUMONT,

Surgeon, Canadian Pacific Steamships.

Liverpool.

SIR,—Dr. W. F. Corfield (May 18, p. 775) gives particulars of 14 cases of smallpox which have recently occurred in Essex, and which illustrate the well-known fact that the fatality of smallpox is higher in the unvaccinated than in the vaccinated. He then asks if I consider that this protection is not worth having? My reply is: "Yes, certainly, as regards the individual, but not necessarily so as regards the community." Let me explain. Dr. Corfield suggests that if the population had been completely unvaccinated many contacts with the soldier (a highly modified case) who was the cause of the outbreak would have contracted virulent smallpox. I agree that is very probable. But Dr. Corfield omits one important point—viz., Was this soldier vaccinated or unvaccinated? I think I am justified in assuming that he was vaccinated (and very possibly revaccinated); and I further assume that his highly modified attack was due to his having been vaccinated, and that it was because his attack was so highly modified that he caused the outbreak. I may be wrong, but this is the usual sequence of events. I suggest that had he been unvaccinated it is probable that the nature of his illness would have been recognized earlier, and then there might not have been an outbreak at all.

Experience has shown repeatedly that these highly modified cases of virulent smallpox which result from vaccination are a very real danger to the community, although admittedly the individual benefits. Indeed, it is hardly an exaggeration to liken them to the foxes with lighted firebrands attached to their tails which Samson, according to the story, turned loose in the standing corn of the Philistines with disastrous results. However, in the future there will be far fewer soldiers returning from the East, so this source of danger will be diminished.

Incidentally, it is rather remarkable that apparently only 3 of Dr. Corfield's 14 cases were unvaccinated. Smallpox to-day does not seem to "pick out" the unvaccinated to the extent that it was once supposed to do.—I am, etc.,

Leicester

C. KILLICK MILLARD.

The Population of India

SIR,—It appears to me at once fantastic, inhuman, and unscientific to describe India's problem as an excess of population. Unfortunately, Dr. Annie Megaw Brown (May 25, p. 811) is not alone in falling into this error. It is the old, exploded Malthusian fallacy, which, though out of fashion in Europe, continues to be applied to Asia as a means of salving our consciences and disclaiming all moral responsibility for the state of affairs in India. When food is short in Britain we do not view the problem as "Too many Britons," though we are well aware that we have more people than we can support on the produce of our own soil.

India's problem, like that of many other countries at the present time, is shortage of food, and this will not be remedied by efforts on the part of Europeans—no matter how well meaning—to alter the marital habits of the Indian peasant. India's immediate need is additional imports of grain, which can be obtained only by displaying less favouritism to ex-enemy

countries and by self-sacrifice on the part of countries like the U.S.A. with a comfortable margin of safety.

As to the future, there has been a whole spate of plans showing how India can greatly increase the amount of food grown. In the technical field India would have no difficulty in supporting a much larger population if she so wished. The difficulty lies in achieving a political and social structure which will permit of large-scale economic planning.—I am, etc.,

St. Mary Cray.

BRIAN H. KIRMAN.

Artificial Sunlight in Industry

SIR,—In a report just issued on behalf of the Industrial Health Research Board about "Artificial Sunlight Treatment in Industry" (H.M. Stationery Office, Report No. 89) Dora Colebrook, while referring to previous experiments, deals, among others, with the work done by myself in 1943 at the Kirkby (Notts) Colliery (*Brit. J. phys. Med. industr. Hyg.*, 1943, 6, 105). Scrutinizing the figures published about the result of treatment in another article later on, she declines to accept my suggestion that the 18% drop in the mean sickness absence rate in 1943 when compared with the figures of the same period in 1942 should be *de facto* due to the artificial sunlight treatment carried out in a specially built solarium at that colliery in 1943.

Dr. Colebrook's argument against such an acceptance is that the percentage of the mean sickness rate at the "control" colliery in 1942—i.e., previous to the experiment described—has been nearly half only (3.6% as compared with 7.3%) of that of the Kirkby Colliery during the same period. Furthermore, that even during the experimental period in 1943, "when the Kirkby miners were irradiated, they lost time at the rate of 6%, whereas the rate for the men at the 'control' colliery was only 4.7%" (italics are mine). A little reflection will quickly reveal to everyone interested in the subject that Dr. Colebrook has lost herself here in the jungle of statistics and made a fundamental mistake by comparing the absolute mean sickness absence figures of two different collieries, whereas the thing that decides the issue really is what changes in the figures of absenteeism through sickness took place at each individual colliery.

Everyone who is in touch with a group of collieries knows very well that each colliery has its own feature regarding absenteeism (both voluntary and involuntary). The range of difference in this respect is very wide indeed. It would transgress the scope of this letter to describe here the underlying causes, but it is a well-known fact. One glance at my figures shows that Kirkby belongs to the group of collieries with a higher absenteeism rate, and the "control" colliery to that of a lower category, but these general characteristics remain fairly irrelevant when trying to judge the fact whether or not the solarium treatment has had any influence on the figures of absenteeism at the colliery in question. The crucial question here remains, What were the figures before and what during and after the treatment period? The fact that an 18% decrease of absenteeism during and after irradiation treatment took place at the Kirkby Colliery, which, generally speaking, has a poorer health standard, while during the same period absenteeism figures of the better-health-standard "control" colliery, where no irradiation took place, have increased from 3.6% to 4.7% is not an argument against my conclusion, but, in fact, it underlines it.

I am also at a loss to understand why Dr. Colebrook describes my observations as "limited both in space and time," when they extend to a period of half a year, while her own corresponding colliery experiment, to which she attributes fundamental importance, has been carried out during three and a half months only. Also the number of men involved at my colliery has been considerably bigger than in her experiment.

Similar, and some even more far-reaching, mistakes occur at many stages of Dr. Colebrook's observations, which were bound to lead her astray and to wrong conclusions. One feels deeply sorry that trials at which such a lot of thought, honest work, and painstaking efforts have been employed, through a certain lack of circumspection, should have had the result of only obscuring even more an already complicated and difficult problem.

I propose to substantiate later on with a detailed survey my present criticism. Meanwhile, may I, as someone who for

more than twenty-five years had opportunity to study the effects of ultra-violet irradiation, utter a serious warning: anyone who would accept the findings of this report at their face value and would draw the necessary practical conclusion from it (which ought to be tantamount to a negation of any value of the artificial sunlight treatment) would be running a grave risk and may easily cause grievous harm to a national cause of great importance—to the health and well-being of the industrial worker.—I am, etc.,

L. SCHMIDT,

Consulting Physician and Medical Supervisor
to the Rheumatism Clinics of the Butterfly
Collection and Workshops

Oyster Hall, Newark.

* A leading article on Dr. Colebrook's report appears on page 882.—Ed., B.M.J.

Drugs and the National Health Service

SIR.—The high cost of new drugs and apparatus is defended by the manufacturers as a necessary part of research costs. Before the war the Government provided a limited sort of protection to the public against unfair or prohibitive prices for a few very important drugs like insulin; but the early costs of the more effective sulphonamides were only to be met, for working people, through the hospitals, and for several years one of the most effective—sulphadiazine—was sold at a price which made the research which had gone to produce it benefit only the well-to-do. Now folic acid, which, if claims are justified, will replace liver injections in the treatment of pernicious anaemia and sprue, and which will cure certain hitherto refractory anaemias, is to be marketed at 3s. a tablet, the effective daily dose being about four tablets. During the war Fleming's discovery of penicillin as a remedy was exploited exclusively by the Government for the people as a whole and was supplied free—i.e., the whole cost falling on taxation; it is now to be sold at a controlled but not negligible price.

You will agree that the health service must not run the risk of incurring the criticism levelled at panel practice, of limiting the cost of drugs and apparatus prescribed, and surcharging the "extravagant" doctor. But neither must it be possible for fortunes to be made out of drugs at the public expense. I believe there are no advantages accruing to the commercial exploitation of pharmacy and instrument manufacture in the direction of independent research and cheapness of manufacture which are not outweighed by permitting the advertisement of doubtful, inferior, or unproved remedies. The solution of this problem, as has been magnificently demonstrated in the case of penicillin, is the endowment of research laboratories in the universities and in association with a nationalized drug industry, experimental work being encouraged in the health service whenever conditions allow of reliable results. The field of commercial "private enterprise" should be limited to cosmetics and the simpler kinds of home remedies.—I am, etc.,

Inverness

D. G. LEYS.

The Health Service Bill

SIR.—Those of us who believe that the passing of the National Health Service Bill will result in a better medical service for the country must make it our chief concern to ensure that bureaucracy will have no place in it. Mr. Bevan, in the Second Reading of the Bill, described democracy as active participation in administration and policy; this can only be attained by the medical profession and those in the ancillary services by the recognition of staff committees in all spheres of activity and with adequate representation of the professions at all levels of the administration.

The active participation of the consumer—the general public—will take place through the representation of the local authorities, but many feel this is too remote and indirect, especially with the regionalization of the hospitals. Many of the hospitals at the present time have inspired a devoted body of voluntary workers who take a local pride and a personal interest in the hospital situated in their area. I suggest that a voluntary workers committee, drawn from the various organizations in the locality of a hospital or group of hospitals, should be formed with representation on the Hospital Management

Committee. This would stimulate local interest and local feeling of responsibility and provide a direct link between the hospital and the people in the area.—I am, etc.,

Birmingham

M. BARROW.

SIR.—It seems probable that all doctors come up against samples of "the shape of things to come" under a State-directed medical service, and it might be of use to collect such samples and publish them. It should not be less helpful than the publication of a great many letters which contain only generalizations and hypotheses.

This small town, which serves a large rural area, is blessed in the possession of a very well built, well-equipped modern hospital, but the profession in the area has recently been informed that the local education authority will accept financial responsibility only for children who are sent to designated hospitals in Plymouth (25 miles), Exeter (42 miles), and Truro (47 miles). For my own part I am prepared to agree that major surgery should not be conducted in any hospital when no resident is employed, but to find oneself eliminated from all part in the treatment of one's child patients who need hospitalization is more than a little startling.—I am, etc.,

Launceston

DONALD M. O'CONNOR.

Hospital Survey of East Anglia

SIR.—Your brief note on the hospital survey in East Anglia (May 18, p. 771) calls for a little comment, which I venture to make, and I hope you will accept, because the report is not at all fair to Peterborough Memorial Hospital. The visitation to the district took place in October, 1942, and the Ministry of Health survey was based upon that visit. Since 1942 Peterborough Memorial Hospital has made the following advances among others: (1) Installation of the medical superintendent with clearly defined powers and responsibilities. (2) Arrangements for full-time salaried specialists. (3) Enlargements of the theatre, x-ray department, and pathological department, with new building in all three. (4) Foundation of a maternity wing. (5) Establishment of a rehabilitation department. (6) New and enlarged programmes of consultation clinics. (7) A doubling of the general work of the hospital.—I am, etc.,

G. F. WALKER,

Medical Superintendent and Physician.

Peterborough and District Memorial Hospital.

In the Words of Eliza Doolittle

SIR.—Some months ago I formed a "local" Spens Committee under the inexperienced chairmanship of myself. It consisted of a butcher, a baker, a candlestick-maker, a banker, a school teacher, a bricklayer, a bookmaker's "runner." The question put to each of them was this: "What remuneration would you expect if you were offered a job on the following terms? Your hours will be from 9 a.m. till 9 p.m. daily with two half-hours off for meals. Your meals may be undisturbed, but you are quite likely to be interrupted on several occasions just to sign a small piece of paper or to give a word of advice. From 9 p.m. till 9 a.m. you are free, but must be prepared to go to your place of work if called upon. You may be away for only half an hour at a time, and with luck may not be called on at all, but you must be prepared at all times to come if asked. On one half-day a week you will be free about 2 or 3 or 4 p.m. under the same conditions as your 9 p.m. freedom of other days. On Sundays you need not appear at your place of work, but must be ready to come if called upon, probably on at least half a dozen occasions. You can go on a holiday if you like or be ill if you dare, but only if you arrange for a fellow-worker to take your place and be responsible for his wages, board and lodging, and means of transport. On public holidays you are very likely to be required, as all fellow-workers in Government and municipal employment will be on holiday, and even if they have skeleton staffs at work these will not be as available as you. You may be single if you choose, but it is to be hoped that you are married, as your wife or someone must be prepared to answer all calls made at your home, and no single woman outside of Bedlam is likely to be willing to shoulder that responsibility. You are never likely to reach the age of

65, so the question of superannuation on retirement need not arise."

Such were the terms of the offer. The question was put: "Would you consider taking on this job at £1,500 per year?" The committee's reply was the shortest in the history of such commissions. It was unanimous and consisted of three words only—the three words that brought immortality to Eliza Doolittle in Shaw's *Pygmalion*.—I am, etc.,

Glasgow.

ANDREW S. BARR.

The Future of Nursing

SIR,—Dr. C. M. Billington (May 25, p. 814) calls attention to a Gilbertian situation which has a tragic side while all over the country hospital beds are closed for lack of staff. An R.A.M.C. staff sergeant who desires to continue nursing must take a job as a bus conductor because he cannot afford to use his acquired professional skill and thereby deprive his family of 28s. a week. In the *Times* and in medical and nursing journals a well-balanced scheme has been promulgated whereby basic nurse training could be shortened to two years followed by post-certificate qualification in special lines. Perhaps the staff sergeant's case may stimulate thinking in those who seem to prefer to keep beds closed rather than amend the *status quo* as regards the conditions and pay of nurses.—I am, etc.,

Moor Park, Northwood.

ESTHER CARLING.

SIR,—It is important that the R.A.M.C. sergeant about whom Dr. C. M. Billington writes, and all other ex-Service men and women with nursing experience, should have up-to-date information on the facilities now offered them. In particular, it is entirely untrue that no R.A.M.C. experience counts in civil nursing. If this sergeant has had two years' nursing experience in hospital under the supervision of trained nurses he is eligible for a remission of six months in the training course. The question of arranging much shorter courses at special rates for ex-Service men and women who hold Class I Nursing Orderly qualifications is now being considered by the Ministry of Health.

On the question of salaries also there are considerable advances beyond the rates quoted. Once qualified he would command the new staff nurse's rate of £5 a week, rising to £6 a week, then to £7 6s. a week as charge nurse, and ultimately to £420 a year as superintendent nurse. The rates are from 5s. 6d. to 9s. 6d. a week higher than this in the London area.—I am, etc.,

London, W 1

MURIEL M. EDWARDS,
Secretary, Nursing Recruitment Service.

Alien Doctors in Britain

SIR,—In view of the fact that I am finding myself in exactly the same position as described in the *Journal* of May 18 (p. 776) I wonder whether you would kindly publish the following.

I have been recently released from the Forces after four years of service here, West Africa, India, and S.E.A.C. During the years in question I have attended thousands of British and Imperial troops and looked after the welfare of scores of Englishmen. I have worn the same uniform as my British colleagues, and that the same rights went along with the same obligations was never questioned by anyone. As matters stand now I am unable to secure any appointment, either hospital or as an assistant, doctors and the hospital authorities being reluctant to employ a "temporarily registered" doctor. In fact the position is a grim one, as I am slowly but surely drifting into destitution and shall be compelled eventually to take any unskilled occupation that comes in order to earn a living and support my family.

I wish to add that I am of Polish nationality and have recently learned of the complete extermination and destruction of my people and home respectively during the German occupation. In addition my home town is now within the boundaries of another State, and I cannot return to my country. Is there any hope left?—I am, etc.,

London, N.W.11.

ERNEST M. THORN.

Obituary

W. McADAM ECCLES, M.S., F.R.C.S.

The news of the death, on May 30, of Mr. McAdam Eccles, consulting surgeon to St. Bartholomew's Hospital, will be received with sorrow in many circles. Almost to the end he was identified with an extraordinarily large number of interests—medical, sociological, and religious. He dispersed his activities over a wide area, and gave even to quite small matters an enthusiasm and energy which suggested a man in his prime. He was as much at home at a meeting of Presbyterian elders or in a little group of scientific photographers as in larger assemblies which he was able to move by a gift of lucid public speech. A few months ago he declared that he was resolutely severing himself from obligations in London. It meant, he said, cutting himself off from nearly forty organizations in which he held some official position. This was his second retirement, his first having taken place at the age of 60—to him an age absurdly low—when he left the active surgical staff of St. Bartholomew's. He had found rather more to do after that retirement than before it, but this time, he said, he was really giving up active employment and going to live with a sister in rural Kent and devote himself to a garden, though he would retain one link with London, journeying up once a week as medical officer of one of the insurance corporations.



(Photo: Whitehead)

William McAdam Eccles, who was born in 1867, came of a family of doctors. His father was Dr. W. Soltau Eccles of Norwood, and his grandfather was a doctor also; but another line of ancestry of which he was also proud was from John Loudon McAdam, the Scottish inventor who gave his name to the system of road-making known as "macadamizing." He was educated at University College School, went on to University College, and then to his medical training at St. Bartholomew's, the hospital of which he was very proud and with which he was to be identified to the end of his life. He took his London M.B., with honours in forensic medicine and obstetric medicine, in 1890; his B.S., again with honours, in 1891; the F.R.C.S. followed in 1892, and M.S. (gold medal) in 1894. He began steadily to build up a career as a surgeon and teacher of anatomy and surgery. In January, 1903, he was elected assistant surgeon at St. Bartholomew's, with special charge of the orthopaedic department, and full surgeon in 1912. He was lecturer on surgery and on clinical applied anatomy, and there are medical men in all parts of the world who owe much to his clear-cut method of teaching. His many years of work for St. Bartholomew's Hospital and College find occasional illustration in the *Hospital Reports*, of which he was for a long time joint editor. On leaving the active staff of St. Bartholomew's he was made consulting surgeon and a governor of the hospital. He also for many years served the West London Hospital as surgeon and was consulting surgeon to the City of London Truss Society.

His early surgical work, under the influence of John Langton, was on the hernias, and writings by him on this subject will be found in the *West London Medico-Chirurgical Journal* as early as 1898. In 1900 he published a book on *Hernia: its Aetiology, Symptoms, and Treatment*, which reached a third edition in 1908. It was also in 1900 that he gained the Jacksonian prize of the Royal College of Surgeons of England with an essay on the pathology, diagnosis, and treatment of diseases caused by, or connected with, imperfect descent of the testicle, and this appeared in book form three years later. In 1902-3 he was Hunterian professor of the College, and in 1904 an examiner in anatomy for the Fellowship. From 1924

until 1932 he served on the College Council and he was Arris and Gale lecturer at the College in 1930. At various times he examined in surgery for the Universities of Cambridge and of Glasgow and for the Society of Apothecaries. During the war of 1914-18 he was attached to the First London General Hospital and held the brevet rank of lieutenant-colonel, R.A.M.C. (T.F.).

The service which McAdam Eccles rendered to the British Medical Association was long and varied. He was a prominent member of the Warlebone Division and the Metropolitan Counties Branch Council, and he began to come into central affairs about 1913, when he was a representative. He was elected to the Council in 1919, and remained in unbroken membership for nearly a quarter of a century. A formidable amount of committee work began with his membership of the Hospitals Committee of which he was at one time chairman. To this committee he brought not only great experience but a real love of hospitals and a faith in the voluntary system. One put subject of his was provident schemes to ensure the provision of hospital service for middle-class persons. He was also a member of the council and for a time chairman of the United Kingdom Branch of the International Hospitals Association. This flower never bloomed very vigorously, but McAdam Eccles did succeed under its auspices in bringing to B.M.A. House at a meeting during the war the heads of three States—the King of Norway, the President of Czechoslovakia and the Grand Duchess of Luxembourg. From 1932 to 1940 he was a member of the Consultants Board and of the Consultants and Specialists Group Committee, and on two occasions he was vice president of the Section of Surgery.

His hand was felt in other Association activities, such as the admirable report on fractures, the work of a committee in 1933-5, in the special committee on physical education, and in another on workmen's compensation, a subject on which he had had experience in the courts and spoke with authority. He was also interested in the routine work of the Association and served at various times on the Organization, Finance, and Journal Committees. He was an active figure in the fight against the proposal to set up a register of osteopaths and although he did not give evidence, he was very much behind the scenes in the case which the Association presented to the Select Committee of the House of Lords on that subject in 1934-5. Another subject which never failed to interest him was guidance for senior medical students and newly qualified practitioners, and many will recall the crisp advice he gave year by year at the meetings arranged by the Metropolitan Counties Branch for those newly entering practice. For many years he represented the B.M.A. on the Central Council for the Care of Cripples and on other bodies. At the close of his active work for the Association it gave him enormous pleasure to be elected vice-president. He was also a member of the Association of Surgeons of Great Britain and Ireland and of the Anatomical Society, and had filled the chair at different times of the West London Medico-Chirurgical Society, the University of London Medical Graduates Society—of which he was one of the founders—and the Paget Club. He was chairman of the medical committee of the Scientific Film Association.

No obituary tribute would do justice to McAdam Eccles without a reference to his deep religious faith. In middle life he became a prominent layman in the Presbyterian Church of England and often occupied the pulpit, where he was always simple and earnest. He had a great love for foreign missions as those who have attended the medical missionary breakfasts at the Annual Meetings of the B.M.A. will know. He was also in evidence at the temperance breakfast and took every opportunity to put forward his strong convictions on the subject of total abstinence.

The picture that will remain with the present writer is of McAdam Eccles's work during the London "blitz" of 1940-1. He was in charge of the first aid casualty station at the Heart Hospital in Westmoreland Street. He made it a model station insisting on every piece of equipment being in its proper place and the staff of nurses and attendants trained "to the last ounce." During those evenings when the siren would go and the guns in Hyde Park make the whole building throb for hours McAdam Eccles would carry through the drill, see that everything was ready for possible casualties, and then, after a meal and before settling down for the night on some kind of

couch, he would enjoy a game of halma with a fellow-surgeon. He was a man of great serenity and cheerfulness, with a sense of fun, as those who went with the B.M.A. party to Melbourne in 1935 will recall. He could never resist an occasion for making a speech, but it was always concise and to the point.

McAdam Eccles had been a widower for many years. He had three sons, one of whom fell in the war of 1914-18. His son Mr. David McAdam Eccles has been Conservative M.P. for Chippenham since 1943, and married a daughter of the late Viscount Dawson of Penn.

DR WILLIAM GRIFFITH PRITCHARD died at his home at Llandudno on April 30. He was born at Penrth Llandwrog, Caernarvonshire in 1869, and received his early education at Menai Bridge, Anglesey, later going to St. Munco's College, Glasgow, and qualifying L.R.C.P., L.R.C.S.E.d., L.R.F.P.S. Glas. in 1896, winning the gold medal of his year in midwifery. After a brief period as an assistant in South Wales he settled down in practice at Bethesda, Caernarvonshire, for nearly 40 years, retiring in 1937 to reside in Llandudno although during the war years he repeatedly came out of his retirement to help overworked doctors in the area. Dr. Pritchard was a J.P. for the county of Caernarvon, a member of the standing joint police committee, and the chairman of the Conway and Llandudno juvenile court. In 1910 he was elected to the Bethesda urban district council and was its chairman in 1913-14 and 1924-5. He joined the B.M.A. in 1899 and was an active member of the North Caernarvonshire and Anglesey Division, becoming its chairman in 1922-3, and its representative on the North Wales Branch Council until his death. In professional life Dr. Pritchard's thoroughness and devotion to duty, combined with his great sympathy, endeared him to all his patients. He is survived by his wife and only child, a daughter.

The National Baby Welfare Council regrets to announce the death of Miss NORAH MARCH who for a number of years was secretary of the Council. Miss March not only devoted the greater part of her life but also sacrificed her health, to the cause of maternity and child welfare. She was for many years editor of *Mother and Child* and secretary of the Health and Cleanliness Council.

Universities and Colleges

UNIVERSITY OF LEEDS

Dr. Ronald Ernest Tunbridge, O.B.E., F.R.C.P., consulting physician to St. James's Hospital, Leeds, has been appointed to the newly instituted whole time chair of medicine in the University. After distinguished service with the R.A.M.C. in Malta he was appointed consultant physician to the 21st Army Group, B.L.A., with the rank of Brigadier. Prof. Tunbridge, a graduate of Leeds, has been tutor, and afterwards reader in medicine, in the University.

QUEEN'S UNIVERSITY OF BELFAST

The first Frederick W. Price Lecture was delivered by Dr. Gordon M. Holmes, F.R.S., in the Great Hall of the Queen's University of Belfast on Thursday, May 9. The Vice-Chancellor, Dr. Lindsay Keir, LL.D., presided, and there was a large audience of members of the medical profession and senior students. Dr. Keir welcomed Dr. Price and thanked him, on behalf of the University, for his generosity in establishing the lecture which bears his name. Dr. Gordon Holmes in the course of his inaugural address on "The Evolution of Clinical Medicine as Illustrated by the History of Epilepsy" recounted the history of epilepsy from very early times through the ages to the modern investigations by the electroencephalogram paying tribute to the work and observations of Hæthelred, Jælskors-Gövers, and others. Prof. W. W. D. Thom on proposed, and Prof. J. H. Bennett seconded, a vote of thanks to Dr. Holmes. Both speakers referred to the presence and generosity of Dr. Price to which he replied expressing his warm admiration for the University and the people of Ulster.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

DOBT.R.C.O.G.—Notice is given by the College that Regulation 3 relating to practitioners qualified over ten years has been reinstated. Applications may be considered forthwith under that Regulation.

Medical Notes in Parliament

HEALTH SERVICE BILL

On May 28, Mr. Bowles being again in the chair, the Standing Committee resumed consideration of Clause 7 (Endowments of voluntary hospitals). Mr. Bevan being absent through illness Mr. Key was in charge of the Bill. In subsection 2, which provides that endowments of voluntary hospitals designated as teaching hospitals should be held by the Board of Governors on trust for the purposes of the teaching hospital generally, Mr. Key proposed to insert: "Such purposes relating to hospital services or to the functions of the Board under this part of this Act with respect to research as the Board think fit." Mr. Key said this and an amendment which followed were to make clear the purposes to which endowments left to the teaching hospitals could be used. The Ministry felt that the original wording of the Clause might be interpreted as not extending powers to use the endowments for research. The two amendments made clear that a wide interpretation was to be placed upon the powers of the board of governors in using the endowments. The Committee agreed to the amendment and to a consequential one.

NON-TEACHING HOSPITALS' ENDOWMENTS

To secure a general discussion of the Government's policy about the endowments of non-teaching hospitals Sir H. LUCAS-TOOTH moved to leave out subsection 5 of Clause 7, which provides for the making of regulations "for the control and management of the hospital endowments fund." He said until Parliament saw these regulations they could not know what proposal was in the Minister's mind. There should be an express enactment to deal with the fund. Precise proposals for dealing with the endowments should be incorporated in the Bill. The endowments of teaching hospitals appeared to be considered as "pocket money" and the governors of these hospitals could apply the capital and the income of their endowments to purposes over and above what was received from the State for general maintenance. In the case of the non-teaching hospitals this was not clear, and he asked Mr. Key to define the purposes for which capital and income could be put by these hospitals. Mr. H. STRAUSS said there ought to be a provision binding the Minister in regard to the charitable trusts which he took over. Lord WILLOUGHBY DE ERESBY said one of the dangers arising from the centralized control of money was that hospitals were not allowed to make local purchases.

Mr. Key replied that Regional Boards and Management Committees were to submit annual estimates, and within the sums approved they would have great freedom of expenditure. The Ministry would not take away their responsibility for making necessary purchases, but the last thing the Ministry desired was that endowments should be used to buy fruit and food for patients. The general maintenance of hospitals and buildings was not to fall upon the endowments fund, but upon the general exchequer as part of the business of the control boards. With regard to the regulations which would govern the use of endowments, or any alterations in the regulations concerning the future use of endowments, these regulations would be subject to the negative resolution procedure in Parliament. They could not be amended, but they could be thrown out. In apportioning the fund the Minister had to take into account the conditions of the region—the number of existing institutions and beds must be a guide, as also the need for development in the area of hospitals services for which the Ministry would be responsible out of national funds. Liabilities attached to the fund, such as an accumulated building fund, which was to be treated as an endowment, must be retained as a building fund. It was the duty of the Minister and of the Regional Boards to see to the maintenance of the institutions that were required. That charge would not be met out of the endowment fund but out of the general exchequer.

RELIEF FOR THE TREASURY

Mr. LINSTEAD said the complications of the Clause arose from the fact that it was an artificial arrangement. What the Minister was doing was to confiscate all the endowments of the voluntary hospitals and then to dress up the transaction in the form of a hospital endowments fund. In fact these endowments were going in relief of Treasury expenditure. Mr. Linstead asked whether endowments which would be given in future to hospitals would be held directly by the Management Committees or by the Regional Boards for those committees.

Replying to Col. Stoddart-Scott Mr. KEY said that when the local authority hospitals were taken over their liabilities would be met out of national funds and would not be a debt on endowments, nor would they be brought into consideration in the distribution of endowments. Nor in the normal way were the ordinary liabilities for the maintenance of voluntary hospitals to be met out of endowments. As the Bill stood the power of holding endowments lay only with the Regional Board. It was the Minister's intention to extend that power to Management Committees, and before the Report stage the Minister would take the necessary steps to see that this power was vested in the hospital Management Committees.

The proposed amendment was rejected by 28 to 13. The Committee then agreed to an amendment proposed by Mr. Key enabling the Minister to meet out of the endowment fund liabilities which would be transferred to him under a new subsection to be moved later. [That subsection provides that the rights and liabilities in the endowments—such as contracts for repair and maintenance, supply of goods, liabilities from the holding of securities, etc.—shall be transferred in the same way as the endowments.]

Mr. LINSTEAD moved an amendment to place the Regional Boards under an obligation to put back into individual hospitals some of the endowment income they received from those hospitals. Mr. KEY replied that this was the intention of the Government and that an amendment would be put down on the Report stage to secure that this was done. Mr. Linstead withdrew his amendment and the Committee agreed to an amendment proposed by Mr. Key permitting the Minister to make regulations on the functions of the Board under Part II of the Bill with respect to research. He said this was intended to give the Regional Boards the freedom with regard to the use of endowments which had previously been extended to the boards of governors of teaching hospitals.

The Committee here accepted the new subsection, referred to above, on the transfer of liabilities.

POSITION OF COVENANTS

In subsection 8 of Clause 7, defining the expression "endowment" in relation to a voluntary hospital, Mr. KEY moved to substitute a new and longer definition of the property concerned. He said the amendment, as drafted, covered all real property—such as houses, farm lands, furniture, equipment, and other movable property used in connexion with it—securities and other personal property held as investments, cash, bank credits, cheques, and so on, and finally annual payments under covenant for the benefit of the hospital. If on the appointed day the hospital showed a credit balance that balance had to be treated as an endowment and not transferred to the Minister. Debts owing to a hospital would fall to be collected by the boards of governors or by the Regional Boards. The second part of the amendment was designed to extend to local authorities the same sort of provision, because there were trust funds even in connexion with local authority hospitals. Such property should go to the board of governors or to the Regional Boards.

Mr. H. STRAUSS expressed astonishment at the proposal that the Minister should enforce for his own benefit the seven-year covenants into which covenanters entered for the benefit of specific hospitals. In supporting this protest several members disclosed that they had themselves entered into such covenants.

Mr. KEY said the endowments funds with which the Committee were dealing were not for normal maintenance of the hospitals service. They were to be used for charitable purposes by the Regional Boards and the hospital Management Committees. To say that these covenants should pass to the endowment fund was to find for them the nearest possible destination to fulfil the purposes for which they were provided. If other hospitals or other charities were beneficiaries interested in trust property the property would continue to be administered by the trustees. The expression "endowments" in the definition he had just moved covered only property in which a particular hospital was the sole beneficiary.

The words proposed by Mr. Key were added to the Clause by 28 to 14, and Clause 7 as amended was added to the Bill by 27 to 14.

MEDICAL SCHOOLS

On Clause 8 (Exception for medical and dental schools) Mr. KEY moved that in the case of the Welsh National School of Medicine all properties and liability held or incurred for the purpose of the school, not being already vested in bodies specifically mentioned in the Clause, should be transferred to the governing body of that school. Normally a medical school was part of a university and did not of itself own property or incur liabilities, but the Welsh National School was a separate entity. The Committee agreed to the amendment, and to one excepting the University of London and the University of Wales from transfer of schools' property "to the governing

body of the university of which the school is a part." It also accepted a new subsection, proposed by Mr. Key, that if any institute for the postgraduate teaching of medicine or dentistry, being associated with any hospital to which Section 6 of the Act applied, was recognized by the Minister before the appointed day, Clause 8 should apply to it, and all property or liabilities held for the purposes of such an institute should, on the appointed day, vest in the governing body of the institute. Dr. MORGAN said the property of medical schools should be associated if possible with the hospital to which the school was attached, but sometimes vital buildings and equipment belonged to the school that should belong to the hospital. Mr. KEY replied that property partly for school and partly for hospital purposes would be apportioned by regulations under Clause 6.

Clause 8 as amended was ordered to stand part of the Bill and the Committee adjourned.

WAR DAMAGED AND PROPOSED NEW HOSPITALS

When proceedings were resumed on May 29 Mr. Key was again in charge of the Bill. On Clause 9 (Supplementary provisions relating to transfer of hospital property and liabilities) Mr. KEY moved to add four new subsections dealing with premises intended to be used for the purposes of a hospital when adaptation had begun, land on which hospital building or works were to be constructed, and where construction had begun before the appointed day, and also premises used for hospital purposes but destroyed or damaged and not restored before the appointed day. Mr. KEY said the Bill as it stood was really only apt where premises were substantially capable of being used for hospital purposes and were actually in being. The proposed subsections would cover all cases where existing or new buildings were going to be restored or used for hospital purposes. Where, however, a building had been acquired for adaptation, or a site for a new building and no work or adaptation had been begun, then the property would be treated as an endowment and not as hospital premises. His amendment also dealt with local authorities' premises temporarily in use for hospital purposes but not intended to be used permanently for such purposes; these premises would be made hospital premises for the purpose of transfer. Under the War Damage Act, 1943, the rights of war damage payment for hospital buildings would vest in the governing bodies and the local authorities which were their previous owners. One new subsection transferred the rights to boards of governors of teaching hospitals, and to the Minister in all other cases. Where, however, damaged property was an endowment property a proviso to the subsection made the right to a value payment into an endowment under the Bill.

Mr. SOMERVILLE HASTINGS moved an amendment which provided that where the local authority before the appointed day incurred expenditure in making war damage good, it should be reimbursed that amount out of the payment to the Ministry for war damage. Mr. KEY agreed in principle with the intention but said the amendment was not satisfactory as drafted, he undertook to prepare an amendment before the Report stage which would satisfy the principle. Mr. Hastings withdrew his amendment, and the subsections proposed by Mr. KEY were then added to Clause 9.

Col. GAGE moved an amendment to ensure that regulations made by the Minister under this Clause were such as would logically follow on the provisions of the Bill. He suggested that the empowering words in the Bill were too wide and would, for example, allow the Minister to make regulations taking over and running for profit the shops which had been mentioned as being architecturally a part of St. Mary's Hospital. Mr. KEY said there was no such sinister intention, but provision had to be made to meet circumstances not now predictable. If unreasonable and improper regulations were made the remedy lay with Parliament. The amendment was defeated by 24 to 13.

Mr. MESSER moved to leave out a provision that the Minister may make regulations for amendment of documents relating to any transfer of property or liabilities. Mr. KEY said this power was needed and had always been given when property was transferred by statute. It had been given in the Ministry of Health Act, 1919. Mr. Messer withdrew his amendment.

On Clause 10 (Power to acquire hospital equipment) Mr. LINSTAD moved to add a proviso that if the Minister compulsorily acquired part of the equipment, furniture, or other movable property of any hospital, the owner thereof could require him to take over the whole or any part of the remainder. Mr. Linstead said that what were called "tenants' fixtures" were to be at the disposal of the Minister for acquisition under this Clause; he might take the cream off the milk and leave the tenants with valueless material once it was removed from the premises. Mr. KEY said he could not accept the amendment, which would compel the Minister to take over

things he did not want. Sir H. MORRIS-JONES thought this was one of the most reasonable amendments put before the Committee. Mr. KEY said the suggestion was that the Ministry should spend public money in acquiring something of no value. That was not the standard of public administration which it wished to see in operation in this country. Mr. SOMERVILLE HASTINGS said that when in 1930 the L.C.C. took over a number of hospitals from the Boards of Guardians there was little equipment worth having, and for 10 years the L.C.C. had difficulty in getting rid of obsolete material. Dr. MORGAN said some private mental institutions had not changed equipment, etc., for 40 years; it was extraordinary to suggest that the Minister should have no regard to the modernity of the equipment. In one private mental hospital he knew plans were being made to fill the place with old furniture so that the Minister might take it over.

The proposed amendment was rejected by 24 to 15 and Clause 10 was ordered to stand part of the Bill.

AREAS OF REGIONAL BOARDS

On Clause 11 (Regional Hospital Boards, Hospital Management Committees, and boards of governors of teaching hospitals) Mr. WILLINK moved that orders made by the Minister constituting such authorities should be made "after consultation with the Central Council." He said the opening words of Clause 11 were obscure. There was reference to determination by the Minister and to orders by the Minister, who was to constitute Boards for such areas as he might determine. He (Mr. Willink) was not sure whether the determination was going to be in the order. His proposal was that the Minister's order could be made only after consultation with the Central Council. The vital question was the character and size of the regions. In the Bill those counties which cut across part of the catchment areas of the hospitals were themselves set up as clinic authorities, and those clinics must be run in the closest co-ordination with the hospital services. The Central Council ought to advise and be consulted on the constitution and determination of a region. Mr. BEVAN might decide that there were to be 16 or 20 regions as indicated in the White Paper, 10 or 11 as indicated by those whom Mr. Willink called "the pundits," or 25 to 35 which he, in common with many others, had aimed at a year ago. As the Bill stood the number was entirely uncontrolled. The Committee did not know whether the Minister was going to treat the problem of the London region as a matter for his personal decision without consulting the Central Council. Mr. BEVAN should undertake an obligation in the Bill so that Parliament could discuss the orders setting up the Regional Boards and to ensure that he could consult the Central Council on this vital matter.

Mr. KEY replied that orders setting up the Regional Boards would have to specify the areas for which they were being constituted. That was necessary because the regions would have to be subject to alteration by amending orders in the light of experience. In setting up Regional Boards one aspect of the problem would be delimitation of the areas for a specific Regional Board. There was also the question of the constitution of the particular board, and, thirdly, the selection of individuals to be appointed. These last two subjects were not matters for consultation between the Minister and his Central Council. Mr. KEY believed, however, that in delimiting the areas of the regions the Minister would have to consult the Central Council and take advice. He thought that would be the intention of the Minister, but it would be dangerous to insert in the Bill the words proposed by Mr. Willink. Mr. Willink's amendment was negative.

Mr. RICHARD LAW moved to substitute "regulation" for "order" in the provision authorizing the Minister to constitute Regional Hospital Boards; the amendment would mean that the Minister's scheme setting up the Regional Boards and defining the regional areas would have to be submitted to Parliament. Mr. KEY said he was advised that the appropriate instrument for constituting such bodies was an order. After discussion the amendment was withdrawn.

Mr. MESSER moved to insert the words "by order" in the reference to the determination of areas by the Minister. He said there was no provision in the Bill for consultation with the local authorities, who were much concerned in these decisions. If a region was so determined that it cut through more than one local health authority that local health authority had to consult more than one region and that region more than one local authority. There was need, as the Bill did not provide for any consultation, that Parliament should have the opportunity of reviewing the order. Mr. KEY said that Mr. BEVAN regarded this as an administrative function to be decided by him administratively, and he must have the necessary power to settle these areas and to modify them. Mr. BEVAN had said earlier in the Committee that he would do this only after

consultation with local authorities, medical practitioners, and hospital authorities, but the determination must lie with the Minister. Mr. Key was ready to agree that the Ministry could modify the working of the Clause to ensure that the areas would be specified in the order constituting the original Board.

Mr. Messer's amendment was defeated by 20 to 17 and the Committee adjourned.

DAY-TO-DAY ADMINISTRATION

The ninth day's proceedings began with a motion by Mr. Lipson to omit in subsection 1 of Clause 11 the word "administration" and to substitute "planning, co-ordination, and general supervision." The term "administration" was far too indefinite. The Regional Boards would not manage the hospitals; it would be their function to see that the provision of the services for implementing the proposals for a National Health Service were satisfactory. Sir H. WEBB said the amendment removed from the Regional Boards responsibility for administration of the hospitals. Subject to anything that might be provided later in the Bill it would throw back administration to those authorities who now exercised it. In the case of local authority hospitals that would be a fundamental improvement and would remove the greatest objection to the scheme. If the Bill went forward as it stood administration would be taken from the health authorities who now exercised it, and handed over to a new body, with the result that the position would be worse than before 1930, when local authorities were concerned solely with the preventive medicine side of public health. An area embracing London and the Home Counties was too big as an administrative unit though possible as a planning unit. If the Regional Boards were to administer, London would be faced with the sector administration adopted during the war. That would not work. Half a dozen hospital areas might meet in London, and the L.C.C., as the one health authority responsible for all the domiciliary health services, would work upwards to a number of hospital authorities. Teaching hospitals were not evenly spaced through London. Unless these regions were drawn with boundaries which would make a Chinese puzzle, some of them would each have one teaching hospital at their disposal while others would have an embarrassment of choice. Most of the mental hospitals which served the Greater London authority were in the triangle bounded by Epsom, Redhill, and Croydon. In other stretches of the periphery there were no mental hospitals. Therefore anything in the nature of regions radiating from the centre would produce an impossible position. All these difficulties would disappear if the Minister accepted the point that while the planning and co-ordination of services was a function of the Regional Board, administration of the hospitals remained a function of the local authorities. It was clever of the Minister to use the well-known reluctance of the medical profession to have anything to do with the local authorities; that was why the Committee must be prepared to leave the administration of voluntary hospitals to be dealt with differently. He could see no reason why there should not be a planned scheme of hospital service, planned by the region under the Minister's supervision and administered by existing authorities—by, if the Committee agreed, the present governors of the voluntary hospitals.

Mr. KEY said the amendment would break up the whole administrative side of the Bill. What the Committee was doing was to bring about the organization not of a local hospital service but of a national hospital service. It was undertaking the responsibility of seeing that everybody, no matter in what area he lived, had an efficient service. Responsibility for that service was placed upon the Minister, and the Bill proposed that he should work through Regional Boards, which in turn would work through hospital Management Committees. The efficiency of that administrative scheme would be vitiated if the Regional Boards were mere planning and supervising authorities. The threat of withholding money was not an efficient instrument for getting proper administration. Hospital Management Committees would not be responsible for a local authority area; they would manage an institution or a group of institutions related functionally and not merely geographically. Therefore local autonomy was not the conception of this scheme.

MINISTER'S CHANGE OF MIND?

Mr. WILLINK said Conservatives would vote in favour of the amendment though not committing themselves to its terms, which were too vague. The reply they had just heard from Mr. Key showed that when the decision to nationalize was taken the Minister did not know what he was doing, and that he was still changing his mind as to how he was to perform his functions. The Opposition did not believe that Regional Boards ought to be administrative bodies. These Boards could not administer a hospital unless they administered it from day to day. Hospital Management Committees would be devised

as purely functionary units. He thought that disastrous. He asked why the Minister sought to retain the original language of the Bill when his conception of the Regional Board had changed, and he was increasing the functions of the hospital Management Committees. Mr. Willink thought the Minister meant that the Regional Boards were compulsorily to delegate administrative responsibility and to retain supervision. He would be satisfied if the Minister would change Clause 11 to bring the conception of administration into the work of the hospital Management Committees.

Mr. HOPKIN MORRIS said the Regional Boards should be given powers of planning and co-ordination but not day-to-day administration, because that would result in a Regional Board for the whole of Wales interfering with the day-to-day management of the medical school at Cardiff. Mr. LINSTED asked the Committee to look at the question from the point of view of hospital staffs. Nursing staffs were jealous that they were members of the staff of a particular hospital and were now apprehensive that they were to become members of the staff of a region. Mr. LIPSON asked whether Mr. Key could reconsider the matter before the Report stage to prevent the Regional Board being cluttered up with details of day-to-day administration.

Mr. KEY said "administration" in this context referred to the general administration of the service. The function of the hospital Management Committee was to administer the detailed day-to-day business of a hospital or group of hospitals. There had been no changes in the conception of this scheme of administration. The possible exception was the Minister's decision to see that hospital Management Committees received powers to hold trusts and accept gifts. The Government's conception was that the hospital Management Committee would choose and appoint the ordinary staff of the hospital group. Responsibility for payment would rest with the Regional Board. Appointment, selection, and dismissal of ordinary staff would remain with the Management Committee, whose business it would be to maintain and supply their hospitals. Any major alteration to a hospital would rest with the Regional Board, but the day-to-day maintenance would be conducted by the Management Committee. Patients and other local people would be in contact with the Management Committee. Mr. Bevan held firmly that for efficient planning, supervision, and control there must be this chain of responsibility from him through the Regional Board to the hospital Management Committee. So far as possible detailed responsibilities would be passed on to the lower bodies.

The amendment proposed by Mr. Lipson was rejected by 25 to 16.

Mr. MESSER, on the same subsection, moved that the Minister before making any order determining an area should consult the local authorities providing health services or such other organizations as appeared to him to be concerned. He wanted to prevent confusion resulting from a regional boundary line cutting across the boundaries of local authorities. Mr. KEY said the Ministry agreed that there should be these consultations, but he could not accept the amendment because words prescribing consultations with one interest would exclude people whom it might be necessary to consult. Mr. Messer withdrew his amendment.

HOSPITAL VERSUS GEOGRAPHICAL UNIT

Cmdr. MAITLAND moved to insert a provision in subsection 3 of Clause 11. This subsection authorizes the Minister to approve, with or without modifications, additions, or exceptions, any scheme submitted by a Regional Board, and imposes on the Board the duty of giving effect to the scheme as approved. Cmdr. Maitland's amendment proposed that before approving such a scheme the Minister should be satisfied that a hospital Management Committee did not exercise functions unless the hospitals forming its group were within the same locality and were in any event within the area of the same local health authority. The purpose of the amendment (which mainly concerned rural areas) was to relate the number of beds in the area controlled by the Management Committee to the size of the area and the geography of the district.

Dr. STEPHEN TAYLOR said Cmdr. Maitland was making a case for the grouping together of a few small cottage hospitals because they might be geographically or socially linked. It was essential for an efficient hospital service that the number of cases of a particular kind in an area should be adequate to maintain specialists. The danger of having small units of hospital administration was that the nation got small hospitals where the general practitioner performed specialists' work. An abuse described as bogus lists of consultants had grown up in cottage hospitals. These consultants did not attend. Mr. WILLINK pointed out that specialists were not employed by the Management Committee. The specialist of a region

could be attached to three, four, or five hospital Management Committees. The scheme fastened upon the country a system whereby no hospital Management Committee could have fewer than 1,000 beds or thereabouts. He thought Mr. Bevan, during the few months he had been at the Ministry, had encountered an idea that gynaecologists and obstetricians did not get enough important cases unless there were maternity units of at least 100 beds. To get that result a hospital had to draw from an enormous area.

Dr. TAYLOR said that when Mr. Willink was Minister of Health he, Dr. Taylor, had consultations with the Ministry on the proper proportion of hospital beds to population. The figures arrived at was between 8 and 10 per 1,000. These need not be in one place, but they would be put under one Management Committee. Mr. WILLINK said that was not the ratio this country would have for many years to come. If this Bill was to be safeguarded from one of its greatest dangers—the absence of tie-up between clinic service and hospital service—the Minister should favour a geographical county as the appropriate area for a Management Committee.

Mr. KEY said there was no intention that the Minister should be hidebound by any idea of 800, 1,000, or 1,200 beds. He could not agree that the area must in any event be within the area of the same local health authority. Nor could he agree that the Ministry must not include a hospital establishment that was just outside the bounds of an ordinary county borough. Cmdr. Maitland withdrew his amendment.

On the motion that the Clause stand part of the Bill, Mr. LAW drew attention to subsection 7 of Clause 11 empowering the Minister to designate as a teaching hospital other hospitals than the existing teaching hospitals. He asked whether the Minister intended to consult not only the university concerned but also the Central Council. Sir H. LUCAS-TOOTH asked whether the Minister had considered sufficiently the transition from the old to the new organization. In Middlesex the numbers engaged in lay administration—including engineers, architects, legal experts—ran into hundreds. Most of these were employed by the county council for general purposes and did their work in connexion with hospitals among their other work. To use the existing organization in taking over would be possible only if the new regional area coincided with the county council area. Mr. KEY said the Ministry would consult with local authorities and others about the problems of transition. The designation of additional teaching hospitals was a matter for the universities and not for the Central Council. If it was felt in consultation with the universities that the advice of the Central Council would be helpful the Minister would take the necessary steps.

Consultants' Terms of Service

On May 23 Mr. BESWICK asked when the Minister of Health intended to make a statement as to the financial terms to be offered consultants under the proposed new National Health Service. Mr. BEVAN replied that this would be a matter for discussion with the profession when Parliament had settled the general structure of the new service.

Health Service Films?

Mr. SOMERVILLE HASTINGS asked Mr. Bevan on May 23 to arrange for the preparation of films to explain to the public the health service that would be developed under the Bill now before Parliament. Mr. BEVAN said he would certainly consider this as soon as Parliament decided upon the shape of the new service.

E.M.S. Hospitals

Dr. SEGAL on May 23 asked whether Mr. BEVAN would give an assurance to existing E.M.S. hospitals that they would continue to be retained until such time as a co-ordinated hospital policy could be carried out. Mr. BEVAN answered that as the commitments of the Emergency Hospital Scheme contracted, the scheme itself must contract; he could not, therefore, give this assurance. No emergency hospitals were given up without first considering the probable future needs of the hospitals services. He had no Parliamentary authority to provide hospitals, except for patients intended to be treated by the Emergency Hospital Service. Until it received new powers the Ministry of Health could not own hospitals and could not make available to people hospital facilities which Parliament had not provided.

N.H.I. Assets

Mr. James Griffiths was asked by Sir E. GRAHAM-LITTLE on May 17 to give the present disposition of the assets of the Health Insurance system, which at the end of 1944 amounted to £250,000,000. Mr. GRIFFITHS replied that about £60,000,000 of these assets was held by approved societies and the balance

by the National Debt Commissioners. He said that in the main these assets were not a surplus. They represented the actuarial reserves in respect of existing insured persons.

Gastro-enteritis in Leeds School-children

Mr. STAMFORD on May 23 asked Miss Ellen Wilkinson whether the investigations of the schools medical section of her department into the recent outbreak of gastro-enteritis among a large number of children attending schools in West Leeds had been completed. Miss WILKINSON said she had received an interim report from one of her medical officers which showed that the outbreak affected some 260 children from 14 schools in Leeds served by one central kitchen. The investigation, which was being conducted by the local authority, was not completed and the cause of the outbreak, which, though widespread, did not appear to have been serious, had not been determined.

X-ray Examination of Ire Ore Miners.—Mr. Shinwell is informed that iron ore miners seeking employment at coal mines in Cumberland may, in future, be required to undergo an x-ray examination under arrangements made privately by the owners. The cost of the examination will be borne by the owners and not by the men themselves.

Asitley Ainsley Hospital.—The Asitley Ainsley Hospital Order Confirmation Bill was introduced in the House of Commons on May 21 and was read a third time on May 23. The Bill proposes to allow the Governors to develop the occupational therapy department of the hospital and associated institution for treatment of patients of or from the Royal Infirmary of Edinburgh; also to admit students to the training centre at the institution, provide teaching staff, and issue diplomas.

Notes in Brief

In 1945 78 inmates of H.M. prisons were certified insane, compared with 65 in 1944 and 69 in 1943. In most prisons there is only one medical officer, and the certificate is ordinarily signed by him and by a doctor called in from outside the prison.

Mr. Wilmot has arranged for increased supplies of hypodermic syringes to be made available. Production has been stepped up and the position should improve rapidly.

Manufacture and distribution of vaccine lymph will in future be undertaken on behalf of the Ministry of Health by the Lister Institute of Preventive Medicine.

Local authorities are being advised in laying out their housing estates to leave space for houses each large enough to be used as a doctor's house and surgery. Mr. Bevan says these can be built when materials and labour are more plentiful.

Mr. Bevan has under consideration the question of making Regulations requiring the heat-treatment of ice-cream mixes before they are frozen.

Medical News

The Cavendish Lecture will be delivered before the West London Medico-Chirurgical Society by Sir Lionel Whitchy at Kensington Town Hall on Tuesday, June 18, at 8.30 p.m. His subject is "The Magic Bullet and After." Reception (morning dress) from 8 p.m. The annual conversation and medical and surgical exhibition will not be held this year. Invitation cards for members and their friends are being distributed. Any member who has not received a card should apply immediately to the secretary of the society.

The British Psycho-Analytical Society invites all members of the medical profession to attend the first of a series of annual "Ernest Jones" lectures entitled "The Physical and Mental Sources of Behaviour," which will be given by permission of the Royal Society of Medicine in the Barnes Hall at 1, Wimpole Street, W., on Wednesday, June 19, at 8.0 p.m., by Prof. E. D. Adrian.

An exhibition arranged by the London Council of Social Service to show how community centres may be planned, established, managed, and financed is now on view in Room 129 of County Hall (entrance in York Road, S.E.). It was opened by the Minister of Town and Country Planning on June 4 and will remain open till June 15, from 10 a.m. to 5 p.m., Thursday 10 to 4. It will be closed on Whit-Saturday, Sunday, and Monday. Admission is free.

The Scottish Council for Health Education is arranging three residential summer schools at St. Andrews University from June 29 to July 12 and August 3 to 17, and at Edinburgh from July 13 to 27. The courses will cover physiology, psychology, and social medicine, and speakers will include Col. Walter Elliot, Prof. F. A. E. Crew, Prof. Noah Morris, and Dr. Innes Pearce. The Avenue school at St. Andrews is fully booked, but there are still a few vacancies for the one from June 29 to July 12, and also for that at Edinburgh. Applications for enrolment should be addressed to the secretary, 3, Castle Street, Edinburgh 2.

The Maudsley Hospital Medical School is now holding Part I of its thirtieth course of instruction for a Diploma in Psychological Medicine; it began on June 3. Part II will be held from September to November. Information about the course may be had from Dr. W. W. Kay, acting hon. director, Maudsley Hospital Medical School, Denmark Hill, London, S.E.5. (Tel.: Rodney 2634-7.)

Sir Howard Florey, F.R.S., professor of pathology at Oxford, is leaving for South America on June 18 to lecture for the British Council to both lay and medical audiences on penicillin, and to doctors only on the uses of micro-organisms for therapeutic purposes. The lectures will be given in Spanish, except in Brazil, and will be illustrated by films and slides. Sir Howard will visit Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Uruguay, spending about a week in each country. He will travel home via the United States and Canada.

Dr. William H. Feldman, of the Mayo Foundation University of Minnesota, Rochester, U.S.A., has accepted the invitation of the Council of the Royal Institute of Public Health and Hygiene to be appointed Harben Lecturer for 1946. The subject is the chemotherapy of tuberculosis—including the use of streptomycin. The lectures will be delivered at the Institute, 28, Portland Place, London, W.1, at 3 p.m., on Monday, Tuesday, and Wednesday, July 15, 16, and 17. Admission is free, without ticket; seats may be reserved on application to the secretary.

At a general meeting of the Society of Medical Officers of Health Sir Allen Daley, M.D., F.R.C.P., Medical Officer of Health and School Medical Officer, London County Council, was unanimously elected to be President for the session 1946-7, beginning on Oct. 1. At the same meeting the Honorary Fellowship of the Society for persons "eminently distinguished in the advancement of public health" was conferred upon Sir George Elliston, M.C., M.A., founder and editor of the *Medical Officer* since 1908—one-time executive Secretary of the Society; M.P. for Blackburn 1931-45, and now chairman of the Public Health Committee of the City of London, and of the Board of Management of the London School of Hygiene and Tropical Medicine.

Prof. Charlotte Ruys, a bacteriologist on the staff of the Netherlands Tropical Institute, made a short visit to this country during the early part of May under the auspices of the British Council to renew professional contacts. She visited the Central Public Health Laboratory, the London Hospital, the School of Hygiene, and the Wellcome Research Institution.

The order of the White Lion of Czechoslovakia has been conferred upon Mr. Geoffrey Knight by President Benes in recognition of his services as neurological surgeon to the Forces of the Republic.

Dr. H. E. Martin, honorary secretary of the Blackpool Medical and Panel Committee, and a temporary principal medical officer of the Ministry of Pensions, has been awarded the Haldane Prize of the Institute of Public Administration for an essay on "The Transition to a State Medical Service."

The freedom of South Queensferry has been conferred on Dr. G. A. Dickson in recognition of his faithful services to the community for nearly 50 years. Dr. Dickson was chairman of the Lothian Division of the British Medical Association in 1923-5.

EPIDEMIOLOGICAL NOTES

Discussion of Table

England and Wales recorded increases in whooping-cough 126, scarlet fever 90, and measles 88.

The increase in whooping-cough was due to a few areas: Yorkshire North Riding 37, London 28, Yorkshire West Riding 23. The only variation of any size in the trends of scarlet fever was an increase of 20 in Lancashire. Cases of measles increased in Essex 50, Durham 46, and Lancashire 44; a large fall was recorded in London 92.

Notifications of dysentery were 17 fewer than in the preceding week, and the total was the smallest for 24 years. The only large returns for dysentery were Lancashire 21, London 19, Middlesex 10.

Scotland reported a further decrease in the incidence of measles 184. Scarlet fever increased by 27 and diphtheria by 23. Rises in the incidence of dysentery were recorded in Glasgow from 15 to 28 and in Edinburgh from 6 to 13. The increase in diphtheria was mainly contributed by Glasgow, where the notifications rose from 31 to 47.

Eire had only one change of any size in the returns of infectious diseases—an increase of 20 in diphtheria. This was due to the experience of Dublin C.B., where the cases rose from 8 to 23.

Week Ending May 25

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,089, whooping-cough 2,075, diphtheria 371, measles 3,287, acute pneumonia 557, cerebrospinal fever 67, acute poliomyelitis 9, dysentery 200, smallpox 8, typhoid 8.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 18.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each Infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	49	6	25	2	—	64	2	24	3	—
Deaths	—	2	3	—	—	—	—	1	—	—
Diphtheria	369	35	105	53	16	498	27	127	59	14
Deaths	5	2	1	1	—	4	—	1	1	1
Dysentery	120	19	59	—	—	434	31	106	12	—
Deaths	—	—	—	—	—	—	—	—	1	—
Encephalitis lethargica, acute	1	—	—	—	—	1	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	44	4	1	—	—	40	13	1
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	—	—	—	32	—	—	—	—	36	—
Deaths	52	5	13	14	4	51	9	8	9	3
Measles*	2,658	836	625	64	3	14,126	819	451	63	12
Deaths	1	—	1	1	—	3	—	—	—	1
Ophthalmia neonatorum	68	6	12	—	—	78	4	11	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever ..	2	—	1(A)	—	1(B)	2	—	1(B)	—	1(B)
Deaths	—	—	1(B)	—	—	—	—	—	—	—
Pneumonia, influenzal ..	461	22	9	3	4	612	23	7	12	4
Deaths (from influenza)† ..	6	1	—	—	1	13	—	2	—	—
Pneumonia, primary ..	—	20	197	24	5	—	19	202	44	9
Deaths	—	—	—	—	—	—	—	—	11	—
Polio-encephalitis, acute	—	—	—	—	—	1	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute	8	—	—	2	—	3	—	1	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	3	21	—	—	—	6	7	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡ ..	124	13	27	2	1	132	11	11	1	—
Deaths	—	2	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	1,112	74	154	12	24	1,340	62	230	12	34
Deaths	1	1	1	—	—	—	—	—	—	—
Smallpox	5	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	5	2	—	4	1	2	—	—	4	2
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	7	—	1	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* ..	2,306	188	112	39	29	1,068	60	131	77	29
Deaths	10	1	—	—	2	7	1	3	—	—
Deaths (0-1 year) ..	338	53	59	37	10	327	42	63	37	25
Infant mortality rate (per 1,000 live births) ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	4,494	662	666	213	132	4,314	589	634	231	142
Annual death rate (per 1,000 persons living) ..	—	—	14.7	13.6	—	—	—	14.4	14.9	—
Live births	8,570	1295	1005	526	263	7,729	816	965	394	280
Annual rate per 1,000 persons living ..	—	—	20.2	33.7	—	—	—	19.3	25.4	—
Stillbirths	263	28	31	—	—	203	21	38	—	—
Rate per 1,000 total births (including stillborn) ..	—	—	30	—	—	—	—	38	—	—

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

Letters, Notes, and Answers

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ANY QUESTIONS?

Examination of a Virgin

Q.—Should vaginal examination of a virgin always be carried out under general anaesthesia? What would the legal position be if a female patient were examined *per vaginam* without being told of the examiner's intentions?

A.—Vaginal examination of a virgin should be avoided if possible; the information sought can usually be obtained almost, if not quite, as well by rectal examination. If, preferably after consultation, it is considered essential to make an examination *per vaginam*, the necessity for a general anaesthetic must be decided by the likelihood of the patient's reacting, mentally or physically, in a manner which would be unsatisfactory from the point of view either of the patient herself or of the examiner. While this is a matter to be assessed with reference to each particular case, the likelihood is sufficiently great to warrant a general opinion that vaginal examination of a virgin should be carried out under general anaesthesia.

The patient should be informed of the examiner's intentions, and in the case of girls and young women the mother or guardian should be similarly informed. In the case of Service patients the girl's senior officer should be regarded as being *in loco parentis*. If the patient were not informed of the examiner's intentions an action for assault might be raised. Though such an action could have little chance of success if the examination were shown to be medically justifiable, it is an eventuality which should not be risked.

Demonstrating *Treponema balanitis*

Q.—How is *Treponema balanitis* demonstrated? It is not mentioned in the new edition of two standard books on bacteriology.

A.—*Treponema* (or *Spirochaeta*) *balanitis* is best demonstrated by dark-ground microscopy; staining is unsatisfactory, since fixation of the organism does away with its two most characteristic features—shape and movements. A short description of the organism and the clinical condition to which it gives rise may be found in several textbooks on venereal diseases, including those by Harrison, Lees, Burke, and McLachlan.

Breathing Exercises for Emphysema

Q.—Are breathing exercises of any use in emphysema? If so, what kind of exercises should be advised?

A.—Breathing exercises may be prescribed with two different objects in view. Exercises of the inspiratory type are used in emphysema to encourage re-expansion of the lung and to limit contraction of the chest wall. Exercises designed to increase expiratory power, and especially the movement of the diaphragm, are employed in the treatment of asthma and emphysema. The benefit to be derived from breathing exercises in emphysema depends upon an increase in the patient's ability to overcome the tendency to fixation of the chest wall in the inspiratory position, and in the freedom of movement of the diaphragm, which also tends to be held fixed in the inspiratory position. The breathing exercises described in *Physical Exercises for Asthma*, published by the Asthma Research Council, are suitable for emphysematous patients.

Occult Blood

Q.—Should the patient be on a meat-free diet for three days before testing faeces for occult blood? Most specimens of faeces from patients on a meat diet give a negative test.

A.—The statement in this question is true only if a comparatively insensitive test for occult blood is used. Even the benzidine test may be reduced in sensitiveness by technical variations or errors, such as failure to prepare a fully saturated solution of benzidine in acetic acid. In order to ensure the detection of minor degrees of haemorrhage it is desirable that the test should be a sensitive one; it is then essential, if false positives are to be avoided, that the patient should have a meat-free diet beforehand.

Nystagmus in an Infant

Q.—A 2-months-old child had a concomitant squint, which had been present at, or shortly after, birth. There was also a very fine, rapid, incessant rhythmic oscillation of both eyes, rather like the motion of the balance wheel of a watch. Now, at the age of 16 months, the squint has slightly improved and the oscillations have almost gone. The child is normal in every other respect. (a) What is likely to have been the cause of the oscillation? (b) As the mother would prefer the child not to wear glasses, is any other treatment suitable? (c) If operation is necessary, at what age is it best performed?

A.—(a) The nystagmus may be amblyopic, hereditary, or idiopathic. The causes of an ablyopic nystagmus are: opacities of the cornea—especially in ophthalmia neonatorum—congenital cataract, haemorrhage, disease or abnormalities of the retina and choroid, total colour blindness, and albinism. (b) It is hardly practicable for a child of under 2 years to wear glasses. Later, if there is a refractive error necessitating correction, glasses should be insisted on—there is no adequate substitute. (c) Supposing the eye is healthy, unless the squint is very marked operation should be delayed until the child has had orthoptic exercises. These can usually be started at the age of 4 years. In the meantime the fixing eye should be atropinized with 1% ointment once a day to prevent the non-fixing eye from becoming amblyopic.

S for Sugar

Q.—What do the letters W at 1000, H at 1016, and S at 1026 stand for on the urinometer?

A.—W stands for water. H stands for healthy, 1016 being the approximately normal specific gravity of urine in a healthy individual. S stands for sugar, as it is above the specific gravity of 1026 that one would expect to find sugar in the urine.

Athlete's Foot

Q.—Is iodized phenol used in the treatment of athlete's foot?

A.—Iodized phenol can be used for athlete's foot, but it is not recommended as it may cause irritation. In spite of the many new forms of treatment introduced from time to time, Whitfield's ointment and Castellani's fuchsin paint still maintain their reputation.

Recurrent Vulval Herpes

Q.—A lady aged 71 has had recurrent attacks of herpes on the vulva and buttocks since the age of 46. She had twenty or twenty-five attacks a year until she had sprue two years ago. She now has thirty to forty attacks. Oestrogens, injection of calf lymph, x rays, and autohaemotherapy have been tried. Is there any other treatment?

A.—Recurrent herpes is almost certainly due to the activation of latent herpes in a carrier. When the eruption is localized to a fixed site recurrence may be due to some focus of infection or irritation within the nerve area of the affected part. Such a focus should be looked for and eradicated if possible. In the case under discussion it might be an anal fissure or a cervical erosion, or it may be due to the irritation of a ring pessary. There is some evidence that full doses of nicotinic acid (50 mg. t.i.d. until facial flushing occurs, and then diminish the dose until symptoms of intolerance disappear) prevent the recurrence of herpes febrilis. With regard to her attack of sprue, it may be significant that this vitamin is essential for

the healthy functioning of the intestinal tract. It would probably be helpful also to prescribe a small dose of some sedative, because nervous factors are also predisposing to recurrent herpes.

Erythromelalgia

Q.—Please describe the signs, symptoms, pathology, and treatment of erythromelalgia.

A.—The modern conception of "erythromelalgia" is of a symptom-complex which may be due to a variety of different causes. The clinical characteristics are redness of the extremities (usually the legs), together with burning pain when the limbs are dependent. The article upon the subject written by Pickering in the *British Encyclopaedia of Medical Practice* (5, 188) may be consulted with profit. Sir Thomas Lewis's writings in *Clinical Science* (London, Shaw and Sons, 1934, ch. 18) and in *Vascular Disorders of the Limbs* (London, H. K. Lewis and Co., 1936) should be studied.

Angina Pectoris and Coronary Thrombosis

Q.—What is the pathological condition in angina pectoris? What is the clinical distinction between angina pectoris and coronary thrombosis? I was taught that Dr. Arnold of Rugby died of angina pectoris. Is it not possible that this attack, which came on when he was in bed, was coronary thrombosis?

A.—Atheroma or arteriosclerosis of the coronary arteries exists in the great majority of patients who have angina pectoris. The blood supply to the myocardium thus becomes restricted. In exercise more work is required of the heart muscle and therefore an augmented blood supply is necessary. Anginal pain develops whenever the available blood supply is insufficient for the needs of the heart muscle. Angina of effort is therefore closely related to exercise, usually walking, and it abates when the exercise ceases.

When thrombosis occurs in a coronary artery there is permanent occlusion of the channel and a prolonged bout of pain occurs, irrespective of the state of rest or exercise. Moreover, since conditions of low blood pressure and slow blood flow conduce to thrombosis, this event is likely to take place in the night or when the patient is at rest in the daytime. Other frequent special features of coronary thrombosis that are not seen in angina of effort or spasmodic angina are: (i) severe shock with lowering of blood pressure for some weeks; (ii) evidences of inflammatory reaction after the attack of pain—e.g., fever and leucocytosis; (iii) local pericarditis due to extension of the cardiac infarct to the surface; and (iv) persisting electrocardiographic abnormalities of special kinds which evolve in certain ways for weeks and months after the attack.

The answer to the last part of the question is in the affirmative.

Trauma and Peptic Ulcer

Q.—Could trauma to a limb—fracture of the lateral malleolus—cause a gastric ulcer in a man who had previously enjoyed good health and who had never had gastric symptoms?

A.—Perhaps the only definite knowledge we have that trauma to a limb may be a causative factor in the production of peptic ulceration is in the case of the so-called "Curling" ulcer of the duodenum, which may be associated with extensive surface burns and was first described by Curling in 1842. This was attributed to embolism, but the modern tendency is to regard it as due to a histamine-like substance, which is liberated from the septic area and is known to produce hyperchlorhydria.

These ulcers are acute and may bleed or perforate, but practically never become chronic. One would suspect that the amount of any such substance set free from a fracture of the lateral malleolus would be very small and unlikely to lead to peptic ulceration. The fact that tens of thousands of such fractures occur without any evidence of ulceration supports this conclusion. In the case described there is no previous evidence of peptic ulcer, and so mere aggravation of a pre-existing lesion is not suggested. Before the question is dismissed, however, the psychological aspect must be considered. That emotional states have a definite influence upon peptic ulceration is now widely accepted, although whether they can be causative is less certain. However, the fracture in this case may be associated with some psychological state, anxiety, etc., which could be an

aetiological factor (perhaps one of many). Otherwise the relationship should be regarded as coincidental.

Sensitivity to Eggs

Q.—My son, aged 4½ years, is extremely sensitive to eggs. Can anything be done about it?

A.—Yes; oral hyposensitization may be carried out by giving increasing amounts of egg diluted in water; particulars of this method can be found in some of the books on allergy and asthma (*Bronchial Asthma*, by Leon Unger, and *Clinical Allergy*, by Louis Tuft). Results are moderately satisfactory but the procedure is long and tedious. It is not used as a routine measure in patients sensitive to eggs but only in special cases, depending on the duration of the sensitivity (after elimination has been tried), the degree of sensitivity, and the circumstances of each individual patient. Hyposensitization by subcutaneous injection is inadvisable.

In the very large majority of patients hyposensitization occurs as the result of leaving all eggs and egg-containing foods—e.g., ovaltine, cake, etc.—completely out of the diet. Hyposensitization takes place gradually, and the time required varies from 6 months to many years, the majority of patients requiring 3 to 5 years. This is the usual method of treatment, and it is almost certain that the child would gradually outgrow his sensitivity on this routine. Cooking reduces the antigenicity of egg to a certain extent, and a small amount of cooked food containing egg might be added to his diet once a year and the effect noted. When no symptoms appear the degree of hyposensitization achieved could then be further investigated. There is no non-specific treatment which is of value.

Dosage of Paraldehyde

Q.—(1) What are the usual extremes of dosage of paraldehyde when this drug is given by the intramuscular route? (2) Are specially large doses given intramuscularly in psychiatric cases, neurological cases, and in cases of eclamptic fits? If so, what maximum dosage may be used intramuscularly? (3) Is paraldehyde ever given intravenously? (4) What is the maximum intramuscular dose of paraldehyde which can be given with safety? (5) Is tolerance to paraldehyde readily acquired? (6) Does paraldehyde deteriorate and lose its potency readily?

A.—The usual dose of paraldehyde when given by the intramuscular route is 4–8 ml. (1–2 fluid dr.). (2) When it has been found that the usual dose is insufficient to produce the desired effect in psychiatric and other cases, then, and only then, the dose can be repeated; after a further interval to observe the effect of the second dose, a third dose may be tried, and so on. There is a very wide variation between the dose which is tolerated by one person and that tolerated by another. There are no figures available for the maximum safe intramuscular dose, but 104 ml. (26 dr.) has been taken as a single dose by mouth without harm. A dose of 120 ml. (30 dr.) has been given rectally to a woman in labour, by mistake, without fatality, but on the other hand a dose of 31 ml. (8 dr.) rectally has caused death. (3) Paraldehyde can be injected intravenously. It must first be dissolved in 9 volumes of saline, and the maximum dose is 4–5 ml. (36–45 ml. of the solution in saline), which must be given slowly. (4) Has already been answered. (5) Tolerance to paraldehyde occurs to some extent with continued use. (6) Paraldehyde is stable and does not lose potency.

INCOME TAX

Car Allowance

A. A. was demobilized and started work as an assistant in general practice in January, 1946. He bought a car for £294, but his principal pays £50 per annum towards the car expenses and provides oil and petrol.

* A. A. can claim the depreciation allowance (20% plus 1/5 = £71) for the period to April 5, 1946. For 1946–7 he can claim the "initial allowance"—i.e., 20% of £294—£71—i.e., £45, and also the depreciation allowance of 25% on the written-down value. He can also claim for the cost of licence, insurance, repairs, and other expenses borne by him. On the other hand he must set against these amounts the £50 cash allowance from the principal, and it may be that some deduction is necessary in respect of private use of the car.

Disposal and Treatment

The disposal and treatment of these cases were as follows: 19 out of 63 (30.1%) required evacuation to hospital, some others were admitted as out-patients, while treatment for all the milder cases was carried out in unit lines, and consisted of reassurance and if necessary rest and sedation. For this purpose barbitone soluble (10 gr. (0.65 g.) nightly or 5 to 10 gr. (0.32 to 0.65 g.) three times a day) was given. In most cases this was sufficient, but if no improvement was noticed after a few days' treatment a psychiatrist's opinion was sought. Some of the more chronic cases of Type 2 were recommended phenobarbitone 1, 2 gr. (32 mg.) t.d.s. for periods of two to four weeks.

Reassurance was considered of prime importance in the immediate treatment; this consisted either, in persuading the man who admitted that he was afraid that his was by no means a unique case—indeed, common to a greater or lesser degree was feeling like him—or in persuading the man who complained of severe headaches or pain over the heart that he was not suffering from a brain tumour or an incurable heart disease. Where possible, arrangements were made with the unit for the patient to be transferred to its detachments outside the Antwerp area.

Observations

A few general remarks might here be made about the effects of the bombardment on the mass of the troops stationed in my area. Many units for months on end were working at high pressure in most vulnerable surroundings, as in petrol or port installations. Few units were fortunate enough to escape having some casualties, and most of us had our full quota of near misses. It was natural enough, therefore, that we all became heartily sick of these things, and many admitted to me, after it was all over, that they felt they could not have stood up to it much longer. The night-time was a much greater strain than the day, and I occupied on duty, and men were generally liable to smoke and drink more than usual.

I have yet to meet the man who was totally unaffected by these bombs—I doubt if he even exists. Many felt tired owing to repeated sleepless nights. To begin with we were able to sleep during the attack—unless one fell too close; but after a time we found ourselves constantly listening for the drone of the engines, following their flight down to earth—and the waiting for the next one.

The lack of this anticipation is one of the things to be said for the rockets, which arrived without preliminary warning, for even a door banging or the sound of a factory siren was liable, after a time, to worry us.

Summary

A series of 63 cases of "exhaustion" seen over a four-months period of the bombardment of Antwerp are reviewed. They are classified into two main types according to their presenting symptoms. No more specialized classification has been attempted.

Treatment consisted of reassurance, rest, and sedatives, in unit lines where possible. Of the cases 30.1% were severe enough to warrant admission to hospital.

The report ends with a few general remarks about the reaction of the mass of the troops to the attack.

REPORT ON MENTAL NURSING

Recommendations designed to give mental nursing a status equal to that of any branch of nursing are contained in a report issued by the Minister of Health and the Minister of Education. The report is that of the Subcommittee on Mental Nursing and the Nursing of the Mentally Defective appointed by the Athlone Interdepartmental Committee on Nursing Services. Mr. Bevan recently described the report in Parliament as a most valuable survey, and said he proposed to obtain without delay the views of the various interested bodies regarding the recommendations, many of which would require legislation.

General Recommendations

The subcommittee considers that the mental nursing service should be held to be comparable in status to any branch of the nursing

Report of Subcommittee on
Mental Nursing H.M. Stationery

profession. "That it is not so is to a large extent due to the public attitude towards mental illness, which involves ignorance of the high qualities of mind and body demanded from the mental nursing service. There are some 29,000 nurses employed in this service—16,400 women and 12,600 men—and we think that, if recruitment is to be stimulated and the quality of the recruits improved, all possible steps must be taken to give the mental nurse a status comparable to that occupied by the nurse engaged in general sick nursing." Among the main recommendations are:

State Registration—Qualified mental nurses should be registered by a statutory body; registration on a supplementary part of the State Register is not satisfactory. All nurses on the Register should be entitled to the designation "State-Registered Nurse." There should be one recognized qualification for the mental nurse in lieu of alternative examinations of the Royal Medical Society, the Association or through the General Nursing Council. The right to practice should rest with the General Nursing Council, subject to certain conditions, which include protection for those holding M.P.A. certificates. If these conditions cannot be agreed, the subcommittee recommends legislation to establish a separate statutory body similar to the Central Midwives Board.

Recruitment and Training—Engagement of female nurses should be the responsibility of the matron, and recruits should have a medical and x-ray examination before entering a hospital. A preliminary training of at least one month is recommended before entrance to hospital. Higher posts in mental hospitals should be held only by nurses with the double qualification of mental and general nursing.

Conditions of Service, etc.—Scale of salary for the mental nurse should be higher than that for the general sick nurse. On hours of work the introduction of a 95-hour fortnight generally is an essential step. Legislation is needed to ensure that our best qualified institutions for the mentally defective should be superintended on the same basis as nurses in mental hospitals. Under the Superannuation Act female staff should be permitted to retire at 50. There should be interchangeability of pension rights from general hospital nursing to mental hospital nursing, and vice versa. Student nurses, particularly girls, should normally live in the hospital. Permission to leave out if the hospital authorities are satisfied that the interests of the nurse. All trained mental nurses should be permitted to permit a live out ward man should be employed, and where possible the ratio of nurses on day duty to patients (nurses to patients) should be substantially reduced.

Status of Mental Nursing

The subcommittee has no doubt that there still exists an inferior view of the nursing of the mentally ill, which is, sometimes, considered an occupation inferior to the nursing of the bodily sick. This impression contributes as much as any other factor to the difficulty when mental hospitals experience in obtaining enough female staff. It is a matter of national importance that the modern outlook on mental illness should be understood and that the value and interest of mental nursing should be recognized. While no other form of nursing makes greater demands upon the nurse, there is another side: asylums for detention and protection of the inmates have given place to mental hospitals, fully equipped with a view to the recovery of the patients.

Great advances have been made in recent years, and modern methods of physical treatment require specialized training. The medical staff now need highly skilled mental nurses to assist in carrying out the detailed technique of such methods of treatment as insulin therapy, convulsive therapy, insulin treatment, and prolonged narcosis. In all these the preparation of the patient and the equipment, the care of the patient during treatment, and the subsequent nursing demand much skill and knowledge.

On thorough investigation most cases of mental illness are found to be the result of a combination of physical and psychological factors. It follows, therefore, that the mental nurse has also to receive an adequate training in the nursing treatment of bodily ailments and diseases, both surgical and mental. There is every justification for the recognition of mental nursing as a highly skilled branch of the profession and entitled to a worthy status. The traditional stigma attached to mental illness has not yet been eradicated from the public mind, but there are signs that a more enlightened view is developing, and much could be done by judicious publicity on behalf of the mental nursing service to dispel the public feeling that contact with the mentally ill is something to be avoided.

Discipline, Food, and Recreation

The discipline of the hospital should not extend to the nurse when off duty. She should then, so far as is possible, have the personal liberty of a private individual. A small standing committee or nurses' council should be set up in each institution to scrutinize the rules, consider grievances, and suggest reforms. The cafeteria system of feeding should be introduced where possible. There should be provision for obtaining light meals and for the entertainment of

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by mattress sutures of unsorbable material. As for poor incisions, he mentioned with disapproval "trans-rectus" incisions, and in particular Battle's incision.

Adequate Access and Firm Scarring

Mr. DIGBY CHAMBERLAIN said that three things had to be borne in mind when making an abdominal incision: adequate access to the structure to be operated on, the leaving of a firm scar after healing; and (a minor consideration) a cosmetic result. Concerning incisional hernia and burst abdomen, he referred to a paper by E. S. J. King, of Melbourne, in the *British Journal of Surgery* (1935, 23, 35), in which he expressed the opinion that such hernias started by the cutting out of the peritoneal stitches or the escape of a tag of omentum between them. As for the size of the incision, it had been said that if one was in a strange country and required an abdominal operation one should ask which surgeon made the biggest incision and go to him. Inadequate incisions might mean that diseases in the abdomen which were unsuspected were missed. Every abdominal exploration should allow the surgeon to pass in review quickly the important organs inside the abdomen. The firmness of the scar depended largely on the suturing of the peritoneum. Adequate suturing of that layer would prevent the incidence of post-operative hernia or burst abdomen, and such suturing was as much dependent on the anaesthetist as on the surgeon. In making an abdominal incision nerves should be avoided, and muscles were better displaced than divided. As a standard incision he used the paramedian in operations for the stomach and duodenum. Paramedian incisions were perfectly adequate for colon work. For operations on the biliary tract he used a right paramedian incision almost exclusively. In closing the abdomen he used a continuous catgut stitch for the peritoneum and if it was thin he took a small piece of the under-surface of the rectus muscle with each stitch in order to reinforce it. He added that abdominal incisions on the whole were not a matter of great interest to surgeons, who only too often left it to their assistants to close the abdomen, but, however much he listened to the assistant, he considered that the surgeon should close at least the peritoneum in view of the importance of that step in relation to incisional hernia.

Prof. JOHN BEATTIE made some general observations on the metabolic disturbances which followed the infliction of a surgical wound and on the physiology of healing. He stressed in particular the need for a high protein intake, and also pointed out the function of cortin in promoting repair in cases of injury, and the high vitamin C requirements in view of the increased production of cortin.

The PRESIDENT referred to the firmly rooted idea among students that an incision began to heal at one end and the process of healing continued gradually towards the other end, so that they had a prejudice against a long incision, which they thought took a longer time to heal. He also asked for an opinion about stab-drawing of the abdomen.

Mr. RODNEY MADGOT said that he had been brought up on vertical incisions, he was taught median and paramedian incisions, and gradually, lately, he had been going more oblique. The transverse incision had the disadvantages that it took a long time to make, was very bloody, and left a weak abdominal wall, so that hernia was prone to arise afterwards.

For and Against Battle's

Sir CLAUDE FRANKAU said that thirty years ago he was a convinced "muscle-splitter," but very soon he abandoned the practice. Contrary to General Ogilvie, in certain conditions he supported Battle's incision. It was the only adequate and proper incision for an appendix about which one was sure. It gave perfectly good access, no nerve was injured and no vital spot was obtained if care was taken to drain at the upper end. Lord Moyrhan once spoke of the mercifulness of the long incision. Arising out of that was the great desirability that the incision should be such that heavy retraction was not wanted afterwards. The worst thing for the patient in any abdominal operation was for the surgeon to be required to use any form of heavy retraction; it should be as light as possible.

Mr. W. E. TANNER said that when he was a house-surgeon he watched Arbuthnot Lane perform his operations. When

operating for a bad peritonitis he did not close the peritoneum at all. He put a tube right along the wound and closed up the other layers. His idea was that paralytic ileus or dilatation of the stomach in these cases was caused by distension in the abdomen. He was bound to say that he saw some of these cases heal perfectly.

Mr. HAROLD DODD said that a very good incision for the appendix, which would deal also with the ruptured ectopic, and which was coming into greater use, was the Ruthersford Morrison iliac incision, often described by Prof. Grey Turner. The gridiron incision was attractive but difficult. He had given up midline incisions on account of the likelihood of hernia. He emphasized the importance of careful protection of the wound edges if first-class healing and freedom from burst abdomen or incisional hernia were desired.

In some further discussion Battle's incision was condemned and defended. One speaker said that as a house-surgeon he had two surgeons above him, one of whom practised Battle's and the other the gridiron, and as a consequence of the results he saw he would never use the former. The gridiron found more advocates than critics. Mr. SOLLY COHEN said he had never seen an obstruction after a gridiron incision, and he believed that Surg. Rear-Adm. Gordon-Taylor once stated that he had never had to open an abdomen for obstruction following that incision. A registrar, Mr. MUNRO, urged the value of a short incision in certain cases, and expressed himself rather surprised at the tendency to long incisions by his seniors.

General OGILVIE, in reply, said that it was undoubtedly the right thing not to use the main incision for drainage, but to make a separate tab. He protested against some of the eccentric incisions—"alphabetical incisions" they had been called in the course of the discussion because a number of letters of the alphabet appeared to be imitated—which were published in certain literature, particularly American. They belonged, he said, rather to the tradition of Heath Robinson than to that of John Hunter. With good anaesthesia especially with field block of the abdominal wall, he thought that everything desired could be got out of the median incision, and he had had no misfortunes with it. It was true that one was dealing with only one layer, but with a tremendously strong layer which could be sutured with the utmost security. He thought that the controversy over Battle's incision should be left where it was.

Mr. CHAMBERLAIN, also in reply, said that one speaker had mentioned Lane's practice of suturing the abdomen and leaving the peritoneum unsutured. He could not subscribe to that procedure and he hoped that no one in that company was now in favour of it.

Correspondence

R.M.B.F. Christmas Gifts

SIR.—It is with great pleasure that I can now announce that the Christmas Gifts appeal which I launched through your columns has reached the magnificent total of £2,127—a new record. In view of the high prices and the scarcity of the amenities of life I asked my colleagues for £2,000, a sum which, in view of last year's record, I scarcely dared to hope would be achieved, but which has actually been passed by a handsome margin. This means that all our beneficiaries are receiving £4 as a Christmas gift, and there is enough over to give some of the poorest £2 for the New Year.

My committee and I are deeply conscious of the great help afforded by the medical press in supporting and giving publicity to this appeal, and to you and your colleagues of the press as well as to all the generous contributors in the profession we tender our most cordial and grateful thanks.—I am, etc.,

ARNOLD LAWSON,

President, Royal Medical Benevolent Fund

Printer, S.W.15.

A Fundamental Principle

SIR.—On reading Prof. J. A. Ryle's letter (Dec. 29, 1945, p. 936) I was amazed and distressed to find one of the leaders of our profession advocating "some measure of direction" of

Patients were treated, as they were admitted to hospital, with one or other of these three courses in rotation, so as to obtain random sampling of subjects. Each patient was followed up for six months after treatment. This experiment is not yet completed, but it has become clear that paludrine in the dosages described above has no greater effect on the relapse rate than mepacrine, and is therefore in this respect apparently less efficient than a combination course of quinine (10 gr. (0.65 g.) t.d.s.) and pamaquin (10 mg. t.d.s.) given concurrently for 10 days, as originally recommended by Sinton (Army Malaria Research Unit, 1944).

Treatment of *P. falciparum* Infections

The therapeutic activity of paludrine in *P. falciparum* malaria was also examined by Maegraith, Adams, *et al.* (1945). The patients were either Service men or Merchant Navy personnel recently returned to England from either West or East Africa. Of the 22 patients treated in the first series of cases, 16 were suffering from primary attacks of malignant tertian malaria. They had received no antimalarial drug for at least a fortnight before treatment with paludrine was started. As in the cases of *P. vivax* malaria, when possible the patient was watched in hospital for a few days before paludrine was administered, but this period of observation had often to be omitted because of the severity of the illness.

Paludrine was administered orally under the same conditions as in the treatment of benign tertian malaria, in doses ranging from 50 mg. to 600 mg. twice daily for 14 days. Doses of less than 50 mg. twice daily have not yet been given in malignant tertian malaria. These doses were found to control the clinical attack effectively.

The clinical recovery was usually as rapid as in benign tertian malaria, and the action of the drug on the asexual parasites was as efficient as in the case of *P. vivax*. Paludrine appeared to have no action on the sexual forms of *P. falciparum*, which, when present, remained in the peripheral blood throughout treatment.

Recently cases of malignant tertian malaria have been treated as they were admitted to hospital, with either 100 mg. or 200 mg. paludrine twice daily for 14 days. Attempts have been made to follow up patients subsequent to discharge from hospital, but this has proved difficult in some cases, especially with coloured seamen. It is not known for certain, therefore, what effect paludrine has on the relapse rate of malignant tertian malaria, but the evidence at present available indicates that after dosage of 100 mg. twice daily or more for 14 days subsequent relapses do not occur. This finding is in agreement with Fairley's observations in sporozoite-induced malignant tertian malaria, in which he found that paludrine acted as a causal prophylactic.

Treatment of *P. vivax* Malaria with a Single Dose of Paludrine

Fairley (1946) has recently reported that he and his colleagues in Australia have obtained clinical cures in cases of trophozoite- and sporozoite-induced *P. vivax* malaria after the administration of single doses of 100 mg. paludrine.

We have obtained similar clinical cures in naturally acquired *P. vivax* infections with single doses of the drug. The patients treated in this series of experiments have all been Service men suffering from relapsing or delayed primary benign tertian malaria. After the usual interval of observation required to determine whether the malarial attack is likely to be imme-

diately self-limited, paludrine is administered orally followed by a good draught of water.

Single doses of 50, 100, 200, 300, and 400 mg. have been employed. The effect of any of these doses on the clinical course of the malarial attack is rapid and almost as fast as it is with multiple twice-daily dosage. The patient feels better within a few hours of taking the drug, and, although there is usually a rise of temperature above normal on the "paroxysm day" immediately subsequent to treatment, this fever is not usually associated with a rigor. There is no further rise of temperature until relapse occurs in due course. The asexual parasites disappear more slowly from the peripheral blood than they do after repeated dosage, but the blood is usually clear of parasites by the fourth or fifth day. Sexual forms disappear more slowly than the asexual parasites.

Parasites reappear in the peripheral blood three to eight weeks after administration of the single dose of paludrine; their reappearance is usually accompanied by the clinical signs of malaria. Such relapses respond immediately to a further single dose of the drug, a dose of 100 mg. being sufficient to abort the attack. We have found that relapses of this sort can be treated efficiently with 100 mg. paludrine independently of the size of the previous dose. If a single dose of 100 mg. paludrine

is administered weekly after the treatment of an acute attack the relapse is held off indefinitely. We are now treating on these lines all patients with relapsing or delayed primary benign tertian malaria. On admission the patient receives a single dose of 300 mg. paludrine accompanied by a glass of water. A week later he is given one 100-mg. paludrine tablet, and is told or discharged to take similar tablet once weekly for the next six months. Patients are followed up by means of printed post-

cards. After six months they cease taking the drug, but are followed up for a further six months. Results of this experiment are not yet available, but it is hoped that the process of exposing the parasites to a long series of intermittent dosages of paludrine may prove more effective in producing radical cure of *P. vivax* infections than have the continuous fortnightly twice-daily dosage regimes previously used in treatment.

The control of the acute clinical attack of *P. vivax* infection by paludrine must depend upon the effective concentration of the drug in the fluid surrounding the parasite—i.e., within either the red cell or the blood plasma. The lowest single dose so far known to have an effect on the acute attack is 50 mg. The maximum plasma concentrations of the drug reached after this dosage may be taken to represent the minimum level known to be effective against the parasite. After single dosage with 200 mg. or more we have found that this effective level is maintained for more than 48 hours in spite of the rapid excretion of the drug in the urine. Single-dose therapy may therefore be regarded as a method of providing effective drug concentrations lasting not just for a few hours but for several days. The same argument should apply to mepacrine, which is excreted much more slowly and incompletely than paludrine (Army Malaria Research Unit, 1945). Three patients suffering from relapsing benign tertian malaria were therefore given a single dose of 400 mg. mepacrine orally, followed by a draught of water. Clinical cure occurred in all three with the same speed as in dosage with paludrine. Some abdominal discomfort was noted in all. One case relapsed 10 days after the administration of the mepacrine; the others were given 100 mg. paludrine weekly, as above.

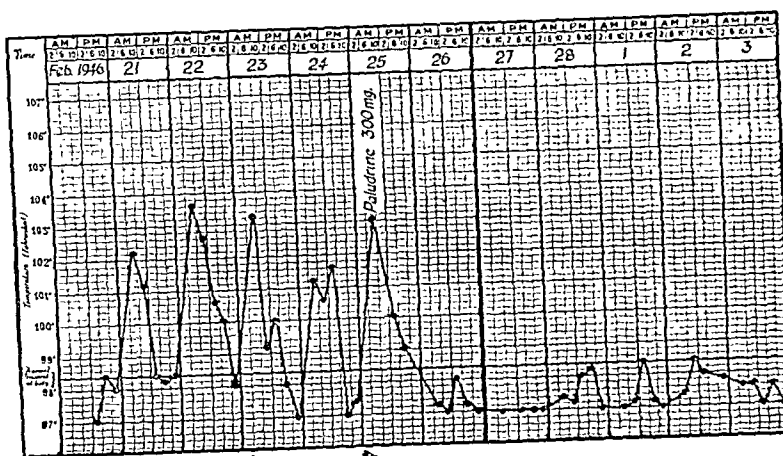


Chart showing the effect of a single dose of 300 mg. paludrine in a case of B.T. relapse. Quotidian fever; five paroxysms allowed.

The activity of smaller doses of paludrine and mepacrine is now being investigated. There seems to be little to choose between single doses of paludrine and mepacrine in the treatment of the acute attack of relapsing or delayed primary benign tertian malaria, apart from the slight abdominal discomfort sometimes produced by the latter. The advantage of paludrine, however, lies in its being a colourless drug, and therefore much more satisfactory to prescribe over a long period.

It must be remembered, too, that the activity of paludrine against the exo-erythrocytic form of *P. gallinaceum* is not shared by mepacrine. The recent experiments of Fairley and his co-workers in Australia suggest that under suitable conditions paludrine may act on the as yet unidentified exo-erythrocytic forms of the human *P. vivax* parasites. It is possible that dosage with paludrine may therefore materially affect the relapse rate of chronic B.T. malaria, upon which mepacrine has little effect, if the drug is given, as described, in weekly single doses over a prolonged period.

Our results in the treatment of benign tertian malaria will possibly be exposed to the hoary criticism that the cases we have dealt with would have cured themselves without the administration of the drug. Such spontaneous recovery does occasionally occur, but this argument (which, of course, applies to all antimalarial research) practically amounts to declaring that all cases of benign tertian malaria admitted to our wards spontaneously subside after the second or third rigor. We have tried to counter it by observing all our cases before treatment until they have had at least two rigors (with unchanged or rising parasitaemia). In some cases we have allowed the patient to have five or more rigors, after which clinical cure has been obtained immediately following the administration of a single dose of paludrine. (The temperature chart of such a case is here reproduced.)

Summary

Paludrine is a colourless slightly bitter drug belonging to a class of chemical compound not previously known to have antimalarial activity. Unlike most other antimalarial drugs, it has been found to have an action on the exo-erythrocytic forms of the parasites in *P. gallinaceum* avian malaria.

It has been used successfully in the treatment of benign tertian malaria (both in relapses and in delayed primary attacks) and in acute attacks of malignant tertian malaria (both primary cases and relapses).

It has a very wide therapeutic range of activity. Doses of 10 to 750 mg. and of 50 to 600 mg. twice daily for 14 days have been used successfully in the treatment of benign and malignant tertian malaria respectively. No serious toxic side-effects have been observed with such dosages, although occasional nausea and vomiting may occur at dosages of 500 mg. or more twice daily.

The administration of single doses of 50, 100, 200, 300, and 400 mg. will produce clinical cure of relapsing and delayed primary cases of benign tertian malaria. Similar effects have been obtained with single doses of 400 mg. mepacrine.

Twice-daily dosage regimes for 14 days have no greater effect on the relapse rate of benign tertian malaria than full courses of mepacrine. The administration of one dose of 100 mg. weekly after treatment of the acute attack with a single dose of 50 to 400 mg. has so far been found to keep the patient free from relapses. The effect of this therapy over a period of six months is being investigated.

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King Edward's Hospital Fund for London has issued a revised edition of its out-patient time-table for London hospitals. All doctors in the Metropolitan Police District are receiving copies, and a considerable number are being sent to infant welfare and other health societies. This time-table helps patients and their doctors to prevent the waste of time which sometimes results from attending hospitals at the wrong hour, or even on the wrong day. A limited number of copies are obtainable free of charge from George Barber and Sons, Ltd., 23, Fumival Street, E.C.4.

EXTRARENAL URAEMIA

BY

S. G. ZONDEK, M.D.

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The appearance of renal failure in the course of organic renal disease does not seem to be either extraordinary or strange. This does not apply to those rather frequent cases of renal failure which are met with in diseases not primarily involving the kidneys, and in patients who apparently had previously never suffered from any kidney trouble. The most varied pathological conditions may give rise to this kind of renal failure. The following may be mentioned first: any disease accompanied by considerable loss of water and/or salts (vomiting and/or diarrhoea); major operations of any kind; burns; crushing and other grave injuries. Renal failure may also be observed in severe liver affections, particularly when complicated by jaundice (hepato-renal syndrome); in myocardial infarction; and in general infections of various kinds.

All these cases of renal failure are of an acute character, and are cured within a few days, or end fatally, with oliguria, anuria, and, finally, uraemic coma as their most prominent symptoms. The question arises whether these cases of extrarenal or, according to Fishberg (1939), prerenal uraemia have a common basis, and, if so, what is its nature? As suggested in a previous publication, renal failure in the above-mentioned conditions should be defined as functional, because these cases, as has been found by many other authors, display either no pathological changes at all in the kidneys or only changes insufficient to account for the grave functional disturbances. If there are changes, these are more or less of the same character irrespective of whether the fatal uraemia was caused by burns, by crushing injuries or other forms of trauma, or even by pyloric stenosis (Beall, Bywaters, Belsey, *et al.*, 1941; Young and McMichael, 1941; Young, 1942; McLeitchie, 1943; Darmady *et al.*, 1944). The tubules are affected, while the glomeruli are generally found to be normal, although the nature of the functional disturbance—oliguria or anuria—points particularly to functional changes in the glomerular apparatus (Fishberg, 1939).

"Extrarenal uraemia," or "functional renal failure," as it may also be called, is closely connected with "extrarenal azotaemia" (Zondek, 1944). The latter term designates only those cases with high non-protein nitrogen in the blood due not to renal failure but to increased endogenous breakdown of protein. The non-protein nitrogen is moderately increased in the blood and markedly increased in the urine (up to 50 g. and more urea per day, thus considerably exceeding the quantity to be expected from the protein intake). The good renal function in these cases is shown also in the ability to secrete urine with optimal urea concentration (up to 5%), and in the satisfactory result of the urea clearance test. The high urea excretion is in marked contrast to a very low excretion of sodium chloride (dissociation of the urea-sodium-chloride excretion). The ratio of sodium chloride to urea in the urine may be 1:20 and even 1:50 and higher. The low excretion of sodium chloride (sometimes less than 1 g. daily) is not limited to the cases with chloride loss due to vomiting, diarrhoea, etc.; it is not caused by hypochloraemia, but is one of the reactions which take place in connexion with the increased breakdown of protein.

There is a definite relationship between extrarenal uraemia and extrarenal azotaemia (Zondek, 1944): (1) extrarenal azotaemia appears under the same morbid conditions as extrarenal uraemia—that is, the same disease which in one person may lead to extrarenal uraemia may cause in another extrarenal azotaemia; (2) in every case of extrarenal uraemia, extrarenal azotaemia is also present. In other words, one patient may react with extrarenal azotaemia alone, whereas the other reacts with extrarenal azotaemia plus renal failure.

Extrarenal Azotaemia

If the increased endogenous breakdown of protein is not on too big a scale there is no rise in non-protein nitrogen in the

blood, but the typical changes in the composition of the urine are present. These cases may be defined as the abortive form of extrarenal azotaemia, and although they are of no particular clinical importance they merit our attention for a better understanding of the main problem. The following two cases are examples of this group:

Case 1.—A man of 30 fell ill with dysentery and a high temperature two days before admission to hospital. On the first day in hospital the blood urea was 46 mg., three days later 36 mg.; NaCl concentration in the urine during this period: 2.1, 2.6, and 2.0 g. per litre, with urea concentration 35, 40, and 42 mg. per 100 ml. Total daily excretion of NaCl ranging from 1.0 to 1.2 g., total urea excretion from 28 to 31 g. Urine free from albumin and other pathological elements.

Case 2.—A man of 38 fell ill one day before admission to hospital with myocardial infarction of the posterior wall. Very slight vomiting and sweating during the first two days. On the second day of his illness there was a moderate rise of temperature, which continued for four days. On admission his blood pressure was 100/70 mm. Hg, falling during the following four days to 90/50 mm. Hg. Blood on the day of admission: NaCl 580, urea 50, and uric acid 3 mg. per 100 ml.; four days later, urea 36 and uric acid 4.2 mg. per 100 ml. Urine during this period: NaCl concentration 2.2–2.6 g. per litre, urea 48–50 g. per litre; total daily excretion: NaCl 1.4–1.8 g., urea 26–30 g. Urine free from albumin, etc.

The occurrence of renal failure is, as already mentioned, a not uncommon event after serious injuries or burns. So far I have had no opportunity of examining such patients; but it is unquestionable that in cases of burns and injuries pure extrarenal azotaemia may be met with. According to Cuthbertson (1936), Lucido (1940), Croft and Peters (1945), in burns at least there is a greatly increased urinary excretion of urea due to abnormal protein breakdown. No attention, however, was paid in these examinations to the sodium chloride excretion; but the latter can be assumed to be very low in these cases. In this connexion the recently published paper of Cooke *et al.* (1945) refers to injuries with "systemic reaction" and presents the findings in the blood and urine of the patients in question. The greatly increased urinary excretion of nitrogen-containing substances is stressed by these authors. The figures for urinary output are sometimes as low as 0.25 g. of chloride daily, while those for total nitrogen reach 20 g. and more. The results of the urine examinations made on various patients were as follows:

Total nitrogen (g.)	18.6	18.1	27.9	18.4	25.2	30.5	19.4	27.2
Total chloride (g.)	0.25	0.27	1.07	1.82	2.4	4.1	0.62	4.7

Another point of interest is that among these cases with marked dissociation in the excretion of sodium chloride and nitrogen-containing substances there were a number whose blood urea did not increase at all. These findings correspond closely with those described above in such affections as dysentery and myocardial infarction and also represent an abortive form of extrarenal azotaemia.

Extrarenal Uraemia

An essential feature of renal failure which has been observed in cases of uraemia on the basis of primary renal disease is decreased excretion of sodium chloride and urea in the urine. The relationship, however, may be the same as in healthy people. A ratio ranging between 1:1 and 1:4 covers even the variations made possible by the nutritional factor. In cases of extrarenal uraemia the ratio of sodium chloride to urea mostly ranges between 1:10 and 1:20 (Zondek, 1944). There is no need to explain why the urea excretion is not as high in these cases as in pure extrarenal azotaemia, with a ratio varying from 1:20 to 1:50 and even higher. On the other hand, the difference in the sodium chloride and urea excretion found in these cases of extrarenal uraemia is large enough to prove the simultaneous existence of an azotaemic process caused by increased endogenous breakdown of protein. There are, however, extremely severe cases of renal failure which, according to their aetiology, must be considered as belonging to the group of extrarenal uraemia, too, and they behave, so far as the sodium chloride and urea excretion is concerned, like cases of true uraemia due to primary renal disease. But even in these cases the combined pathology of renal failure and extrarenal azotaemia may be assumed, the latter concealed by

the severity of the former; the characteristic symptoms of the extrarenal azotaemia may not be revealed until after the lessening or disappearance of the renal insufficiency, as seen in the following case.

Case 3.—A man of 56 developed a very grave form of infectious hepatitis three days before admission to hospital. Besides the usual general symptoms he had severe pains in all his limbs. From the second day of his illness there was constantly increasing jaundice. In its clinical course the disease was very similar to Weil's disease; all bacteriological and serological examinations were, however, negative. In the last 24 hours before admission oliguria was noted, and this became more marked during the following 48 hours; daily urine output not more than 200 ml. On the day of his admission: blood, bilirubin (van den Bergh) 8.8 mg. per 100 ml., Takata-blood, bilirubin (van den Bergh) 8.8 mg. per 100 ml., NaCl 560, urea 223, uric acid 10.5 mg. per 100 ml.; urine, traces of albumin, bilirubin +++, cephalin and formol test ++, NaCl 2 g. per litre, urea 3.4 g. per litre. The patient was treated with infusions of saline and 5% glucose, and on the fourth day after the beginning of the oliguria diuresis set in; the daily urine output on the following nine days was 1,100–3,000 ml. In spite of the improving diuresis there was a further increase of urea in the blood, reaching its climax of 450 mg. per 100 ml. on the third day of the improved diuresis. From that day onwards continuous fall of the urea. On the ninth day of the improved diuresis, several hours before the patient's death, urea 108 and uric acid 3 mg. per 100 ml. During the whole period the NaCl excretion, in spite of its abundant administration (daily saline infusions of 1,000 ml. for ten days), was very small; its concentration in the urine mostly between 1.3 and 1.9 g. per litre, the daily total between 2 and 5 g. The urea excretion, on the other hand, with the improvement in the diuresis steadily increased: its concentration in the urine between 15 and 32 g. per litre, its daily quantity between 27 and 98 g. The urinary ratio of NaCl to urea of about 1:2 during the days of the oliguria rose to 1:15 and 1:20 after the improvement of the diuresis. On the fourteenth day of his illness the patient succumbed. For the exact data of the case see the Table.

Details of Case 3

	April:	8	9	10	11	12	13	14	15	16	17	18
Blood (mg. per 100 ml.):												
Bilirubin		8.8	9.5				13.8			16.3		
NaCl		580						600				
Uric acid		10.5	17.2	14.0	11.0	13.5		6.2	4.6			3.4
Urea		223	283	300	450	380		211	133			108
Urine (g. per litre)												
NaCl		2.0	1.8	2.6	1.6	1.3	1.4	1.4	1.8	1.8	1.9	5.5
Urea		3.4	3.5	11.2	15.2	17.6	17.6	28.0	32.8	30.4	28.0	19.7
Urinary excretion daily (g.)												
NaCl		0.4	0.35	2.9	2.9	3.6	3.3	4.8	4.5	5.0	6.7	17.4
Urea		0.68	0.7	12.4	27.3	49.2	40.5	91.2	82.0	85.1	98.0	59.2

Post-mortem Examination (Dr. Karplus).—Liver: weight 1,960 g.; macroscopic appearance normal; microscopically, periportal infiltration. Kidneys: except for hyperaemia glomerular apparatus entirely normal; Henle's loops without definite findings, but marked change ranging from degeneration to necrosis in the first and second convoluted tubules.

The fact that after cessation of the oliguria the amount of sodium chloride excreted in the urine remained at its previous low level, while the quantity of urea continuously increased, must be considered proof of the existence of an extrarenal azotaemic process. It might be claimed that the enormous urea excretion was due only to the retention of urea in the body during the anuric stage, but this argument is not justified. The oliguric phase has existed for three days only, during which period the amount of urea retained could not possibly have been large enough to account for a daily urea excretion of from 27 to 98 g. for nine successive days (the exact quantity of the excreted urea during this period amounted to 544 g.). The entire process is not comprehensible except by assuming that there was from the very beginning an enormously increased endogenous breakdown of protein, the detection of which (dissociation of the urinary excretion of sodium chloride and urea) was impossible until the phase of grave renal failure had passed. The patient died in spite of overcoming the renal insufficiency. On the other hand, among the various factors causing the death of the patient, that of protein breakdown should not be neglected. In any case an excretion of more than 500 g. of urea within nine days points to an enormous loss of body protein and this, it may be stressed, not at the expense of the liver tissue.

the weight of which did not decrease (see the necropsy report). Not always in the group illustrated by Case 3 can the extrarenal azotaemic process be detected after the improvement in the renal failure; as a rule the protein breakdown does not continue for longer than the renal failure, or not for a period sufficiently long to make the proof as clear as in Case 3.

If extrarenal uraemia in the group of diseases quoted in this paper is always associated with extrarenal azotaemia, we may consider the latter (increased endogenous breakdown of protein) to be the cause of the appearance of renal failure. As already suggested by Volhard (1931) in the case of post-operative uraemia, and by Beall *et al.* (1941) and Eggleton (1944) in the case of crushing injuries, the pathological breakdown of protein may lead to the formation of katabolic toxic substances which affect the kidneys and lead to renal insufficiency (nephrotoxic theory of Bywaters). The equally good response of both extrarenal azotaemia and extrarenal uraemia to the same treatment—administration of sodium chloride (Zondek, 1944)—also suggests the interdependence of both processes. However, there may be arguments against this suggestion. Though extrarenal azotaemia is undoubtedly the sequel of protein breakdown, renal failure could be caused by quite another process connected with the primary disease. One factor which should be considered is the fall in blood pressure, another the decreased renal blood flow (Fishberg, 1939), both met with often in the various conditions in question. In animals at least a fall in blood pressure and decreased renal blood flow affect renal function unfavourably, but these two factors can hardly be regarded as responsible for the renal failure in our cases. Thus, in myocardial infarction, a disease characterized by a fall in blood pressure, and probably also by decreased renal blood flow, pure extrarenal azotaemia with very good renal function may be observed (see Case 2). The interdependence between extrarenal azotaemia and functional renal failure should not be overstressed, but their close correlation cannot be doubted.

Discussion

Like symptoms or symptom-complexes appearing in the most different groups of diseases are rightly interpreted as of a non-specific nature. Extrarenal azotaemia should be regarded as such a symptom. It is not the specific nature of a special primary disease which is responsible for this reaction, but rather a factor so far unknown to us and apparently connected with the gravity of a number of different diseases, such as acute enteritis, hepatitis, myocardial infarction, injuries, burns, acute infections, etc. Actually there is no disease which cannot cause extrarenal azotaemia. There is a close relationship between extrarenal azotaemia and functional renal failure, the former being potentially the latter. Given the same basic disease, a person may react, if at all, either with extrarenal azotaemia alone or with extrarenal azotaemia plus functional renal failure—that is, extrarenal uraemia. The range of intensity of the possible reaction is very wide; one end is marked by the mildest form of extrarenal azotaemia, evidenced only by the appearance of the typical changes in the composition of the urine; the other by the most severe form of renal failure with oliguria or even anuria. If with accurate diagnostic methods very slight disturbances in the function of the kidneys should be detected also in cases of so-called pure extrarenal azotaemia, our views would not need to be revised. In these latter cases the extrarenal azotaemic process caused by increased endogenous breakdown of protein would remain the chief factor responsible for the clinical findings. Functional renal failure may also be produced in the absence of an extrarenal azotaemic process; thus katabolic substances other than those from protein katabolism, and exogenous substances (e.g., sulphonamides), may affect the kidneys. But even allowing for this possibility, the vast majority of all cases of functional renal failure may be associated with extrarenal azotaemia. Since extrarenal azotaemia is in these cases non-specific, the accompanying process of functional renal failure must be considered in the same light, though it may be regarded as the specific reaction of the kidneys to a non-specific process—that is, extrarenal azotaemia and what it represents.

The question arises why one patient reacts with extrarenal azotaemia alone and another with extrarenal azotaemia plus

functional renal failure. As in many other circumstances a constitutional factor unknown to us may play the decisive part, but other factors must be taken into account. If renal failure is a sequel to the extrarenal azotaemic process, importance must be attached to the intensity of that process. In this connexion it may be recalled that in Case 3, with particularly grave renal insufficiency, the body protein broken down within nine days amounted to nearly 2 kg.; the urea excretion alone, excluding all other nitrogenous substances, was about 550 g., while the protein intake during this period was negligible. The condition of the kidneys before the onset of the disease is another important factor; kidneys affected by arteriosclerosis or damaged by any other chronic disease must be assumed to be more likely to react with renal insufficiency than those of young and healthy people.

If the most different groups of diseases may cause extrarenal azotaemia and functional renal failure, might not the same pattern apply also to primary renal disease? Take the following not uncommon case: A patient has been suffering from an uninfected renal calculus for a long time without any disturbance in the renal function. A sudden infection of the urinary tract may lead to acute uraemia. Might the uraemia not be of the same type as in acute liver affections and in diseases of other specific organs? There is no definite answer to this question as yet, but the following fact is remarkable. The administration of sodium chloride (infusions of saline or saline plus glucose) is an efficient form of treatment in extrarenal azotaemia and extrarenal uraemia, as also in Fishberg's "prerenal" uraemia. There is, too, no better treatment for uraemia in a case of renal calculus, excepting only specific treatment (operation) of the stone itself. The withdrawal of sodium chloride in all renal diseases to the extent to which it was common previously is surely not the right treatment and may even be harmful. We are, however, still very far from being in a position to decide definitely on the indications for its administration in the various renal affections. Our view that uraemia in organic renal disease may sometimes be of the type of extrarenal uraemia—that is, functional renal failure—can serve as a clue to an understanding of the therapeutic efficiency of sodium chloride in at least a special group of cases of renal disease. It is undoubtedly difficult to decide in a specific case of organic renal disease with uraemia whether the renal failure is non-specific—extrarenal and functional in nature—or a specific sequel to the existing organic renal disease. Possibly our examinations may prove helpful in overcoming these difficulties to a certain extent at least. The detection of an extrarenal azotaemic process (marked dissociation of sodium chloride and urea excretion) would permit us to regard the existing renal failure as of extrarenal and functional character, and might prompt us to try sodium chloride therapy, provided there is no definite contraindication. A case belonging to this group and successfully treated with sodium chloride has been reported (Zondek, 1944).

Knowledge of increased breakdown of body protein as the cause of extrarenal azotaemia has been stressed by Croft and Peters (1945) and has prompted in cases of burns a diet rich in protein. I leave open the question whether this line of treatment can be successfully applied in any case of extrarenal azotaemia. Let us bear in mind, however, that extrarenal azotaemia contains in itself the potentiality of renal failure, and it remains to be seen whether or not the development of the latter might be affected by any excessive administration of protein.

Summary

Extrarenal azotaemia is caused by increased endogenous breakdown of protein and brings about an increase of urea and other nitrogen-containing substances in the blood, with a simultaneous excretion of great quantities of urea and small quantities of sodium chloride in the urine (dissociation of the sodium chloride and the urea excretion).

There is also an abortive form of extrarenal azotaemia, the changes in the composition of the urine being the only abnormality found.

There is a connexion between extrarenal azotaemia and extrarenal uraemia.

Extrarenal azotaemia and extrarenal uraemia are non-specific symptom-complexes which may be produced by a variety of diseases or injuries.

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PULMONARY EXCHANGE DURING ARTIFICIAL RESPIRATION

BY

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The relative merits of the various methods of artificial respiration have long been a subject of dispute, and each of them still has its advocates. This lack of agreement is doubtless due mainly to the fact that in ordinary circumstances it is impossible to compare the efficiency of the various procedures. In any real emergency skilled personnel and scientific recording apparatus are rarely available. In any event, the prime object must be the resuscitation of the victim; if the method used is successful it is deemed to be a good one, but if the patient dies it is assumed that he was beyond saving.

It is true that the volume of air passing in and out of the lungs in artificial respiration has been recorded, but the value of the conclusions reached is doubtful. For the considerable anatomical differences between man and other mammals make the conclusions reached on the latter largely inapplicable to man. Experiments on man are valueless unless the volunteer is unconscious, toneless, and not breathing. Yandell Henderson (1938) confirms that the tonus of the respiratory muscles of the conscious subject varies so that the respiratory minute volume is kept almost constant, whatever the method used whatever the rate of the chest movements. A warm cadaver might furnish figures of value, but the means is open to obvious objection, and any experiments carried out after rigor mortis had set in would be useless.

One of our colleagues (E. A. P.) felt that the various methods of artificial respiration could and should be evaluated on a subject depressed to simulate a victim *in extremis*. He asked to be anaesthetized profoundly and brought to respiratory arrest. Artificial respiration now became essential, since almost the only evidence of life was that the heart-beat continued. The various methods of artificial respiration were tried in turn, and the pulmonary exchange recorded on a kymograph.

The subject was a healthy young man of about 10 st. (63.5 kg.). The larynx was anaesthetized with cocaine, after which anaesthesia was induced with pentothal and continued with ether and air from an "Oxford vaporizer." A wide-bore oral endotracheal tube was passed, and the space between it and the trachea occluded with the usual inflated cuff. This ensured that all the air passing in and out of the lungs was measured on a recording spirometer. The apparatus for measuring pulmonary ventilation was in charge of Dr. S. L. Cowan, D.Sc., lately physiologist to this department, and it is hoped that details will be published by him in due course. The kymographic records which we give here are of the better-

known methods of artificial respiration, and the ones which we think will be of most general interest. Subsequently the experiments were repeated on another colleague (J. R.), of about 13 st. (82.5 kg.) weight.

The subjects were deeply anaesthetized until the intercostal muscles were paralysed. At this stage slight hyperventilation resulted in respiratory arrest. Various methods of artificial respiration were carried out by the same skilled operator. The respiratory rate was kept uniform at 10 per minute.

EVE'S ROCKING STRETCHER

A SMOOTH RHYTHM D "JERRY" RHYTHM

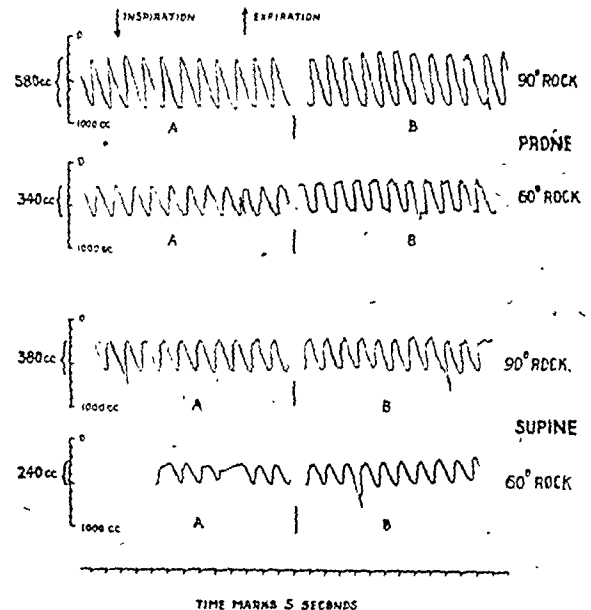


FIG. 1

Fig. 1 shows that Eve's (1943) rocking method produces a larger tidal exchange with the subject on his face than when on his back. The reason for this is not clear. Ventilation of the lungs increases with the angle through which the subject is rocked. Fig. 2 shows the figures resulting from Schäfer's and

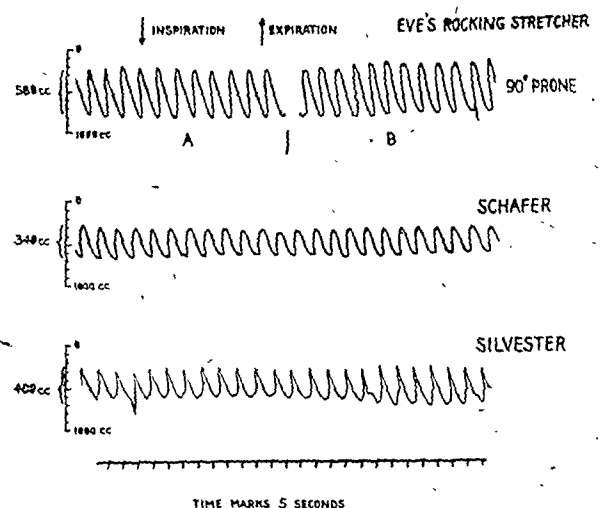


FIG. 2

Silvester's methods compared with those obtained from rocking the prone subject through 90°. In Fig. 3 the figures for inflation of the lungs with oxygen from an Oxford inflator (Macintosh and Pratt, 1939) give an accurate indication of the value of this method. In the "mouth-to-mouth" method the operator blew into the free end of the endotracheal tube. The term "mouth to mouth" is here, therefore, a misnomer, and the figures are

much better than those which would be obtained if actual mouth-to-mouth inflation (Elisha's method! see 2 Kings, iv. 34) were attempted.

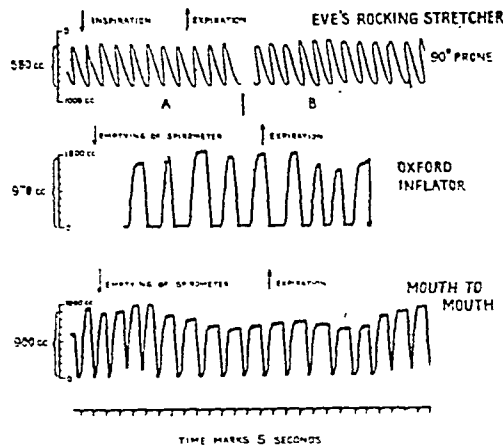


FIG. 3

Discussion

Our figures (see Table) probably show the various methods of artificial respiration at their best. A clear airway was main-

Tidal Exchange with Various Methods of Artificial Respiration

Method	Tidal Exchange in ml.	
	E. A. P. (Wt. 10 st.)	J. R. (Wt. 13 st.)
Eve's rocking:		
On back { 60°	240	570
{ 90°	380	635
On face { 60°	340	725
{ 90°	550	850
Schäfer	340	530
Silvester	400	650
"Mouth-to-mouth" inflation	900	1,030
Oxford inflator	970	1,550

tained throughout by a wide-bore endotracheal cuff-tube. The subjects were healthy young males, and the operator highly skilled.

Eve (1943) claims that the venous return to the heart, and therefore the output from the heart, are improved more by his method than by others. The figures we give record only pulmonary ventilation.

We believe that in artificial respiration too much stress has been laid on unimportant outward details and not enough on absolute essentials such as the maintenance of a clear airway. The choice of any particular method appears to us relatively unimportant. If the subject is dead no method will be availing, and, speaking broadly, if a spark of life still exists any method, properly carried out, will probably suffice.

Waters and Bennett (1936) recorded the figures of artificial respiration carried out under deep surgical anaesthesia, and we can agree with their observation that "an apnoeic patient under deep anaesthesia stimulates the candidate for resuscitation by artificial respiration."

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The report of a rural life conference held at Newbury at the beginning of the year has been issued under the title *The Science of Relationships* from C.M. House, 6, Salisbury Square, London, E.C.4, price 2s. The object of the discussion was to counteract one-sided development by fostering closer contact between workers in different callings, and to promote a unified programme of action. It was attended by people interested in medicine and nutrition, and among the papers was one by Prof. J. Scott Watson on "Agriculture, Food, and Society," which dealt with nutritional problems.

OBSERVATIONS ON NORMAL BODY TEMPERATURES IN NORTH INDIA

BY

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WITH A STATISTICAL ANALYSIS BY

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The effect of hot climates on normal body temperature has for long been a controversial problem among students of climatic physiology. Castellani (1938) denies that body temperature is affected by journeys to the Tropics or residence there. Sundstroem (1927), and more recently Radsma *et al.* (1938) and Mason (1940), find a higher mean temperature of Europeans in tropical climates. The present data represent some 1,800 temperature records taken during the period March–September, 1945, in North India (Dehra Dun).

Method

In this investigation 21 ordinary clinical thermometers were used. The standard deviation for these corrected to 98.6° F. was 0.12° F.

For resting temperatures, individuals were used who were on normal military duties, had not marched during that day, and had rested for half an hour in the shade. Meals had not been taken for at least one hour. The clothing worn in all cases was khaki drill. Oral temperatures were taken (a) under the tongue with the mouth firmly closed, and (b) with the thermometer placed as far as possible into the rectum. Where oral and rectal temperatures were done on the same individual these were taken simultaneously, a period of at least three minutes being allowed. All readings were taken in the upright position. Where possible, temperatures were taken in the laboratory, otherwise in the open out of the sun. Individuals were not selected in any way, but no mechanical method of random sampling was used. All British personnel had been in the area for at least four months, and most for one to two years.

The Frequency Distribution of Resting Oral Temperatures

Table I represents the analysis of 9 groups of individuals whose oral temperatures were taken at different times of the day during the monsoon period. The frequency histograms of the groups are shown in Figs. 1 to 9. The wet- and dry-bulb readings were taken at the time of examination. The mean for the whole group of 894 individuals is 98.75° F.; standard deviation, 0.50; and S.E. mean, 0.017. The corresponding figures found by Whiting (1915–17) for 500 criminals in England were: mean, 98.38° F.; S.D., 0.486; S.E. mean, 0.011.

Examination of the skewness figures in Table I shows that some of the samples differ significantly from the normal distribution. There is, however, no evidence of skewness in the total population of temperatures. The fact is that the samples are far from being random samples. There is no evidence from the data that oral temperatures are not normally distributed.

The figures for the standard error of the mean show that the means of some of our samples vary significantly. They also show that the mean temperatures for Serials 1–5 are significantly high compared with the "normal" temperature of 98.4° F. No other meaning should be attached to the standard errors owing to the fact that our samples are not random samples from the total population of temperatures. The low mean of Serial 6 may be explained by the fact that these men were examined just after a heavy shower. This point is discussed later.

Man-to-Man and Diurnal Variation of Resting Temperatures

The first set of data considered here is quoted in full in Table II. It consists of oral and rectal temperatures of 12 normal Indian soldiers taken at five different times during the day on Aug. 8, 1945. The men belonged to one unit, experienced approximately the same external conditions during the day, and were on the same light duty.

Examination of Table II shows that the mean oral temperature for the 12 men rises steadily from 98.79° at 8.30 a.m. to 99.43° at 7.30 p.m., and the means for the individual men vary between 98.58° and 99.66° F. It is clear that the observed variation may not be entirely haphazard but may be partly due to differences

TABLE I.—Analysis of Oral Temperatures of 9 Groups taken during the Monsoon Period

Serial	Race	Sample Size	Date and Time	Dry- and Wet- bulb ° F.	Mean ° F.	Standard Deviation	Skewness (d)	Standard Error		
								Mean	S.D.	Skewness
1	Indian (Travancore)	100	29/6/45 11.15 a.m./12.15 p.m.	95/80	98.86	0.36	-0.11	0.036	0.026	0.044
2	Indian (Punjab)	108	29/6/45 3 p.m./4 p.m.	95/82	98.88	0.43	Not sig.	0.042	0.029	—
3	Gurkha	150	29/6/45 5 p.m./6 p.m.	94/80	98.92	0.49	+0.10	0.040	0.029	0.049
4	British	120	4/7/45 2 p.m./4 p.m.	95/78	98.94	0.49	Not sig.	0.045	0.032	—
5	Indian (Mixed)	105	5/7/45 2.30 p.m./4 p.m.	85/74	98.87	0.37	+0.25	0.039	0.028	0.047
6	British	73	6/7/45 2 p.m./3 p.m.	78/72	98.13	0.62	-0.37	0.071	0.051	0.088
7	British	115	6/7/45 3.30 p.m./4.30 p.m.	79/72	98.62	0.38	Not sig.	0.035	0.025	—
8	Gurkha	70	24/7/45 8.30 a.m./9 a.m.	82/76	98.58	0.37	Not sig.	0.044	0.031	—
9	Indian (Punjab)	53	24/7/45 8.30 a.m./9 a.m.	88/72	98.45	0.43	+0.18	0.059	0.042	0.072
Total		894			98.75	0.50	Not sig.	0.017	0.012	—

NOTE.—The statistics above have been calculated from the moments of the distributions. The estimates of the standard deviation and skewness so obtained are inaccurate for small samples, but are sufficiently accurate for the samples used here.

TABLE II.—Simultaneous Oral and Rectal Temperatures (° F.) of 12 Indian Soldiers taken on Aug. 8, 1945

Man	Time								Mean	
	T1 8.30 a.m.		T2 11 a.m.		T3 2 p.m.		T4 5 p.m.		T5 7.30 p.m.	
	Oral	Rectal	Oral	Rectal	Oral	Rectal	Oral	Rectal	Oral	Rectal
M1 ..	99.4	99.8	99.0	100.0	99.0	99.6	99.2	99.8	100.0	100.2
M2 ..	98.4	99.0	98.6	99.6	98.9	—	99.2	100.0	99.0	100.0
M3 ..	99.0	99.4	99.0	99.6	99.0	99.7	99.2	100.4	99.2	100.5
M4 ..	99.4	99.6	99.5	100.6	99.3	100.0	99.5	100.5	100.6	101.0
M5 ..	98.9	99.4	98.8	100.1	99.2	100.0	99.2	100.3	99.6	100.7
M6 ..	98.2	98.4	98.6	99.4	98.6	99.4	98.4	99.4	99.2	99.8
M7 ..	98.6	(98.4)	99.0	99.6	98.8	99.8	99.0	(98.4)	99.2	99.6
M8 ..	99.0	(98.2)	98.8	100.0	98.6	99.2	99.0	99.8	99.2	100.5
M9 ..	98.2	98.8	98.4	98.8	98.7	99.0	99.0	99.4	99.6	99.6
M10 ..	99.2	99.9	98.6	100.0	99.4	100.0	99.7	100.0	99.6	100.2
M11 ..	98.5	99.2	98.9	100.0	98.8	100.3	99.2	99.8	99.4	100.6
M12 ..	98.7	99.6	98.6	99.6	99.0	100.2	98.8	99.6	99.6	100.0
Mean	98.79	99.14	98.82	99.78	98.94	99.74	99.12	99.78	99.43	100.23

NOTE.—The brackets signify that the oral temperature is above rectal.

TABLE IIA.—Simultaneous Oral and Rectal Temperatures (° F.) of 14 British Personnel taken at 5 p.m. on July 4, 1945

Man :	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Oral ..	99.4	99.2	99.8	100.0	99.6	99.6	99.6	99.8	99.6	99.2	99.4	99.6	99.8	99.6
Rectal ..	101.0	101.0	100.4	100.4	100.2	100.6	100.2	100.8	100.0	100.0	101.0	100.4	100.6	100.6

between men and partly to systematic changes during the day in addition to haphazard variation.

To test this hypothesis we divide the total variance into three s: variance of man-to-man variation, time-to-time variation, and phazard or "error" variation (Table III).

TABLE III

Type of Variation	Variance	Degrees of Freedom for Estimate
Man-to-man	0.47090	11
Time-to-time	0.83933	4
Error	0.05769	44

If there is no significant variation man to man our estimate for the man-to-man variance will not differ significantly from our estimate of the error variance. The significance of the time-to-time variation is tested in the same way. The test of significance used is the Z test (Fisher and Yates's *Statistical Tables*). With this set of data we have:

(a) Man-to-Man Variation:

$$e^2z = \frac{\text{man-to-man variance}}{\text{error variance}} = 8.163, \text{ from which } p < 0.1\%.$$

The probability (p) that this value of e^2z should arise through chance is less than one in a thousand.

It is clear, therefore, that the differences between men are significant.

(b) Time-to-time Variation:

A similar calculation gives:

$$e^2z = 14.55; p < 0.1\%,$$

which shows that the differences between times are also significant.

We have thus shown that for our group of 12 men there are significant differences between men and that significant changes take place in the temperature of the group during the day. Another way of expressing this result is to say that each man has his own characteristic range of temperature and that there is a strong tendency for all the temperatures in the group to vary together. On this particular day they all tend to increase. This tendency for the temperatures of all men in the group to vary together may be explained in two ways. It may be due to some internal rhythm or, since all the men experience the same external conditions, it may be due to some change in the external conditions—for instance, the air temperature.

Rectal temperatures were taken at the same times for the same group of 12 Indian soldiers (Table II). Analysing these data in exactly the same manner gives:

TABLE IV

Type of Variation	Variance	Degrees of Freedom	Variance Ratio e^2z	p
Man-to-man	0.75433	11	5.67	<0.1%
Time-to-time	1.57063	4	11.81	<0.1%
Error	0.13303	44		

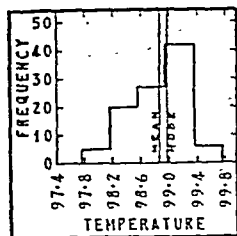


FIG. 1.—Serial 1 (Table I). Mean, 98.86°; mode, 98.97°. Significant skewness.

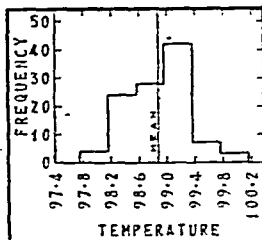


FIG. 2.—Serial 2. Mean, 98.88°. No significant skewness.

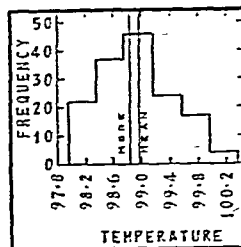


FIG. 3.—Serial 3. Mean, 98.92°; mode, 98.81°. Significant skewness.

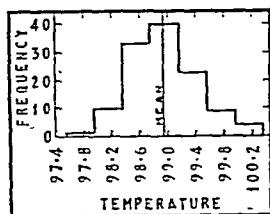


FIG. 4.—Serial 4. Mean, 98.94°. No significant skewness.

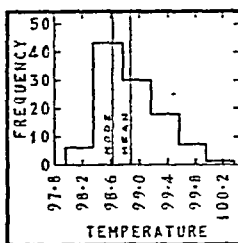


FIG. 5.—Serial 5. Mean, 98.87°; mode, 98.62°. Significant skewness.

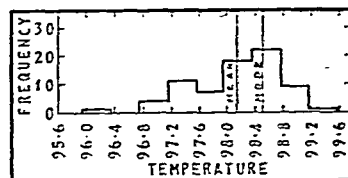


FIG. 6.—Serial 6. Mean, 98.13°; mode, 98.51°. Significant skewness.

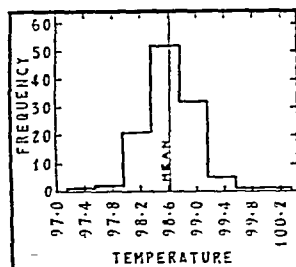


FIG. 7.—Serial 7. This group consisted of British troops who had been two years or more in India. Mean, 98.62°. No significant skewness.

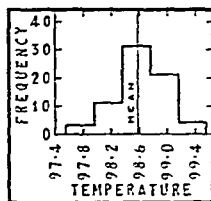


FIG. 8.—Serial 8. Mean, 98.58°. No significant skewness.

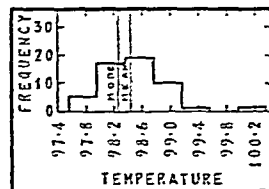


FIG. 9.—Serial 9. Mean, 98.45°; mode, 98.26°. Significant skewness.

The means for the group at the five times are:

T ₁	T ₂	T ₃	T ₄	T ₅
99.14°	99.78°	99.74°	99.78°	100.23°

The results for rectal temperatures are therefore almost exactly the same as for oral temperatures.

Correlation of Resting Oral and Rectal Temperatures

Correlating the two sets of data for oral and rectal temperatures of the same 12 Indian men used in Table II, we obtain:

Correlation coefficient $r = 0.6605$; $p < 0.1\%$.

This indicates that there is a positive and significant correlation between oral and rectal temperatures. It may be objected that this apparent correlation may be entirely due to the correlation of both oral and rectal temperatures with time. We therefore calculate the partial correlation coefficient with time eliminated:

Partial correlation coefficient $r_1 = 0.5258$; $p < 0.1\%$.

This shows that even when time is eliminated there is a positive and significant correlation of oral and rectal temperatures. If at any time, therefore, a normal man is found to have an unusually high oral temperature we may also expect with reasonable confidence to find an unusually high rectal temperature.

Some doubt is thrown on this conclusion by a second set of data. On July 4 oral temperatures of a large group of British troops were taken, and rectal temperatures of the first 14 men found to have oral temperatures over 99° F. (see Table IIA). The correlation coefficient found for this set of data is not significant. The reason for the absence of correlation in this case is probably that the sampling technique imposes too close a restriction on the variation of oral temperatures.

Another set of similar data concerns 20 normal British soldiers whose temperatures were taken four times during a day, on Aug. 24 (Table V). The analysis is given in Table VI.

TABLE V.—20 Normal British Soldiers

	Time:	9 a.m.	12.30 p.m.	2.30 p.m.	5 p.m.
Minimum oral temp.; ° F.	..	98.2	98.0	98.3	98.3
Maximum " " " "	..	99.3	98.8	100.0	100.1
Mean " " " "	..	98.82	98.43	99.015	98.93
Minimum rectal temp.; ° F.	..	99.0	98.3	99.1	98.4
Maximum " " " "	..	100.0	99.3	100.3	100.8
Mean " " " "	..	99.645	99.025	99.70	99.32

TABLE VI.—Analysis of Table V

	Type of Variation	Variance	Degrees of Freedom	Variance Ratio χ^2	p
Oral	Man-to-man	0.42986	19	5.13	<0.1%; sig.
	Time-to-time	1.33612	3	15.95	<0.1%; sig.
	Error	0.08375	57		
	Man-to-man	0.42102	19	3.63	<0.1%; sig.
Rectal	Time-to-time	1.56633	3	16.94	<0.1%; sig.
	Error	0.11613	57		

Inspection of Table VI shows that the results do not differ from those for the Indian troops:

An even higher value is found for the correlation of oral and rectal temperatures:

$$r = 0.79504; p < 0.1\%.$$

Eliminating the correlation of oral and rectal temperatures with time, we find the value of the partial correlation coefficient,

$$r_t = 0.75972; p < 0.1\%.$$

Seasonal Variation of Resting Oral Temperatures in Groups of Individuals

The oral temperatures of a number of small groups of British and Indian soldiers were taken at 10 a.m. on a number of days scattered irregularly over the period March to October. Tables VII and VIII show the results obtained:

TABLE VII.—British Troops

Month	Size of Sample	Mean (° F.)	S.E. of Mean
March	9	98.07	0.17
May	42	98.62	0.08
June/July ..	11	98.61	0.13
August/September	26	98.62	0.08
October	84	98.40	0.06

TABLE VIII.—Indian Troops

Month	Size of Sample	Mean (° F.)	S.E. of Mean
April	6	98.25	0.23
May	8	99.40	0.21
August	70	98.81	0.07
September ..	45	98.87	0.06
October	69	98.40	0.07

Tables VII and VIII show that the oral temperature taken at 10 a.m. rises in the period March to May, remains constant from May to September, and falls in September and October. The very high May figure for Indian troops is almost certainly a freak of chance due to the small size of the sample. These seasonal changes correspond closely to the changes in the 10 a.m. temperature at Dehra Dun.

Seasonal and Diurnal Variation of Resting Oral Temperature in an Individual

The oral temperatures of 7 individuals—4 British, 3 Indian—were taken at a number of fixed times during the day, and repeated on several days during the year. These data enable us to determine whether an individual has a characteristic variation in temperature during the 24 hours: is the oral temperature periodic, with a period of 24 hours? It also enables us to determine whether there is any significant seasonal change not only in the mean oral temperature but in its 24-hour variability. The method of analysis is the same as that used in Table III, except that instead of sets of data for different men we have sets of data for the same man on different days. The data from 4 of the cases are analysed below.

First Case (British)

TABLE IX.—Seasonal Variation

Date:	May 6	June 14	Aug. 5	Sept. 7
Oral temperature; ° F. ..	1.8	2.1	1.1	1.0
" " " " " " " " " "	98.2	97.91	97.34	97.85
Variance; ° F.	0.56	0.60	0.14	0.14
Mean air temperature*; ° F. ..	85.5	91	80	79.5
Range† air " " " " " "	31	26	12	15

* Mean air temperature quoted is the approximate estimate $\frac{\text{max.} + \text{min.}}{2}$.

† Range = max. — min.

TABLE X.—Diurnal Variation

Time:	7 a.m.	10 a.m.	1 p.m.	4 p.m.	7 p.m.	10 p.m.	12 p.m.	2 a.m.
Mean for 4 days; ° F.	97.23	98.33	98.18	98.18	98.43	97.88	97.43	96.98

Table IX shows that the mean oral temperature falls slightly from May to September, corresponding to the slight fall in mean air temperature. It also shows that there is a marked decrease in the variability of the oral temperature corresponding to the great decrease in air-temperature range during the monsoon period.

Table X shows that the oral temperature is periodic, with a maximum in the afternoon and a minimum in the very early morning, more or less corresponding to the 24-hour variation of air temperature.

TABLE XI.—Significance

Type of Variation	Variance	Degrees of Freedom	Variance Ratio $\frac{c^2}{c^2}$	p
Seasonal	1.03083	3	12.98	< 0.1%; sig.
Diurnal	1.200	7	15.11	< 0.1%; sig.
Error	0.07940	21		

Table XI shows that the observed seasonal and diurnal variations are significant for this individual case. If similar results are obtained from other individual cases it will be reasonable to deduce that the oral temperature is influenced to an important extent by the air temperature.

Second Case (British)

TABLE XII.—Seasonal Variation

Date:	Mar. 20	May 6	June 14	Aug. 5	Sept. 9	Sept. 23
Range oral temperature; ° F. ..	1.9	2.0	1.0	1.7	1.4	1.1
Mean oral temperature; ° F. ..	97.51	97.83	97.94	98.08	97.65	97.44
Variance	0.46	0.51	0.14	0.30	0.20	0.16
Mean air temperature; ° F. ..	67	85.5	91	80	79	78
Range air temperature; ° F. ..	28	31	26	12	18	16

TABLE XIII.—Diurnal Variation

Time:	7 a.m.	10 a.m.	1 p.m.	4 p.m.	7 p.m.	10 p.m.	12 p.m.	2 a.m.
Mean for 6 days; ° F.	97.08	97.98	97.9	98.18	98.42	97.75	97.48	97.12

TABLE XIV.—Significance

Type of Variation	Variance	Degrees of Freedom	Variance Ratio $\frac{c^2}{c^2}$	p
Seasonal	0.49576	5	6.5568	< 0.1%; sig.
Diurnal	1.39282	7	18.4211	< 0.1%; sig.
Error	0.07561	35		

Tables XII, XIII, and XIV show that the variation of the second case is substantially the same as that of the first. Two figures in Table XII are not in accordance with expectation: the low variance on June 14 and the high mean on Aug. 5. Such deviation from expectation is, however, usual in data of this sort.

Third Case (Indian)

TABLE XV.—Seasonal Variation

Date:	April 2	May 2	July 30	Sept. 27
Range oral temperature; ° F. ..	3.0	3.0	1.8	2.4
Mean " " " " " " " "	98.47	98.47	98.8	98.22
Variance	1.07	0.99	0.40	0.57
Mean air temperature; ° F. ..	75	83	79	70.5
Range " " " " " " " "	22	30	14	11

TABLE XVI.—Diurnal Variation

Time:	7 a.m.	10 a.m.	1 p.m.	4 p.m.	7 p.m.	10 p.m.
Mean for 4 days; ° F.	96.95	98.6	98.88	99.13	99.13	98.25

TABLE XVII.—Significance

Type of Variation	Variance	Degrees of Freedom	Variance Ratio $\frac{c^2}{c^2}$	p
Seasonal	0.34365	3	3.32253	< 5%; sig.
Diurnal	2.71675	5	26.26655	< 0.1%; sig.
Error	0.10343	15		

These results agree closely with expectation.

Fourth Case (British)

TABLE XVIII.—Seasonal Variation

Date:	Mar. 26	May 13	Aug. 3	Aug. 22	Sept. 9	Sept. 23
Range oral temperature: °F.	1-6	2-2	1-5	1-4	1-4	1-5
Mean oral temperature: °F.	97.94	97.83	98.21	97.66	97.53	98.27
Variance	0.33	0.89	0.29	0.24	0.23	0.32
Mean air temperature: °F.	73.5	82.5	80.5	78	79	78
Range air temperature: °F.	27	31	13	12	18	16

TABLE XIX.—Diurnal Variation

Time:	7 a.m.	10 a.m.	1 p.m.	4 p.m.	7 p.m.	10 p.m.	12 p.m.	2 a.m.
Mean for 6 days: °F.	97.33	98.38	98.52	98.67	98.6	98.12	97.7	97.27

TABLE XX.—Significance

Type of Variation	Variance	Degrees of Freedom	Variance Ratios	p
Seasonal ..	0.25684	5	3.16422	<5%; sig.
Diurnal ..	1.93857	7	23.85283	<0.1%; sig.
Error ..	0.03117	35		

The agreement with expectation of the mean oral temperatures in Table XVIII is poor. The variance figures in Table XVIII are in accordance with expectation.

Effect of Exercise on Oral and Rectal Temperatures

Data from "Clothing" Trial—Oral Temperatures

Oral and rectal temperatures of a group of 13 British men were taken on five days—D1, D2, D3, D4, D5—at 9 a.m. and 12.30 p.m. in a period of 14 days (Aug. 24–Sept. 7). D1: the men rested indoors except for a 1½-mile march before 9 a.m. D2: the men marched 10 miles between 9 a.m. and 12.30 p.m.; heavy rain. D3: the men marched 10 miles between 9 a.m. and 12.30 p.m.; heavy rain. D4: the men marched 10 miles between 9 a.m. and 12.30 p.m.; no rain. D5: the men rested indoors.

The conditions of the march were as identical as possible on each of the march days—viz., route, load carried, clothing, and rate of marching. The wet- and dry-bulb temperatures at 9 a.m. and 12.30 p.m. did not vary more than 2–4° F.

TABLE XXI.—Oral Temperatures

Day:	D1	D2	D3	D4	D5
Mean rise for fall in oral temperature, 9 a.m. to 12.30 p.m.: °F.	-0.3	-0.65	-0.31	+0.67	+0.22

The difference between these mean variations of temperature is significant ($p < 0.1\%$).

Comparing D1 and D5, we see that when the men rest indoors all day their temperature rises. When they rest after a march of only 1½ miles it falls. Comparing D4 and D5, we see that the rise in temperature is considerably greater if the men march 10 miles in dry warm conditions. A comparison of D2 and D3 with D4 shows that marching in the rain produces a fall in oral temperature instead of a rise.

It may be concluded that marching under dry warm conditions produces a rise in oral temperature but marching in the rain produces a fall. It is reasonable to deduce that exercise causes a rise in oral temperatures, while the cooling effect of rain produces a marked fall.

Data from "Clothing" Trial—Rectal Temperatures

The results are shown in Table XXII.

TABLE XXII.—Rectal Temperatures

Day:	D1	D2	D3	D4	D5
Mean rise or fall in rectal temperature, 9 a.m. to 12 noon: °F.	-0.59	+0.95	+1.0	+1.65	+0.02

The differences between the mean rises in temperature are significant ($p < 0.1\%$).

Comparing D1 and D5, it is seen that the 1½-mile march before 9 a.m. produces a fall in rectal temperature between 9 a.m. and 12.30 p.m. as compared with a completely resting day. Comparing D2, D3, and D4 with D5, we see that a march under the conditions of the experiment produces a rise in rectal temperature whatever the weather. Comparing D2 and D3 with D4, it is seen that the rise in rectal temperature produced by a march is greater on a dry day than on a wet day.

It may be concluded that marching produces a rise in rectal temperature which is larger on a dry day than on a wet day. The rectal temperature is apparently less influenced by external conditions than is the oral temperature. Results from other field trials gave similar findings.

Discussion

Table I and the histograms shown in Figs. 1 to 9 demonstrate that under the particular conditions of the investigation oral temperatures higher than those accepted as normal for temperate climates are not uncommon during the summer in North India. Most authorities accept 97–99° F. as the normal range, but it is known that figures above or below may under certain conditions be accepted as normal resting temperatures. The total range for the 894 individuals is 96.7–100.4° F., and including data from Table II this becomes 96.3–100.6° F. for the period 8.30 a.m. to 7.30 p.m. Among the British personnel no correlation could be found between length of service and resting oral temperature. In all cases examined the resting pulse rates were normal, but routine pulse rates were not recorded. No correlation was found in two groups of about 200 individuals each, one British and one Indian, between the resting oral temperature and erythrocyte sedimentation rate done at the same time. Using data obtained from troop trials, an attempt was made to correlate the resting rectal temperature with the post-exercise pulse rate and the rise in rectal temperature in groups of men doing the same work under similar conditions. Scatter diagrams did not suggest any obvious correlations.

In a group of individuals whose physical efficiency was measured at various times, using the Harvard pack test, the individual whose score was invariably the highest also showed the highest summer temperature. There are no data available yet which in terms of physical efficiency or acclimatization throw light on this climatic rise in temperature. Although there are not enough data to warrant a valid comparison between the Indian and the British personnel, it would seem that the temperatures in Indians are not much different from those of the British (Tables I, VII, VIII). It does not appear, therefore, that acclimatization in the ordinary sense is an important factor. In this respect the condition known as prickly heat is of interest. It was a common finding during the early part of the monsoon period in both British and Indian personnel, but with a lower incidence in the latter. However, in neither group was any relationship found between the presence of prickly heat and the level of the resting oral temperature.

Mason (1940) concluded that the type of body response in the heat might explain why in some individuals the temperature rose in hot climates yet did not rise in others. She found that British and American women showed two types of response in the basal metabolic rate. In the first type this fell by about 10% with no significant change in oral temperature, and in the second the basal metabolic rate was unaffected but the temperature rose significantly (average 0.6° F.). Muscular relaxation is brought about more easily in a hot environment, and the basal rate in temperate and that in hot climates are strictly not comparable. If there were two types of response to climatic heat we might expect a bimodal frequency curve. This is not suggested by our findings. Out of the 9 distributions only Serials 1 and 4 have a definite appearance of being bimodal, when grouped at 0.2° F. In both of them the modes occur at 98.4 and 99° F., and bias in favour of reading even figures on a thermometer may explain the apparent double mode. Data are not available as to the effect of a hot but very dry climate—viz., Iraq—on body temperature. It may not be the same as in North India, where low humidity is uncommon.

A point of practical importance is the clinical significance of raised body temperature in hot climates. The data in Table I were collected with the help of unit medical officers who were unaware of the fact that oral resting temperatures

in both British and Indian troops could lie between 99 and 100° F. in the summer months. A few hours' bed rest does not necessarily alter the level of the daily temperature curve, but bed rest for more than 24 hours will usually do so. It is therefore likely that an individual with what may be called climatic fever will show, when convalescing from an infective process, a recurrence of his "normal" fever after he has been up for a day or so. Unless its significance is realized the individual may be retained in hospital for further investigation. Again, a man reporting sick with an oral temperature above 99° F. may have a condition which is in no way related to his temperature. There is evidence that climatic fever may have been a cause of some man-power wastage among Army personnel.

It is usually stated in textbooks of medicine and physiology that there is a fairly constant relation between rectal and oral temperatures taken at the same time, the rectal being 0.5° to 1° F. higher. Table II_A shows that rectal temperatures of 101° F. are not uncommon in the summer. Stadler (1942) in 233 parallel determinations of resting rectal and oral temperatures of hospitalized convalescent children found differences of -1° to +3.2° F., with oral temperature higher in two cases. Carmichael and Linder (1934) in repeated parallel determinations on 24 normal individuals found differences of -1.3° to +3° F., with several cases in which the oral was higher than the rectal. In our own series of 260 simultaneous resting rectal and oral temperatures the oral was found at a higher level in three cases (Table II, figures in brackets), with a maximum rectal-oral difference of -0.8° F. It would be natural to assume that such a result is due to technical error, but it is safer to suppose that it may be real, although at present the cause is not clear. The analyses in this paper show that out of three sets of data analysed a significant correlation coefficient between oral and rectal temperature was found in two sets only. In general it may be said that at rest the oral and the rectal follow each other, but it is unsafe in any particular case to predict one from the other.

Data obtained from groups of men and from individuals studied over the period March to October suggest that a seasonal change in temperature occurs. Tables VII and VIII show that a rise of 0.5 to 0.6° F. in mean temperature may occur with the onset of hot weather, with a fall at the end of the monsoon period. Indians seem to react in a way similar to British personnel. The mean oral temperature appears to be high at seasons when the mean air temperature is high. This correlation is, however, not marked, and it is possible that the correlation is with the wet-bulb rather than the dry-bulb temperature. Again, analysis of the diurnal temperature records showed a correlation between the variation in oral temperature and the variation in the air temperature. Many factors other than meteorological are concerned in controlling the normal resting body temperature. In women there is a monthly curve temperature related to the menstrual cycle, and small changes may occur with fluctuation of endocrinal or emotional tone. One cannot therefore expect a high correlation between the body temperature and meteorological conditions. This is particularly true for the individual. The material presented here is small and many more data are required on this subject.

A point of practical interest is the maximum daily range of oral temperature. Textbooks give 1 to 1.5° F. as the normal range. Of 36 diurnal curves (7 a.m. to 2 a.m.) in 14 individuals done between March and October, 36% showed a daily range of 1 to 1.5° F., 55% showed a range of 1.6 to 2.6° F., and 9% reached a range of 3° F. The latter occurred in the months of April and May. Table XV shows a range of 3° F. in an Indian. It is sometimes stated that a hot climate does not affect the range of daily temperature but simply raises its level. The present data do not support this.

Results from the troop trials showed that a march of 3½ hours' duration during the monsoon period raised both oral and rectal temperatures, the latter about 1° F. more than the former (Tables XXI and XXII, D4). The same march done by the same men under very similar meteorological conditions but during a heavy shower showed a fall in oral temperature and a smaller rise in rectal temperature (Tables XXI and XXII, D2 and D3). Prolonged marching may on occasion produce a fall in oral temperature even in the absence of rain, but the rectal

temperature invariably shows a rise (Brennemann, 1943). The low mean resting temperature of Serial 6 (Table I) may in part be explained by exposure to rain before temperatures were taken. Cooling of the mouth by the increased respiration due to exertion is not sufficient to explain this phenomenon. It is possible that in conditions where the skin is being rapidly cooled by sweating, air currents, or rain the temperature of the oral cavity tends to follow the skin temperature rather than the internal temperature. Reflex vasomotor phenomena involving the mouth and the neighbouring skin may play a part. The oral temperature cannot be regarded as an accurate index of the internal body temperature, particularly in conditions of activity, and is more affected by external conditions than is the rectal temperature.

Conclusions

Using ordinary clinical thermometers, oral and rectal temperatures of both Indian and British troops during the summer months in North India show levels above those accepted as normal for temperate climates. Oral temperatures up to 100.6° F. and rectal temperatures up to 101° F. may occur in apparently normal individuals. The distribution curve of 894 cases is not significantly skewed.

An individual tends to have his own characteristic daily temperature curve, and on a particular day a group of individuals behave in the same way as regards oral and rectal temperatures.

A significant correlation coefficient is not always found between resting oral and rectal temperatures. In a very small percentage of cases the oral temperature may be actually above the rectal.

Analysis of groups of men and several individuals, both British and Indian, suggests a seasonal trend in the mean oral temperature, which tends to follow the range of air temperature.

Exercise in the rain may cause a fall in the oral temperature. For many physiological conditions the oral temperature may not be a good index of the internal temperature.

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RESULTS OF MASS RADIOGRAPHY OF R.A.F. EX-PRISONERS-OF-WAR FROM GERMANY

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It was realized that at the termination of hostilities with Germany a considerable number of Air Force personnel would be returning to this country from captivity. A decision was therefore made by the Air Ministry that a Mass Radiography Unit should be installed at the reception camp in the Midlands to which they would return.

All personnel who were fit to travel were brought here for preliminary medical examination and radiography of the chest before going on leave. It should be pointed out, however, that a certain number of cases required direct admission to hospital and were unfit to travel. These cases are not included in our mass radiography figures. It was the policy, so far as was possible, to allow the men first to proceed on leave, then undergo a complete investigation of their pulmonary abnormalities on return. Although there was a certain amount of risk in this, it was considered that, from the point of view of morale, they would respond far more favourably to investigation and treatment when they had seen those from whom they had been separated so long.

Upon return from leave the ex-prisoners selected from the miniature films were re-x-rayed on large films and those requiring further investigation admitted to the local regional R.A.F.

hospital. Here at least six sputum tests were performed, and, if negative, a further three examinations of the gastric washings were made; temperature observations, B.S.R., and exercise tolerance tests were also performed. The final disposal was decided by the medical officer in charge of the chest radiography section. Each man was interviewed, together with the medical specialist responsible for the hospital beds, and his future prospects and plans considered before the final recommendation was made.

Broadly speaking, there were three main avenues through which personnel with tuberculous infiltration might pass. First, they might be transferred to an R.A.F. treatment centre; secondly, they might be invalided from the Service and discharged to the care of their local tuberculosis officer; or, thirdly, if the lesion was of a very minor nature they might be retained in the Service in a lower medical category or released if they had this option. Non-tuberculous abnormalities which might require surgical intervention were transferred to the R.A.F. Unit of Thoracic Surgery at Midhurst.

The total number of ex-prisoners-of-war from Germany who passed through this unit was 9,142. Among these the following abnormalities were discovered in their respective age groups (Tables I and II).

TABLE I.—Non-tuberculous Abnormalities

Disease	Age Group (Years)						Total
	20-24	25-29	30-34	35-39	40-44	45 and Over	
Bronchitis and emphysema	0	2	0	0	0	0	2
Bronchitis and emphysema with bronchiectasis	0	1	0	0	0	0	1
Pulmonary fibrosis (non-tuberculous)	4	2	2	2	0	0	10
Congenital abnormalities, p. l. monary (azygos vein, lobe, etc.)	6	3	1	0	0	0	10
Congenital abnormalities non-pulmonary	32	18	6	2	0	0	58
Acquired cardiovascular lesions	1	1	1	0	0	0	3
Thickened pleura	18	15	7	2	1	0	43
Aberrant pneumonic consolidation	9	3	4	1	0	0	17
Shrapnel in chest wall and lung fields	6	6	2	0	0	0	14

It was found that in many cases the aberrant pneumonic consolidations had resolved upon return from leave or did so after a short stay in hospital. Cases of shrapnel in the lung fields were nearly all without symptoms and did not require surgical intervention. Two of these were cases of bullets in the lung fields. All cases were referred to a surgical specialist before the final decision was reached. The numbers of other pathological non-tuberculous abnormalities are small, as might be expected in the relatively youthful age groups examined, and do not call for any special comment.

TABLE II.—Tuberculous Abnormalities Discovered

Age Group:	20-24	25-29	30-34	35-39	40-44	45 and Over	Total
Active pulmonary tuberculosis (sputum-positive)	13	3	3	0	0	0	19
Active pulmonary tuberculosis (sputum-negative)	17	6	5	0	0	0	28
Inactive pulmonary tuberculosis	15	21	25	3	0	0	64
Calcified nodule only	22	21	11	2	1	0	59
Calcified hilar glands	12	6	5	4	0	0	27
Calcified nodule and glands	20	16	10	2	2	1	51

It will be seen that there were 47 cases of active tuberculous infiltration (0.5% of the total x-rayed). This is a considerable increase over the proportion discovered in other surveys, which has remained fairly constant at 0.3% (Evans, 1943; Trail *et al.*, 1944; Dick, 1945). The majority of personnel examined were between the ages of 20 and 34. From the figures it can be seen that 64% of the active infiltrations, both sputum-positive and sputum-negative, were in the 20-24 age group; whereas 44% of the inactive infiltrations, which did not require treatment, were in the 30-34 group. Of the active infiltration cases 41 were transferred to an R.A.F. treatment centre in the north-west of England. As sufficient time has elapsed, these cases have been followed up to find out how they responded to treatment. It will be seen that the number of cases with positive

sputum has increased from 19 to 27; this is accounted for by the fact that further sputum tests are performed on arrival, including sputum culture and culture of the gastric juice for *M. tuberculosis*.

TABLE III.—Summary of the Results of Treatment

Extent of Disease	Sputum-positive	Successful A.P. Induction	Unsuccessful A.P. Induction	Conservative Sanatorium Treatment	Discharge to T.O.
Unilateral (22 cases)	15	9	3	4	6
Bilateral (19 cases)	12*	3	4	7	5

* Add one case in which the pleural fluid was positive (-).

It will be seen that 12 successful artificial pneumothorax inductions were performed out of a total of 19 attempted. In addition 11 cases were well enough to be discharged to the care of their local tuberculosis officer after a further period of observation.

Comment

The figures and results testify to the value of mass radiography. In the active infiltrations the high proportion of sputum-positive cases (57%) shows the urgency for treatment.

It must be borne in mind that a large percentage of aircrew personnel were drawn from middle-class families, and therefore the higher incidence of active phthisis requires some comment.

On questioning the men it was found that the food had been adequate until the last six months, when Red Cross parcels ceased to arrive. Most of the men had been interned for a period ranging from one to four years. One is therefore led to the conclusion that higher incidence of infection may be associated with close living quarters and a lowered resistance—in the first instance due to mental stress and in the later stages actual malnutrition.

The Royal Air Force practice of admitting to hospital for investigation before transfer to a treatment centre might well be employed as a model for civilian mass radiography. If a certain number of general hospital beds were placed at the disposal of the physician in charge of the mass radiography unit for preliminary investigation, this would avoid the stigma of attendance at tuberculosis dispensary and sanatorium, which is bound to be present under the existing nomenclature.

I should like to thank the Director-General of Medical Services in the Royal Air Force for permission to publish this paper; and also Wing Commander C. E. H. Anson and Squadron Leader C. Bremer for their help in compiling the figures.

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GAS GANGRENE OF THE GALL-BLADDER

BY

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Gas gangrene of the gall-bladder is so rarely encountered that a short detail of the circumstances attending this case may not be unacceptable.

Case Report

A man aged 56 was admitted to the Royal Hospital, Wolverhampton, on Jan. 9, 1942, having suffered with severe abdominal pain for three days. The pain was confined to the right hypochondrium. Acute and colicky at the onset, it had suddenly assumed a fearful intensity some twenty hours before admission. He had not vomited. There was no history of previous abdominal pain, indigestion, or jaundice.

On examination the patient, an obese strongly built man, was in great pain and distress. The tongue was dry and furred, temperature 98°F. (36.7°C.), pulse rate 116. Respirations were short, "grunting," and obviously painful. The abdomen was slightly distended and immobile, with extreme tenderness and rigidity in the right hypochondrium. Examination of the heart and lungs was negative, except for poor air entry at the right lung base.

A provisional diagnosis of acute cholecystitis was made, but the possibility of perforated duodenal ulcer was seriously considered. Since, however, immediate operation was obviously necessary, a

skigram of the abdomen was omitted. This proved unfortunate, as an interesting pneumogram of the gall-bladder might have been obtained.

Operation.—Under spinal analgesia the abdomen was opened by a right paramedian incision. The peritoneal cavity contained a considerable quantity of foul-smelling thin brown fluid, quite unlike the usual turbid effusion of spreading peritonitis. The gall-bladder was lightly sealed off by omentum, but on exposure was found to be grossly distended, oedematous, and haemorrhagic, the greater part of the fundus being frankly gangrenous. An attempt to aspirate the contents of the gall-bladder with a syringe yielded nothing but gas, and the distended organ immediately collapsed. Two small stones could be felt in the cystic duct, but below this the duct was healthy and of very small calibre, so that cholecystectomy was easily performed. The common bile duct was apparently normal and was not opened. The wound was closed in the usual way with a drainage-tube to the gall-bladder bed.

On examination the gall-bladder contained practically no fluid. The whole mucous membrane was necrotic, shaggy, and of a dark-brown colour. Two small calculi impacted in the cystic duct sharply limited the inflammatory process. No other stones were present. Cultures of the mucous membrane of the gall-bladder yielded a pure profuse growth of *Cl. welchii*.

Progress.—The patient was given 20,000 units of polyvalent anti-gas-gangrene serum intramuscularly at the close of the operation, and during the first three post-operative days he received a total of 20 g. of sulphapyridine. His condition remained critical for the first few days. The abdomen became very distended, and brown discoloration of the skin, characteristic of clostridial infection, gradually spread from the wound over the anterior abdominal wall. No gangrene developed, however, and both distension and staining gradually subsided. The drainage-tube was shortened after 48 hours and removed at the end of a week. Profuse purulent discharge from the track persisted for several days, after which convalescence was uneventful.

Discussion

It is now well recognized that anaerobic bacilli frequently gain access to the biliary tract. Fulminating gas gangrene of the liver, following cholecystectomy, occasionally provides an unwelcome reminder of their presence. Gordon-Taylor and Whitby (1930), using anaerobic cultures, recovered *Cl. welchii* from the gall-bladder in nearly 9% of a series of 50 consecutive cholecystectomy specimens. They also found the organisms in 13% of the gall-stones obtained post mortem. Nevertheless, gangrenous cholecystitis due to *Cl. welchii* is seldom encountered, and detailed clinical accounts of frankly gangrenous gall-bladders are very rare indeed. Vest (1933), reviewing the role of clostridia in cholecystitis, found only five such cases in the literature. Gordon-Taylor and Whitby mentioned two others, while Simon (1932) reported an interesting case in which the diagnosis was made radiologically before operation, the shadow of the gas-filled gall-bladder being clearly visible.

On the assumption that bacterial infection is the primary factor in cholecystitis and gall-stone formation, discussions of *Cl. welchii* infection in the past have been focused on the question whether these organisms are the primary cause of the disease or mere secondary invaders. But the infective theory of gall-stone formation has recently been challenged, and there is now a growing body of opinion, strongly supported by surgical experience, that bacterial infection of the gall-bladder is nearly always a secondary phenomenon, determined by the effects of gall-stones. This sequence of events is probably true of most cases, but is particularly well shown in acute cholecystitis. This disease usually begins with an attack of gall-stone colic, but, should the stone become firmly impacted, the resulting congestion and oedema of the gall-bladder, together with stasis of its contents, soon prepare the field for infection by intestinal organisms. Such we believe to have been the sequence of events in the case here recorded. The initial obstruction of the gall-bladder by stone, and its subsequent invasion by this grave disease, seem to be clearly reflected in the clinical features of the case.

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Medical Memoranda

A Case of Concurrent Herpes Zoster and Varicella

The following report of a case in an elderly man seems worthy of record.

A well-preserved man aged 70 was admitted on Nov. 20, 1945, with a vesicular eruption limited to the area supplied by the right supraorbital nerve. The early history was vague, but the eruption had appeared on Nov. 17. Some of the vesicles were confluent and rapidly became haemorrhagic. On Nov. 23 he ran a temperature of 99.2° F. (37.3° C.), and next day there appeared a typical varicella eruption of a very discrete type covering the body and limbs. He has never had chickenpox, so far as he knows, nor has he recently been in contact with it or with herpes zoster.

Up to the time of writing the varicella has progressed satisfactorily, there now remaining only a few dried-up vesicles. Unfortunately the herpes zoster became infected, though it is now steadily healing.

Similar cases have been reported. J. J. Manning (1944) attended a man of 63 years with both conditions strictly concurrent, and Rose (1944) a man aged 81, the varicella developing one week after the herpes zoster. In Norman Flower's (1944) case in a man aged 40 varicella followed 11 days later. Dr. Alexander (1944) reports a case similar to my own, the varicella developing some 48 hours later; and Dr. Mary Barrow (1944) records one in which the varicella was some five days in appearing. Lastly, Dr. Simon (1944) reported a case in a man aged 63, with varicella developing five days later.

All the cases referred to were in males in the region of 60 or over, with the exception of Dr. Flower's case. The interval between the development of the herpes zoster and the appearance of the varicella varies from 48 hours to 1 week. In one case only was there a possible history of contact, but the histories in every instance were not complete.

One other case of interest was reported in the same period—namely, that of Dr. Allen (1944), the case being that of a boy aged 5½. Here the varicella preceded the herpetic eruption some three weeks.

I wish to thank Dr. J. Grant, M.O.H., Gateshead, for seeing the case and for permission to publish.

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A Case of Secondary Abdominal Pregnancy

The following case history of a somewhat rare condition may prove of interest.

CASE HISTORY

A rather slim Mongo (Bantu) negress, aged about 30, of average height, was admitted to our bush hospital on Sept. 28, 1945. She had attended three months previously and was diagnosed as being five months pregnant, but no vaginal examination had been made. It was her first pregnancy. She was admitted to the labour ward by the head orderly about midday and said that "pains" had started the previous day. At 5 p.m. the orderly reported the case and said there was no progress. She was seen shortly after that time by me.

On examination the pulse was 112, of fairly good volume, and the patient, though not distressed, seemed to be in pain. There were no contractions. Heart and lungs were normal. The abdomen was enlarged to the size of an eight-months pregnancy. The foetal parts were very superficial and the outline of a bone (probably the right tibia) could be distinctly felt through the abdominal wall above and to the left of the umbilicus. There was a curious "tenseness" about the abdomen—not that associated with uterine contractions, but rather like a large fairly soft ovarian cyst. The child was lying obliquely with the back to the right and the head in the left iliac fossa. No foetal heart sounds could be heard and no souffle. Patient affirmed that there had been quite violent movements during the day. Per vaginam, there was no cervical dilatation and the characteristic softening associated with advanced pregnancy was almost completely absent. There was no haemorrhage or macroscopic discharge. Secondary abdominal pregnancy was suspected.

Operation.—At 6.30 p.m. spinal analgesia (stovaine) was given, supplemented after three-quarters of an hour by open ether. On opening the abdomen by a right paramedian incision the greenish amniotic sac was immediately apparent; it was slightly adherent to the parietes. The sac was incised; the quantity of fluid was rather less than usual. The child, a male, was extracted, and it made a few feeble movements. It weighed 2.3 kg. (just over 5 lb.). The head was flattened from side to side and especially in the right parietal

The Ministry of Education has sent to local education authorities a memorandum (No. 156, May 27, 1946) on the administration of Section 54 of the Education Act, 1944, which deals with power to ensure cleanliness in schools and school-children.

region, which had rested on the left ilium. The membranes were stripped as far as the placental edge. The placenta filled the right iliac fossa and was adherent to two loops of small gut, the top of the uterus, and several other structures. Anatomical relations were difficult to determine—e.g., the right ovary was not seen at all. There was a liberal blood supply from the omentum and also from the left ovarian vessels. Although the placental mass was slightly mobile it was with considerable apprehension that we began its removal. The ovarian vessels were first ligated; then two fingers could be passed—one in front of and the other behind the fundus of the uterus; these controlled the large vessels therein while a wedge-shaped resection was performed. The placenta was then peeled off from its remaining attachments and about 20 bleeding points ligated, the rest being controlled by hot swabs. The haemorrhage, though considerable, was not alarming. The abdomen was closed and drainage provided. There was considerable sero-sanguineous discharge for 24 hours, after which time the tube was removed. A five-day course of sulphathiazole was started. The white staff of two had to leave on the third day after the operation, but on return 14 days later they found that the patient had made a good recovery. There is a palpable mass in the right iliac fossa, presumably organizing blood-clot, but she feels well and does not complain of pain.

COMMENT

This is the second case of this rather rare condition observed here within the last five years. The first was published in the *Journal of Obstetrics and Gynaecology of the British Empire* in August, 1942. Our hospital serves at the most some 50,000 people. The number of pregnant women seen here per year rarely exceeds 200. Ectopic cases are rare—not more than two a year. The last case—March, 1945—was of ectopic twins, of 4 months. One amniotic sac was already ruptured and the foetus dead; the other sac was intact and contained a live foetus. Unfortunately we lost this case. To have two cases of secondary abdominal pregnancy in such a limited area and in such a short time is at least remarkable. The question seems naturally to arise as to whether the amniotic sac of the negress is more resistant to rupture than that of the European. The negress certainly has much less chance of getting an ectopic pregnancy diagnosed than has a European; so the African ectopic case must frequently either develop or die. There is a very high incidence of gonococcal infection amongst the Mongo tribe, which undoubtedly contributes to ectopic gestation.

Barina/Mariaga, Haut Congo Belge.

E. R. WIDE, M.D.

Cavernous Sinus Thrombosis treated with Penicillin

The following case may be of interest. An important feature is that the usual dosage of penicillin given (18,000 units 3-hourly) was found inadequate, and the dosage of 35,000 units 3-hourly was effective in treating the condition.

The patient, Mrs. B., walked into the casualty department at the Bristol Eye Hospital at 10 p.m. on Nov. 29, 1945, having been sent by her own doctor. She complained of swelling of both eyes and gave a history that one week before her admission she developed pains in the back and legs. "Sores" on her lips then appeared. Six days before admission her eyes became "swollen"; she consulted a doctor and was given drops to instil. On Nov. 25 the eyes became worse and the patient was given tablets to take. By the 29th there was no improvement, and she was sent to Bristol Eye Hospital.

On examination both eyes were found to be proptosed and the lids and conjunctivae inflamed and oedematous. The patient's temperature was 99° F. (37.2° C.), pulse 80, and respirations 20. Investigation of the fundi showed only that the veins were slightly engorged. Vision: right eye, 6/12; left eye, 6/6. Nothing abnormal was found in the heart, lungs, or kidneys. Blood pressure, 130/90. Urine: Specific gravity, 1002; reaction alkaline; N.A.D.

A diagnosis of cavernous sinus thrombosis was made, and systemic penicillin treatment was started intravenously 18,000 units 3-hourly. The patient was started on a course of sulphathiazole next day. Her condition remained stationary until Dec. 2, when there was a slight but definite improvement. Next day the improvement was more pronounced; there was less inflammation of the lids, and the eyes were less proptosed. On Dec. 5 the condition of the eyes was less favourable: both were proptosed to their original extent. On Dec. 6 penicillin was given in doses of 25,000 units 3-hourly for 24 hours, then 30,000 units 3-hourly for 24 hours, and finally 35,000 units 3-hourly until Dec. 11. The patient received in all 2½ million units of penicillin.

On Dec. 7 a marked improvement occurred, and by the 9th the eyes appeared normal and the temperature remained at a normal level, having previously fluctuated between 98° F. (36.7° C.) and 100° F. (37.8° C.). Steady improvement was maintained after this date, and uneventful recovery occurred, the patient being discharged on Dec. 22.

My thanks are due to Mr. E. R. Chambers for permission to publish the case and to Mr. J. Donaldson for his help on the question of penicillin dosage.

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Reviews

CLINICAL PARASITOLOGY

Clinical Parasitology. By Charles Franklin Craig, M.D., and Ernest Carroll Faust, Ph.D. Fourth edition. (Pp. 871 + 355 engravings and 4 colour plates. 50s.) London: Henry Kimpton, 1945.

This is a most excellent book with which it is difficult to find any fault. In it the medical man will discover practically everything he needs to know about the animal parasites of man and much more besides. Everyone who has to deal with human disease caused by animal parasites and their vectors should possess a copy at his right hand. He will find that he is constantly consulting it, and will be rewarded by obtaining all the information he requires. The new fourth edition, which appears two years after the third, is larger by over a hundred pages. It has been thoroughly revised and much new information, the outcome of war experience, has been incorporated. Certain sections dealing with subjects of a general nature have been extended into separate chapters, as, for instance, that on scientific nomenclature, which now includes a digest of the international rules of nomenclature. Under malaria the new knowledge of the suppressive action of mepacrine is fully dealt with, while in the section on mosquito control the effectiveness of D.D.T. and of the new repellants which are products of the war is carefully considered. Much new information will be found in a considerably extended section devoted to arthropods responsible for human disease. Here all diseases, whether animal or not, are discussed in connexion with each individual transmitting agent. It is clear that the claim made that the fourth edition is thoroughly revised is amply justified, and it can be recommended as a comprehensive treatise on clinical parasitology.

SCIATICA AND INTERVERTEBRAL DISK LESIONS

Sciatiques et Lombalgies par Hernie Postérieure des Disques Intervertebraux. By P. Petit-Dutaillis and S. De Séze. (Pp. 180; illustrated. 235 francs.) Paris: Masson et Cie. 1945.

The recognition in 1911 of the relation of injury of intervertebral disks to intraspinal pressure symptoms we owe to Middleton and Teacher in Scotland, and Goldthwaite in the United States. It was, however, more than twenty years before the full significance of intervertebral disk lesions as common causes for sciatica was appreciated, notably by Barr and Mixter in 1933. The extraordinary thing is that in the French literature in the intervening years there were numerous studies of the anatomy and pathology of the disks in relation to intraspinal lesions, but, as the present authors confess, they were largely in relation to what were regarded as tumours of the disk with particular reference to the cauda equina. Nevertheless Petit-Dutaillis himself with Alajouanine in 1930 were probably the first authors clearly to recognize that these "tumours" were in fact herniations of the intervertebral nucleus. Despite further large additions to the French literature it appears that not until 1940 was there any considerable writing on the surgery of these lesions in cases of sciatica, whereas in the same year Love in America had been able to report on 500 cases operated on within the previous seven years.

The present work provides a valuable review, more particularly of French work on this subject, with extremely well set out and illustrated sections on the pathological anatomy, radiology, diagnosis, and operative treatment. In radiology in France lipiodol appears still to be freely employed, contrary to the growing practice of American and British surgeons, who depend more on clinical analysis. In this book there is a striking lack of recognition of British work. The French neurosurgeons, like their colleagues in other countries, tend to dismiss very lightly the methods of conservative orthopaedics. The impression of the reviewer is that the indications for operative intervention need much closer narrowing down, and that few cases should be operated on without prior orthopaedic consultation and co-operation.

ANATOMY AND PHYSIOLOGY FOR NURSES

The Nurse's Textbook of Anatomy and Physiology. By A. M. Spencer, M.B., Ch.B. (Pp. 288; illustrated. 8s. 6d.) London: Faber and Faber.

Anatomy and Physiology for Nurses. By J. L. Hamilton-Paterson, M.D. (Pp. 174; 102 illustrations. 9s.) London: H. K. Lewis and Co.

The demand for small works on anatomy and physiology which are suitable for nurses preparing for the Preliminary State Examination is evidenced by the recent appearance of two new elementary textbooks. Since certain points are common to both these works it will be convenient to mention these before reviewing each book separately. Each author has attempted to condense in one small volume a simple outline, in not too technical language, of these two extensive subjects; and each also gives the reader examples of the type of questions asked in previous examinations, with suggestions as to the method of answering them. No chemical formulae are used for the explanation of such processes as digestion, respiration, or general metabolism, and terms such as "breaking down" and "building up" are used for this purpose.

Dr. Spencer's book begins with a "Prologue," in which suggestions are made as to method in study—e.g., copying of illustrations, combined study with one or two fellow probationers, and practice in replying to examination questions by the study of model answers, with emphasis on the more important parts. The main body of the book is divided into seven parts, dealing with the structure and functions of the various parts and systems of the body, and the last of these sections contains an "Epilogue" giving advice about the answering of questions when actually in the examination room, the candidate being assured that her study is "complete." The illustrations vary in quality: those drawn by anatomical artists, some of which are reproduced from well-known standard works, are excellent; while some, more especially those of a diagrammatic nature, are capable of improvement, and would be better replaced in future editions by semi-diagrammatic figures founded on actual specimens. But, considered as a whole, *The Nurse's Textbook* well fulfils the purpose of the author in supplying the information required for this examination in an attractive and easily understood language which, if the directions suggested in the text are carried out, will be of great assistance to candidates for the examination and a practical help in understanding the principles on which the structure and functions of the body are founded.

Dr. Hamilton-Paterson states in the preface to his book that he fully realizes the difficulties that a nurse is confronted with in acquiring a working knowledge of anatomy and physiology, as contrasted with the medical student—the nurse having usually only a very limited knowledge of biology, and none of Latin and Greek; also, no access to a dissecting room or physiological laboratory. To meet the lack of knowledge of Latin and Greek a glossary has been appended. The first chapters deal with the tissues of the body and the various systems, whereas the remaining chapters are devoted to regional anatomy. In general, the functions of the organs and systems are described, along with their histological structure—thus the "clotting of blood" and "blood groups" after the description of blood corpuscles and plasma; and the "regulation of heat" along with the structure of the skin and sweat glands. The illustrations are for the most part good; some of the diagrammatic figures, however, overstep the limits of simplification to such an extent that they are misleading. Thus, in Fig. 10, which illustrates the difference in form of a muscle when contracted and relaxed, a muscle is shown resembling the biceps of the arm, with its tendon of origin lying in the intertubercular groove of the humerus, but with its tendon of insertion attached to the coronoid process of the *ulna*. The distal end of the *ulna* has been rotated laterally, while its proximal end, carrying the lower end of the humerus with it, has produced a twist in the longitudinal axis of this bone at its lower end, so that the medial condyle is directed forward. Similar faults appear in diagrammatic drawings (Figs. 16 and 17) or the naming of parts (Figs. 80, 87, 91), and a considerable number are present in the text. The book, however, fulfils its purpose of selecting for the reader the essential points in anatomy and physiology, thus saving the candidate the task of doing this for herself.

ELECTROCARDIOGRAPHY

A Primer of Electrocardiography. By George Burch, M.D., F.A.C.P., and Travis Winsor, M.D. (Pp. 215; 235 engravings. 18s.) London: Henry Kimpton.

As one of the first textbooks on electrocardiography to be published since the war, this primer by Burch and Winsor is of special interest. There can be few departments of medicine to which research has brought greater increases in precision in the past two decades. Not only has the response of the heart to almost every infection and disorder of metabolism been observed, but intensive study of precordial leads in conjunction with the conventional leads has given the physician a deeper insight into the location and extent of myocardial lesions. The evolution of these advances has been traced in the chapters of this very readable work. The theory of electrocardiography and the first principles on which it is based are lucidly explained with the help of numerous schematic illustrations. These latter (235 in all) constitute a special feature of the book, and are employed with great effect also in the chapters dealing with the precordial leads and the clinical applications of the electrocardiogram. Reproductions of electrocardiograms are not included; while drawings are perhaps equally explanatory, the lack of photographs tends to deprive the subject of clinical reality.

The authors emphasize in their monograph two axioms of clinical electrocardiography. The first is that the electrocardiogram without the entire clinical data is rarely of great value; a corollary might be added that an electrocardiogram may be dangerous both diagnostically and prognostically when unaccompanied by clinical data. The second axiom is that a cardiac study without an electrocardiogram is not complete or thorough. To this one might add that there can be no clinician of experience who has not at times been astonished at the revelations of cardiography in a patient previously considered to be free from cardiovascular disease. This work, which correlates so successfully and soundly the various cardiopathies and their electrocardiographic counterparts, merits the attention of all clinicians who wish to keep in touch with the trends of cardiology and clinical medicine.

Notes on Books

The H. K. Lewis corner in Gower Street, close to the University of London, is an attractive spot for the medical student of whatever age, but not everybody is aware that it boasts a hundred years' history. In 1844 a young man named Henry King Lewis, who had been an apprentice in the book trade at Windsor, opened a book-selling and stationery business in Gower Street, and to this was added presently a circulating library of medical and surgical books and a publishing house. A well-produced booklet, *Lewis's, 1844-1944* has been issued to commemorate the centenary of the firm. It gives many interesting glimpses of medical authors and others of a past generation—of the magnanimity of Osler, for example, when, by the only mischance of the kind in the history of the firm, the printers had lost a statistical table which should have accompanied one of his monographs; or of the trepidation of a student named Thomas Barlow when returning to the library a borrowed book which had been accidentally damaged. Many famous personalities in medicine appear in this booklet, all of them seen from the point of view of the publisher, but in this instance a very friendly and appreciative one. Alike in its buildings, the works it has issued, and its contacts with the medical profession, Lewis's has gradually extended, always in harmony with its high traditions, until as one visitor said, "This is more like an institution than a shop." This little biography of a business is well written and illustrated, and copies may be had free on application to 136, Gower Street, W.C.1.

Ocular Prosthesis, by J. H. PRINCE, F.B.O.A. (Edinburgh: E. and S. Livingstone; 17s. 6d.), is a readable account of the history and present status of the manufacture of artificial eyes. The fitting of artificial eyes is considered on physiological principles, and there is a useful chapter on the anatomy and physiology of the lid and orbit bearing on this. The account given of the use of plastics for the manufacture of artificial eyes is helpful. This volume is, however, unlikely to make it possible for every optician to prepare artificial eyes—a claim implied in the text—but it should form a useful guide to current teaching and practice.

The National Institute for the Deaf has issued from 105, Gower Street, W.C.1, at the price of 6d., No. 1 of a small monthly periodical *The Silent World*. Its contents include the first part of an article on the prevention of deafness by Mr. Arthur G. Wells.

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MORE ABOUT PALUDRINE

We print in this issue an article by Prof. B. G. Macgrath which describes some of the recent results of work on paludrine, the chemistry of which was the subject of an annotation in the *Journal* of May 18 (p. 767). Paludrine belongs to an entirely new chemical series of anti-malarials (biguanides) and is the final product of a long and skilfully planned investigation which began with the study of the antimalarial properties of pyrimidine derivatives.^{1,2} In this respect alone the drug represents an important advance in the field of synthetic antimalarials. In addition, however, paludrine and its immediate predecessor, 4430, have been shown to possess the unique property of affecting the exo-erythrocytic phase of *P. gallinaceum* infection in chicks. No previous antimalarial drug has shown similar activity. The importance of this observation lies in its possible application to human malaria, since it is likely that the phenomenon of "relapsing" which is seen so commonly in human malaria, particularly in *P. vivax* infections, may be dependent upon the existence in the human tissues of a phase of the human malaria parasite corresponding to the exo-erythrocytic phase in avian malaria.³ It was hoped, therefore, that paludrine might exert in human malaria a similar effect to its activity in *P. gallinaceum*. In January, 1945, it was first tried in cases of human malaria,⁴ and immediately proved itself a remarkably efficient agent in dealing with the acute attack in both *P. vivax* and *P. falciparum* infections. Its therapeutic range was found to be much wider than that of either quinine or mepacrine, and within these wide limits it has proved practically non-toxic; side-effects in the form of mild nausea and occasional vomiting have been observed only after dosage of a gramme or more per day. At first the dosage used was a twice-daily course, which was continued for 14 days, successful termination of the acute attack being obtained in *P. vivax* infections with doses of 10 to 750 mg. and in *P. falciparum* infections with doses of 50 mg. or more twice daily. The Liverpool workers, Macgrath and Adams, and others, have now demonstrated, in agreement with Fairley's observations in sporozoite-induced malaria,⁵ that acute attacks of benign tertian malaria can be terminated by the administration of a single dose of paludrine ranging from 50 to 400 mg. Cases so treated subsequently relapse in three weeks or longer if

given no further treatment. Large single doses of mepacrine will also effect similar termination of acute attacks of benign tertian malaria.

Although paludrine has been shown to have such activity against the acute attack of malaria, the results of treatment in *P. vivax* malaria, so far as the subsequent relapse rate is concerned, have unfortunately not been so encouraging. In naturally acquired benign tertian malaria relapse has been found to occur after both 50 and 500 mg. given twice daily for a fortnight. In these dosages, therefore, paludrine is not successful in dealing with the problem of the relapse in established *P. vivax* infections. It is possible that better results may be obtained by the technique of dosages now being used by the Liverpool workers. Their results so far indicate that the administration of a single dose of 100 mg. of paludrine at weekly intervals after an initial single therapeutic dose will suppress relapses so long as the weekly dose is sustained. Whether such a course of treatment extended over a period of months will eventually cure *P. vivax* infections is not yet known. Paludrine seems to be more successful in eradicating *P. falciparum* infections.

The early work on paludrine has recently been confirmed and extended in the field. Fairley and his co-workers⁶ in Australia have issued a preliminary report on the results of extensive experiments on the activity of paludrine given to volunteers exposed to mosquitoes infected with New Guinea strains of *P. vivax* and *P. falciparum*. They have found that paludrine is an effective suppressive for both these kinds of malaria. In the case of *P. falciparum* infections their results indicate that the drug acts as a true causal prophylactic. In some volunteers, but not in all, true causal prophylaxis is also indicated in *P. vivax* infections. Fairley concludes from his experiments that in this respect "paludrine has proved superior to all known antimalarial drugs, as in non-toxic doses it is a true causal prophylactic, exerting a powerful lethal effect on the exo-erythrocytic (presumptive exo-erythrocytic) forms of *P. falciparum* and fully protecting volunteers receiving viable sporozoites by mosquito inoculation. In *P. vivax* sporozoite-induced infections it is only a partial causal prophylactic; the exo-erythrocytic (presumptive exo-erythrocytic) forms are inhibited, but eradication does not regularly occur. The only other drug which has a similar action is plasmoquin, but this drug has to be given in a dosage which is too dangerous for routine use in man."

The Australian workers have confirmed the therapeutic activity of paludrine in acute attacks of *P. vivax*, *P. falciparum*, and *P. malariae* malaria in both induced (sporozoite and trophozoite) and naturally acquired infections. Clinical cure was obtained in all infections with adequate dosage, but in induced *P. falciparum* malaria radical cure was obtained. Clinical cure was also brought about in a small group of induced *P. vivax* infections after a single dose of 100 mg. At the time of writing the report, cases of *P. vivax* malaria treated with paludrine had not been followed up long enough to check the possibility of radical cure. The authors suggest, however, that "the weekly administration of 1-2 tablets (0.1 to 0.2 g.) indefinitely would prevent relapses until cure was attained." As pointed out above, such a dosage regime is now being investigated by the Liverpool workers.

¹ Curd, F. H. S., Davey, D. G., and Rose, F. L., *Ann. trop. Med. Parasit.*, 1945, 39, 139.

² Curd, F. H. S., Davey, D. G., and Rose, F. L., *ibid.*, 1945, 39, 157 *ibid.*, 1945, 39, 203.

³ Davey, D. G., *Nature*, 1944, 153, 110.

⁴ Adams, A. R. D., Macgrath, B. G., King, J. D., Townshend, R. H., Davey, T. H., and Havard, R. E., *Ann. trop. Med. Parasit.*, 1945, 39, 225.

⁵ Macgrath, B. G., Adams, A. R. D., King, J. D., Townshend, R. H., Davey, T. H., and Havard, R. E., *ibid.*, 1945, 39, 232.

⁶ Researches on Paludrine (M. 4838), A Progress Report. (From H.Q., A.M.P., Aust. Army Medical Research Unit (A.M.P.), Cairns, Queensland. Director: Brigadier N. Hamilton Fairley.) 1946.

Paludrine was found to have no direct action on the production of gametocytes of either *P. vivax* or *P. falciparum*. It was discovered, however, that gametocytes failed to mature in the mosquito if the patient's blood was ingested by the insect while he was on the drug. A week after cessation of the drug (by which time most of it would have been excreted from the body) the gametocytes in the patient's blood grew to maturity when ingested by mosquitoes. Gametocytes failed to develop in mosquitoes given a partial meal first on healthy volunteers taking the drug and then on a gametocyte-carrier not on the drug. Fairley and his co-workers therefore conclude that paludrine acts on the developing gametocyte after it has been ingested by the mosquito and not while it is in the human blood stream. Although it is not truly gametocidal, paludrine thus prevents mosquito infection during a therapeutic course and subsequently, until the blood level falls below the effective concentration. It is superior in this respect to both quinine and mepacrine. Only minor side-effects were observed by the Australian workers after doses of paludrine of 1,000 mg. in a day. They confirmed the earlier observation that there is a considerable difference between the effective therapeutic range and the toxic dose.

These recent reports on the activity of paludrine are highly encouraging. It is to be hoped that further work in the field can be carried out without delay so that the very promising Australian experiments on the suppressive and prophylactic action of the drug can be expanded and confirmed.

CALCIUM AND PHOSPHORUS METABOLISM IN FRACTURE

In studying the metabolism of calcium and phosphorus in fracture cases Cuthbertson¹ noted that there was a considerable divergence in the metabolism of these two elements. Calcium metabolism, determined by the intake and output during an early (second week) and late (fifth to ninth week) period, showed little departure from a normal balance—if anything there was a loss during the latter period—but there was a definite and early loss of phosphorus from the body. In a series of papers Cuthbertson^{2,3,4} has described the marked catabolic loss of nitrogen, sulphur, and phosphorus which takes place after practically all serious injuries, and with his colleagues he has investigated certain of the factors which influence it. Combined radiographic and biochemical studies on fracture cases supported Leriche and Policard's⁵ view that the genesis of new bone is conditioned by the absorption of pre-existing bone, and that this process of rarefaction, which is coincident with anabolism, probably begins immediately after the trauma. Where apposition is poor or there is other hindrance to healing, the bones may waste themselves on an impossible task.

To determine how far urinary lithiasis consequent on prolonged immobilization is due to the loss of lime salts

by way of the urine, Howard, Parson, and Bigham⁶ have recently investigated the calcium and phosphorus balance in a group of 17 male patients, immobilized in bed for the healing of a fracture or of an osteotomy and with complete leg and partial body casts; 4 patients were studied before and after femoral osteotomy for slipped epiphyses. In their fracture cases the maximum excretion of calcium was reached approximately one month after the injury and was maintained for 30 to 60 days, or until mobilization of the patient. After osteotomy the urinary excretion of calcium followed a similar pattern, although maximal excretion of calcium was reached much sooner. The urinary excretion of phosphorus reached its peak at the height of the protein catabolism, falling to a low level at the end of the period of nitrogen wastage. These changes in nitrogen and phosphorus excretion were similar to those previously noted by Cuthbertson. In the American series the maximal excretion of calcium was reached in all cases at a time when the protein catabolism reaction had waned. This reciprocal relation between the peak intensity of urinary excretion of calcium and of protein catabolism is corroborated by similar findings in osteotomy cases in which the period of increased protein catabolism is shorter. No routine x-ray examinations were made, but only 2 of the 17 patients had any symptoms or signs suggestive of nephrolithiasis. These were the cases of femoral osteotomy. One patient developed haematuria and calcium casts during the administration of calcium lactate; no pain was experienced, and the abnormal elements disappeared with cessation of its administration. The other patient had frank renal colic with red cells in the urine. These manifestations occurred in both cases during the plateau period of calcium excretion—that is, approximately eight weeks after operation. Howard and Bigham, in some work as yet unpublished, found that patients with induced malarial chills, watched for twenty to thirty days at rest in bed, showed no increased urinary excretion of calcium compared with their pre-febrile control. They therefore attribute the increased calcium excretion to rarefaction of the immobilized skeletal area, the speed of rarefaction being conditioned by the difference in the rate of resorption and of new bone formation.

Cuthbertson⁷ showed in 1929 that a definite but small rise in the output of nitrogen, sulphur, and phosphorus, and to a lesser degree of calcium, follows the immobilization by splinting of a sound limb in normal subjects. Dietrick⁸ has also demonstrated a slow progressive rise in urinary calcium in two healthy young men immobilized in casts below the waist. In one of his two cases the extent of the rise was of the order of the average excretion in Howard's patients. Some years ago Pearse and Morton⁹ made the interesting discovery that hyperaemia, induced by venous obstruction, accelerated the healing of fractures in dogs. In every instance there were earlier callus formation, earlier calcification of the callus, and earlier union on the side in which the vein was ligated. The mechanism whereby the venous obstruction effected this beneficial

⁶ *Johns Hopk. Hosp. Bull.*, 1945, 77, 291.

⁷ *Biochem. J.*, 1929, 23, 1328.

⁸ Minutes of the Conference on Metabolic Aspects of Convalescence, including Bone and Wound Healing, sponsored by Josiah Macy, jun., Foundation, Ninth Meeting, February 2-3, 1945, p. 62.

⁹ "The Stimulation of Bone Growth by Venous Stasis," *J. Bone Jt. Surg.*, 12, 97, 1930.

¹ *Biochem. J.*, 1930, 24, 1244.

² *Lancet*, 1942, 1, 433.

³ *Brit. med. Bull.*, 1944, 2, 207.

⁴ *Ibid.*, 1945, 3, 96.

⁵ *The Normal and Pathological Physiology of Bone*, London, 1928.

result was not clear. Howard, Parson, and Bigham believe that the early hyperaemia of the inflammatory reaction about the fracture site may be a major reason why the urinary excretion of calcium is at first normal and only gradually rises. The local inflammatory reaction following osteotomy is probably considerably less than that after fracture and wanes much more rapidly, as is perhaps reflected in the shorter and less vigorous catabolism. Howard¹⁰ has suggested that the protein catabolism is closely related to, if not initiated by, absorption of products of tissue necrosis. Cuthbertson and Munro¹¹ observed that in rats, at least, the catabolism of protein is bound up with the body reserves, for if the latter have been depleted by subsistence on a protein-free diet there is virtually no further loss of nitrogen after fracture. It is probable that the loss of calcium is bound up with disuse atrophy, for the body does permit a reduction in that which is not in use.

WHAT IS NORMAL TEMPERATURE?

It is commonly stated in textbooks that the normal range of oral temperature in the healthy human body is from 97° to 99° F. (36.1° to 37.2° C.), and that the rectal temperature is 0.5°–1.0° F. (0.28°–0.55° C.) higher. This corresponds approximately to the results obtained by many investigators (e.g., Gessler¹²) and may be accepted as a working guide in temperate climates. A very cursory dip into the literature, however, is sufficient to reveal that the extremes of normality may be wider than this, though the great majority of healthy individuals have body temperatures within the limits given above: thus, Ivy¹³ found that the oral temperatures of 276 healthy students sitting in class after breakfast varied from 96.5° to 99.3° F. (35.8° to 37.4° C.); Du Bois¹⁴ gave the range for oral temperature as 97° to 100.2° F. (36.1°–37.9° C.); while Renbourn and Bonsall, in a paper published to-day in this *Journal*, show that during the summer months in North India both British and Indian troops may have oral temperatures up to 100.6° F. (38.1° C.) and rectal temperatures up to 101° F. (38.3° C.). The relation between oral and rectal temperatures, too, is apparently not nearly as constant as is commonly taught: Carmichael and Linder,¹⁵ in parallel estimations on 24 normal subjects, found that the average difference in individuals ranged from 1.79° F. (0.99° C.) to 0.42° F. (0.23° C.), while in one case the rectal temperature was 3.5° F. (1.9° C.) higher, and in another was 1.7° F. (0.94° C.) lower than the oral reading; they quote the results of several similar investigations by other observers, who found variations ranging from 0° to 2.0° F. (1.11° C.). Renbourn and Bonsall have also observed that the rectal temperature may very occasionally be higher than the rectal.

The question is by no means merely one of academic physiology. Physicians are not infrequently confronted with a patient complaining of indeterminate symptoms and presenting no abnormality on examination except a "persistent low-grade fever": sometimes a definite cause can be found, such as pulmonary tuberculosis, a chronic urinary infection, or, in the Tropics, chronic malaria; in many cases, however, routine investigation proves entirely

negative and the physician is faced with the question whether to spend further time and money on even more exhaustive bacteriological and radiological investigations, or, accepting the slight "fever" as within the normal limits for the temperature of that particular patient, to pursue a policy of masterly inactivity and vigorous reassurance. The subject has been discussed by Alvarez¹⁶ in a recent editorial. He points out that these patients are frequently tense, nervous women, and that such people tend to have body temperatures higher than those of ordinary quiet persons: frank psychological disturbances, too, may be associated with persistent or intermittent "fever," and Alvarez mentions two cases of persistent temperatures of 100°–101° F. (37.7°–38.3° C.) in women who had contracted unhappy marriages. Other cases of "psychogenic pyrexia" are quoted by Wolf and Wolff,¹⁷ who also add a remarkable case of their own. According to Alvarez, there is a tendency in the United States to make a diagnosis of brucellosis in such patients, but in his opinion this is incorrect in most of the cases.

Any patient whose oral temperature rises every day to between 99° and 100° F. (37.2° and 37.7° C.) is clearly entitled to a search for all the usual varieties of chronic infection. If this proves negative, however, there seems little doubt that reassurance and encouragement to resume a normal life represent a wiser policy than prolongation of the period of invalidism by over-enthusiastic bacteriological investigation, and that this applies particularly in the case of "nervous" patients and in tropical or subtropical areas. The thermometer, like the sphygmomanometer, should assist but never replace clinical common sense.

ORGANIZATION OF CANCER TREATMENT

The 16th annual report of the National Radium Trust and Radium Commission¹⁸ is of particular interest because it not only records the activities of this organization during 1944–5, but also contains observations on the annual reports of the war years which were not allowed to be published for security and other reasons. In view of the Cancer Act passed in 1939 it became necessary to amend the original Charter, and to enlarge the membership of the Commission from ten members to seventeen, the additional members being representatives of local authorities; and radio-active agents other than radium and x-ray apparatus are now under the direction of the Commission. Though the carrying out of the 1939 Cancer Act has been postponed from year to year during the war, nevertheless the local authorities have been trying, where possible, to organize cancer services, and the Radium Commission has been able to give a great deal of help in drawing up such schemes. In 1942 it published a pamphlet on the organization of cancer treatment in which it expressed the view that the treatment of this disease could be carried out successfully only if surgery and radiotherapy were in intimate association. Experience has led the Commission to advise that radiotherapy should not be carried out except by people who have a thorough and up-to-date knowledge of the physical principles and practice involved. The necessity of physicists being an integral part of the staff is emphasized. It further points out that the number of centres in the country having facilities for radiotherapy should be strictly limited, that such centres should be fully equipped with modern apparatus operated by a team of experienced radiotherapists, and should serve a population if possible of not less than two millions.

¹⁰ "Protein Metabolism during Convalescence after Trauma," *Arch. Surg.*, 1945, 60, 166.

¹¹ *Biochem. J.*, 1937, 31, 694.

¹² *Ergebn. Physiol.*, 1928, 26, 185.

¹³ *Gastroenterol.*, 1945, 5, 326.

¹⁴ Quoted by Ivy, A. C., loc. cit.

¹⁵ *Amer. J. med. Sci.*, 1934, 188, 68.

¹⁶ *Gastroenterol.*, 1945, 5, 320.

¹⁷ *Arch. intern. Med.*, 1942, 70, 293.

¹⁸ Cmd. 6817. H.M. Stationery Office. (1s. 3d.)

The report refers to cancer records. The 1939 Act states that the keeping of such records should count and be paid for as part of the cancer service. The importance of records cannot be overstated. Cancer treatment is still in the stage of research, and detailed records are therefore essential, not only for the individual but also for improving methods of treatment. The Commission has drawn up a system of records which involves the registration and follow-up of every patient suffering from, or suspected to be suffering from, cancer. In addition to the national statistical records it is hoped that every centre will keep much more detailed records from the point of view of research. The registration and analysis cards are now being collected by the National Radium Commission, but it is understood that the Ministry of Health will shortly set up a National Medical Statistical Bureau. It is too early to say how the forthcoming National Health Service Act will affect the organizations for the treatment of cancer, but it is unlikely that it will reverse the principles laid down by the Commission, which are based on sixteen years' experience.

WELFARE OF THE CHILD

Much has been done and is being done in this country, by legislation and by voluntary effort, to improve the chances in life of our children. Miss Rosalind Chambers and Miss Christine Cockburn have summarized, in their pamphlet entitled *The Nation's Children*,¹ the existing provision and its shortcomings. While the country is waiting for a comprehensive health service, antenatal care must, they say, be improved, the service of the infant welfare clinics amplified, and the war against children's diseases made more effective. The education in dietetics which rationing has brought to us all must be impressed on expectant and actual mothers by a campaign of education, and school-children must have good food and milk. Every family must have sufficient income to buy adequate food even in times of illness and unemployment. Women must be trained in child care and home management rather than sent to prison for neglect. Good and suitable homes must be found for families; the provisions of the new Education Act must be carried out with enthusiasm. The care of orphans and homeless children must be improved, especially by providing better-paid and better-trained staff for the institutions which house them. The same need shows itself throughout all the services for children: the need for conditions which will attract the right people. The present complexity and chaos of organization need simplifying, but not at the expense of the freedom of the many voluntary workers who now give such valuable service. The authors show keen insight into a very wide and varied complex of problems.

THE DISCOVERY OF INSULIN

This year is the 25th anniversary of the discovery of insulin, and the Diabetic Association is arranging silver jubilee celebrations to commemorate the event. Sir Frederick Banting was killed on active service, but his co-worker, Prof. C. H. Best, F.R.S., is coming over from Canada and will address a gathering at the Royal Institution, Albemarle Street, W., on Friday, July 5, at 4.30 p.m. He will be supported by Sir Henry Dale, late President of the Royal Society.

Attempts had been made before Banting's time to separate insulin from the other secretions of the pancreas, but none had been successful. Banting believed that he

could achieve the essential separation if he were given sufficient facilities for research. He found in Prof. J. J. R. McLeod, of Toronto University, a whole-hearted sympathizer. Unfortunately, the help that McLeod was able to give was limited, but Banting was supplied with a laboratory, and with animals to work upon. McLeod also turned over to Banting a young postgraduate researcher named Charles Best. The work was beset with difficulties. Often when a solution appeared in sight the final result was unsatisfactory. Funds ran low, and Banting and Best sold many of their personal possessions to keep their experiments going. Eventually success came, and in the summer of 1921 they discovered a method of extraction of insulin. The tests on animals were satisfactory, and then came the day when the extract was first used with a human being. The patient was a young diabetic dying in one of Toronto's hospitals. He regained his strength and continued to live a normal and healthy life. For their work Banting and Best were awarded the Nobel prize, and Banting was knighted. Of the partnership only Best remains. Prof. McLeod died in 1935, and Banting was killed in an aeroplane crash in 1941, while flying on a Government mission.

THE ROTUNDA BICENTENARY

As already announced, an international congress of obstetrics and gynaecology to celebrate the bicentenary of the Rotunda Hospital will be held in Dublin during the week beginning July 7, 1947. The actual bicentenary year of this famous institution was 1945, but the arrangements could not be made effective then owing to the war. The programme committee, fully representative of the Rotunda, the Coombe, and the National Maternity Hospitals, has drawn up a programme. To facilitate travel reservations and hotel accommodation the committee asks those proposing to attend the congress to register at an early date with the honorary secretary, Mr. G. F. Klingner, F.C.A., Rotunda Hospital, Dublin, or with the local offices of Thomas Cook and Son, Ltd. The completed programme, with details of the scientific papers and of the social functions and entertainments, will be circulated towards the end of this year and a copy sent to all who register. The subject for the opening session on July 7 is the history of midwifery, followed by a discussion on puerperal sepsis; on July 8 eclampsia is the subject. The programme for July 9 has yet to be arranged. On July 10 sterility is the subject; on July 11 foetal and neonatal mortality; and on July 12 shock in obstetrics. At these sessions leading obstetricians and gynaecologists from various countries will take the chair or speak in the discussions.

Dr. P. M. D'Arcy Hart will deliver the Mitchell Lecture before the Royal College of Physicians of London on Tuesday, July 9, on "The Search for Chemotherapeutic Agents in Human Tuberculosis during the Past 100 Years." Prof. C. A. Lovatt Evans, F.R.S., will deliver the Bertram Louis Abrahams Lecture on Tuesday, July 16, on "The Outlook of Physiology To-day." Both lectures will be given at the College, Pall Mall East, at 5 p.m.

We regret to announce the death of the eminent neurologist, Dr. James Taylor, consulting physician to the National Hospital, Queen Square.

Sir Alfred Webb-Johnson, Bt., President of the Royal College of Surgeons of England, has been appointed Hospitaller of the Order of St. John.

¹ British Association for Labour Legislation, 21, Clareville Grove, S.W.7. (9d.)

THE PROBLEM OF MEDICAL EDUCATIONAL FILMS

BY

Prof. NIELS DUNGAL*

The great value of educational films has been definitely proved in training schools during the war now ended. Probably no other branch of the military forces used films so extensively for educational purposes as did the engineering schools, where air-men, electricians, and all kinds of technicians were trained by that means for several hours daily. The Americans stated that his method cut down the training time to 50% and even 25% of what it would otherwise have been. As the fight for victory became mainly a fight for time, it is easily understood how valuable this method of teaching was, quite apart from the considerable reduction in maintenance costs for hundreds and thousands of troops.

Difficulties in Ordering Medical Films

Although a great number of medical films are now available, teachers who try to obtain them will encounter certain difficulties. They will find that they have to write to a great number of firms, universities, and private persons who are in possession of various educational films. They will get in reply lists of film titles, usually with the running time indicated, but as a rule no adequate judgment can be formed as to whether a likely-looking film is really suitable for the purpose desired. The films can be rented or bought, but to establish a film library means a considerable expenditure, as copies are rather costly. So if, as is usually the case, there is no possible means of evaluating the films in question, the prospective buyer decides in favour of a limited number. Our experience is that, under present conditions, we have to be content if as much as 25% of the films we order come up to our expectations. Surely the finance committees of universities cannot be blamed for discouraging the acquisition of films under such conditions.

Several firms in the medical trade, and particularly manufacturers of drugs, have produced films—many of them of the highest value—for the purposes of medical instruction, which they distribute without charge. Most of these contain an element of propaganda, which, however well concealed, is not in accord with the neutral standpoint of university teaching. An educational film should be made for the sole purpose of instruction, without the least bias towards any commercial interests.

Some of the best films have been made by public authorities. The picture on "Scabies" produced under the auspices of the British Ministry of Health might be taken as an example of the highest order of medical educational films. It contained a full statement of facts, well presented by an able specialist, illustrating pathology, clinical symptoms, treatment, and prevention better than could be done in a lecture without a film. The difficult method of finding the parasites, and the course of their development, were shown in rapid succession, not possible in any other way. From such a picture the student will profit more than by listening to the most gifted instructor or by reading the best textbooks. And this kind of instruction has the advantage of being presented in a way which appeals strongly to young people.

Special Advantages of Film Instruction

In a small university, where patients are not numerous enough to supply the demand for all kinds of cases, the film has the evident advantage of presenting readily available material for demonstration. Even the biggest clinics with the most varied material are not infrequently handicapped by the lack of what is called a "typical case"; and no university is usually able to present the rarer cases at will. Yet a rare case should not be considered an unimportant one. In many countries congenital syphilis is now a great rarity. It is, however, one of the most important diseases to know, as neglect of such a case is apt to cause inestimable misery not only to the patient but also to others.

Some diseases can be demonstrated better in a film than in any other way when patients are not at hand. The movement in various disturbances of the central nervous system can be faithfully recorded: tetanus, chorea, paralysis agitans, the various forms of syphilis of the central nervous system, and a great many other diseases can be very strikingly demonstrated in an ordinary motion picture film. The stuttering speech in many nervous disorders is easily recorded, and as some of these diseases are among the rarest and are yet of the greatest importance, the value of recording them on films for scientific purposes is easily realized.

Sound-recording will be found invaluable in the various disorders of the heart—not only the common forms of endocarditis and syphilitic affections but also the rarer congenital lesions, such as persistent ductus arteriosus and septum defect, both of which are associated with an abnormal sound effect that is not easily forgotten by those who have once heard it.

Pathology and public health are equally well served by faithfully recorded developments of various parasites and of diagnostic and preventive methods. Control of malaria cannot be better taught to an audience than by good films made for the purpose. The same applies to plague, yellow fever, kala-azar, hydatid disease, and other infections of bacterial and parasitic origin.

Most doctors know too little about the science of genetics and heredity. With all the various duties which medical study demands of a man, it is hardly to be expected that the average medical student can gain sufficient insight into the complicated science of genetics. The fundamental facts of this science could in no other way be so easily demonstrated as in an animated film, in which the chromosomes could be mapped and inspired with life, and in which the artist, under expert guidance, could depict the processes which determine the quality of a new individual.

Need for Organization

In the United States the American Film Centre has a branch for medical educational films, which collects and evaluates medical films from various sources. Dr. Adolf Nichtenhauser has been very active in this branch of the A.F.C., but the funds appropriated to this work have been so insignificant that expansion beyond the walls of a small office has not been possible. What is needed is organization on a grand scale for all English-speaking peoples. If one centre were set up for the U.S.A. and another for the British Empire, co-operation between the two would ensure that both did not carry out the same task simultaneously, but rather divided the work between them.

There are at present over 150 universities in the United States and the British Empire. It may safely be assumed that a great number of foreign universities would wish to acquire good medical films if they were available from reliable sources. The producers should therefore have a market for at least 100 and probably nearly 200 copies of each film. When we consider that an ordinary commercial film in America has 300 copies—sufficient to cover the world market—100 to 200 copies of a scientific film should be a sufficient basis for the economic security of the enterprise. As most universities would probably desire to have a film library of their own, the copies would mostly be sold, which would be of advantage to the producers, to whom ordinary commercial films are returned. Scientific films would not need the expensive salesmanship which commercial films require, and scientists would demand only a fraction of the salaries that at present are paid in the motion picture industry.

Even if the use of motion pictures should not in the end shorten the training time of medical students, as more knowledge is constantly being added, they will make a welcome variation to the medical curriculum and contribute in no small degree to the art of teaching medical science.

Nearly 3,000 male nurses will benefit as the result of new Rushcliffe Committee salary scale recommendations. In a circular to employing authorities the Minister of Health says he welcomes the recommendations and suggests their adoption. Half the extra cost will be borne by the Exchequer. The nurses to benefit are those employed in hospitals and public assistance institutions, and in sanatoria, tuberculosis hospitals or hospitals mainly concerned with the treatment of this disease, and tuberculosis wards.

* From the Department of Pathology, University of Iceland, Reykjavik.

The annual report of the National Council of Social Service for 1944-5 has been issued from 26, Bedford Square, W.C.1. The report begins by tracing the history of the Council since its foundation in 1919: "The dominant idea underlying its work has been the promotion of an effective partnership between the machinery of Government and the voluntary activities of the community." It shows how the responsibilities of the voluntary societies have increased step by step with the increasing assumption by the State of responsibility for the social needs of its citizens.

Outstanding features are recorded in the development of voluntary social service in the countryside. Before the war over 600 village halls were built with assistance from funds provided by the Carnegie United Kingdom Trust, and by the Treasury, through the Development Commission. Since the end of the war there has been a great revival of interest in village halls; the Carnegie Trust has set aside a further sum of £100,000 over the next five years, and the Development Commission has resumed its aid. The scheme has been correlated with the development of community centres, and over a thousand new village hall schemes are already in train.

The campaign for reviving the parish council, the smallest unit of local government in the country, has met with much success. The rural community councils have continued to provide leadership to their counties over a wide range of activities, including education, music and drama, rural industries, and after-care and health services. In the urban areas the report notes a new interest in the work of local councils of social service. The citizens' advice bureaux will go on in peacetime, because the need for their services is as great now as it ever was in time of war, and a national conference addressed by the Minister of Health in 1945 confirmed this view. Another development noted in the report is the tremendous enthusiasm all over the country for community centres. Reference is also made to the Council's library and information services, and to the fruits of its research work.

It is a sign of the Council's vigorous impact on contemporary social life that the interests covered by its consultative work range from old people's welfare to youth service, the Adoption Acts, playing fields, and training for social work.

PENICILLIN IN THE B.P.

Penicillin and seven preparations of it are the subjects of new monographs in the *British Pharmacopoeia*, 1932, notice of which has been given in the London, Edinburgh, Belfast, and Dublin *Gazettes* by the British Pharmacopoeia Commission. Penicillin itself is defined as the anti-infective acid produced when *Penicillium notatum* or related organisms are grown under appropriate conditions on or in a suitable culture medium, converted into the sodium or calcium salt. When pure, penicillin (sodium salt) is a white powder which may occur as granules or scales; it contains 1,666 units per mg. When has not been completely purified (sodium or calcium salt) it is a pale yellow to light brown amorphous hygroscopic powder, containing not less than 300 units per mg. It is very soluble in water and insoluble in fixed oils and in liquid paraffin. It is dispensed in sealed containers, the materials of which do not affect the potency of penicillin, and must be stored at as low a temperature as possible, not exceeding 10° C. The label on the container states whether it is sodium or calcium penicillin, the total number of units in the container, and the minimum number of units per mg. of the penicillin.

The preparations are cream of penicillin (cremor penicillini), sterilized cream of penicillin (cremor penicillini sterilisatus), injection of penicillin (injectio penicillini), oily injection of penicillin (injectio penicillini oleosa), penicillin ointment for the eye (oculentum penicillini), lozenge of penicillin (trochiscus penicillini), and ointment of penicillin (unguentum penicillini).

The Commission's notice contains an appendix on the biological assay of penicillin and a warning that, in any part of the British Empire where penicillin is controlled by law, care must be taken to comply with the provisions of such a law.

At the request of the Minister of Health his Central Housing Advisory Committee has set up a subcommittee "to advise on matters relating to domestic equipment, fittings, and components for houses from the standpoint of domestic convenience," and one of the members is Dr. J. Greenwood Wilson, M.O.H. for Cardiff.

MEDICAL USES OF PENICILLIN

"The medical uses of penicillin" was the subject discussed at a meeting of the Section of Medicine of the Royal Society of Medicine on May 28, and it attracted a very large audience; but apart from the two openers, Sir Alexander Fleming and Prof. R. V. Christie, no one came forward to sustain the discussion, and after a few questions had been asked and answered the meeting ended. Dr. T. IZOD BENNETT was in the chair.

Sir ALEXANDER FLEMING said that there were two chief ways of giving penicillin—namely, into the blood stream and by local application. Both had their uses, and, of course, penicillin when injected into the blood stream did not get everywhere in high concentration, as, for example, into a large abscess or empyema. The amount given should be sufficient to destroy the infecting organism. Penicillin was the only chemotherapeutic agent which was quite non-poisonous; and therefore no trouble was to be apprehended from overdosage. Much greater danger lay in underdosage. Bacteria, like other living creatures, had a power of adaptation, and if a non-lethal dose was given they quickly recovered and became resistant to penicillin.

The usual method of administration had been three-hourly injections day and night, but this was being given up in favour of one or two large doses a day. If made up in a simple watery solution, penicillin to the amount of 100,000 units was out of the circulating blood in about six hours, but by making up in oil-wax mixtures the time during which it was in the blood could be prolonged. With the greater availability of penicillin it was now justifiable—as it was not a year ago—to increase the amount, at the same time lengthening the interval. Thus the ordinary treatment of 15,000 units every three hours meant 120,000 units a day, but this might be raised to 100,000 units every six hours which meant 400,000 units, or 300,000 units every eight hours which meant 900,000 units, or even 500,000 units every twelve hours which meant 1,000,000 units a day.

At the moment the administration of penicillin by inhalation was being widely practised. If 100,000 units were inhaled morning and evening penicillin would be maintained in the blood practically all the time. If the sputum were examined, high concentrations of penicillin would be found; 2,000 units per ml. had been present in the sputum twelve hours after inhalation. This was a method which might well become more popular in the treatment of chronic bronchitis. Organisms like the pneumococcus and streptococcus were penicillin-sensitive and disappeared within two days; even Pfeiffer's bacillus disappeared, but the place of these was likely to be taken by Friedländer's bacillus and other organisms, and in some cases the result was just as bad as before treatment. Penicillin lozenges were useful, but in certain patients produced an unpleasant stomatitis. Here again, while the streptococci disappeared from the mouth, their place was taken by penicillin-insensitive organisms, which might be worse for some patients than the streptococci.

Combination with Other Drugs

A further question, Sir Alexander Fleming continued, was whether penicillin should be given by itself or in combination with other drugs. Two classes of drug immediately came to mind in this connexion—namely, the sulphonamides and the arsenicals. Penicillin powder was generally made with sulphathiazole, and the two were perfectly compatible. If an organism became "fast" to the sulphonamide it was scarcely likely to be "fast" to penicillin, and vice versa. Many laboratory experiments had been made in which an organism had been exposed to mixtures of penicillin and sulphathiazole or other of the sulphonamides, each ingredient being insufficient by itself, but the combination of the two had destroyed the organism. In the treatment of syphilis many workers had suggested a synergism between penicillin and the arsenical preparations. This was a point difficult to prove, but it might be that the future treatment of syphilis would be by penicillin with arsenic or with some other agent which affected the spirochaete. The

new streptomycin affected most of the organisms that penicillin affected, as well as a good many others, but it appeared to act in a different way, and a penicillin-streptomycin combination might be effective.

The question of length of treatment was one difficult to decide. Treatment must be continued long enough to eradicate the infection, and it was not easy to know when to stop. With a staphylococcal infection it might be necessary to go on for a week or more, and with some infections for a much longer period. With regard to penicillin given by mouth, if enough were given it was generally possible to get an effective action in the blood. But the amount absorbed varied greatly from patient to patient, and this was not entirely due to gastric acidity. One was not quite sure whether the patient was really absorbing the drug, and this made the method less sure than injection.

In conclusion Sir Alexander Fleming said that penicillin had given the physician a chance of effectively treating bacterial endocarditis and allowed the surgeon to perform operations which he would not have dared to do for fear of sepsis. But penicillin was not the end. Other chemicals, synthetic or natural, would be brought forward and would extend the scope of treatment. It would be important to use them, as it was now important to use penicillin, with intelligence and without abuse.

Penicillin for Bacterial Endocarditis

Prof. R. V. CHRISTIE spoke on the treatment of subacute bacterial endocarditis with penicillin, and described the results obtained in the 14 centres appointed by the Medical Research Council for the investigation of this disease. A review of the investigation was published in March (*Journal*, March 16, p. 381), and now it was possible to include a further two-months period of follow-up, and to add particulars of 58 new patients, bringing the total in the series to over 200.

The first experiment which was planned about a year ago was designed to show the relative importance of duration of treatment on the one hand and the total amount of penicillin on the other. The first 48 patients all received 5,000,000 units of penicillin, but the duration was varied. Twenty patients received 1,000,000 units a day for 5 days, and all these died or relapsed. Twelve received 500,000 units a day for 10 days, and of these 3 (25%) were apparently cured. Sixteen patients received 250,000 units a day for 20 days, and 8 of these (50%) were apparently cured. It was clear from this experiment that the duration of treatment was of greater importance than the total amount of penicillin given. Accordingly in the next group of 102 patients the duration of treatment was established as 28 days, but the daily dose was varied: 16 patients received 100,000 units a day, and of these only 6 (37%) were apparently cured; 48 received 250,000 units a day, and 21 of these (44%) were apparently cured; 38 received 500,000 units a day, and 27 of these (71%) were apparently cured.

Incidence of Relapses

It should not be forgotten that no matter how effective penicillin might prove to be in this disease, there would still be a certain proportion of patients—about one-third or one-fourth—who were bound to die of heart failure, major emboli, uraemia, and the like, and these deaths had little or no bearing on the efficacy of penicillin. It was the incidence of relapses which counted. Among the 38 cases just mentioned there were 9 relapses (27%). Of the patients who died, the septicaemia in 4 cases was uncontrolled up to the time of death; 2 of these died during treatment, one 14 days and the other 26 days after the start, and the other 2 died soon after treatment was completed. But even if these 4 fatal cases, 3 of which were infected with extremely resistant organisms, were reckoned as relapses, the results obtained by this system of dosage spread over 28 days were superior to any so far published in this country or in America, and this was the system which should be recommended in the treatment of this disease.

There remained, however, the cases in which there had been relapse after inadequate treatment and which presented a special and difficult problem. In 30 such patients, on further treatment, 7 died, 14 relapsed, and 9 were apparently cured. With the statistical help of Dr. Bradford Hill he had worked out the expected numbers in each of these three categories on

the assumption that the cases had not received previous treatment; the number of deaths was approximately the same, but the expected number of relapses was 3 as against the actual number of 14, and the expected number of cures was 18 as against an actual 9. It was quite clear that relapse after an inadequate course of penicillin therapy was prejudicial to later success. It might mean that these patients had acquired resistance to penicillin or that they belonged to a special group of naturally resistant cases, but whatever the reason in these relapsed cases 500,000 units a day for 28 days was insufficient. Just how much should be given was not as yet clear. It had been their custom to give 500,000 units a day for eight weeks, with some measure of success.

The relation of the sensitivity of the infecting organism to the results of treatment was also extremely interesting. Further experience had confirmed the published results and conclusions that the resistance of the infecting organism appeared to be of little or no practical importance within a wide range. In these resistant cases—which were very rare—again 500,000 units a day for 28 days was insufficient. It was probable that a higher daily dose should be given—1 or 2 million units.

Comparison of Statistics

How did these results compare with those published in the United States? Comparison was difficult because most of the published results had been on a selected group of patients—selected on the basis either of sensitivity of the organism or of the physical fitness of the patient. For example, Bloomfield published 16 cases with no relapses and no deaths, but although they were said to be consecutive patients they were highly selected, only those patients being included whose infecting organism was very sensitive to penicillin. One thing might be concluded from the British statistics, that they illustrated one of the advantages of poverty. It was the scarcity of penicillin which led to the institution of these 14 research centres working to a co-ordinated plan in the treatment of a rare but extremely fatal disease.

Prof. Christie concluded with a few remarks on the significance of certain clinical features of this disease as they bore upon prognosis. An analysis of the first 147 patients treated showed that 128 had rheumatic heart disease, and of these 40% died; and 16 had congenital heart disease, and of these 25% died. He thought there was a suggestion from these figures that the outlook for congenital heart disease was, on the whole, slightly better than the outlook for rheumatic heart disease. An analysis of the relation of heart failure to prognosis showed that of 106 patients with no heart failure 21% had died; of 25 with moderate heart failure 76% had died; and of 16 with severe heart failure when treatment started all but one had died (84%). He also showed the relation of the death rate to the patient's state of nutrition. Of the cases in which the nutrition was good 17% had died, and of those in which the patient was said to be emaciated 82% had died.

Finally, he had listed the causes of death. Heart failure alone was responsible for 29%; heart failure with other causes for 21%; uraemia for only 7%; major emboli for 11%; haemorrhage for 7%; and other causes for 25%. Though haematuria persisted for many months in successfully treated cases, no case of late uraemia had as yet been reported.

Questions

The PRESIDENT asked whether anyone had had experience of inhalation therapy. He had seen only a few cases, but he had been deeply impressed. Sir WELDON DALRYMPLE-CHAMPEYNS asked whether Sir Alexander Fleming had satisfied himself that there was available in this country a satisfactory apparatus for giving penicillin by inhalation, in particular an apparatus for giving it, not with oxygen, which was a little cumbersome at times, but with filtered air. Dr. GEOFFREY EVANS asked whether there would be different types of penicillin on the market, and whether they could be advised as to what type of penicillin should be used. Was one type better than another for the treatment of syphilitic meningitis, for example? What was the best method of mitigating the pain which some people experienced when penicillin was given intramuscularly?

Sir ALEXANDER FLEMING said that he did not know whether there was a specially good apparatus for inhalation, but with

the simple apparatus in common use quite a large amount of penicillin could be introduced into the blood. As for the different types of penicillin, this same mould under different circumstances would make at least four different types. These were called (1), (2), (3), and (4), but in America (f), (g), (x), and (k), and from recent reports (k) was not very good for syphilis. Nearly all the work here had been done with penicillin (2).

Prof. CHRISTIE, in reply to questions addressed to him, said that the criteria he used for assessing apparent cure were: negative blood culture, normal temperature after penicillin was stopped, and general fitness of the patient. The only sequelae observed were, first of all, the persistence of red cells in the urine, which might go on for many months, and, again for several months, a somewhat elevated B.S.R., although this usually fell quite rapidly. Asked about cases of known heart disease in which tonsillectomy or dental extraction was necessary, he said that he recommended a prophylactic course of penicillin, starting possibly twenty-four hours before the operation and continuing for about three days. He did not think it could be said dogmatically what dosage should be given, but 500,000 units a day was generally assumed. As for the relative convenience of intramuscular drip and intramuscular injections, about half the patients preferred the one and half the other. There was no evidence that the results of treatment with these two methods of administration were different.

OBSTETRICAL CASES

At the May meeting of the North of England Obstetrical and Gynaecological Society held at Newcastle-upon-Tyne Mr. S. A. WAY analysed a series of 500 cases of the lower-segment Caesarean section operation, personally performed by him, and compared it with the results of a smaller series communicated to the same society by Mr. Harvey Evers in 1934. Of this series the large figure of 320 represented disproportion between the head and the brim of the pelvis, and was the reason for the failure of a delivery through the natural passage, and in 74 cases the indication for the operation was the presence of a low-lying placenta. The maternal death rate for the whole series was 3.4%, which on analysis was found to be highest in the "failed forceps" group with a figure of 4.3%, and for placenta praevia one of 2.7%. This maternal mortality was lower than in the series of the year 1934, and he attributed this decrease to the treatment of septic cases with the sulphonamide drugs. Mr. F. J. BURKE reported a case in which a pregnancy resulted after tubal reimplantation performed for complete occlusion of the lumen of each tube near its insertion into the uterine wall, and Dr. G. P. MILNE and Mr. T. J. ROBINSON described interesting cases of developmental abnormalities complicating the picture of pregnancy and labour. Mr. LINTON SNAITH described his investigation into the skin lesions of cases of toxæmia of pregnancy to a placental site, and Mr. HARVEY EVERS a case of malignant disease of the vulva in a girl of 17 years. All these communications were discussed by the members present.

Contributors to the *Journal of Endocrinology* have recently taken the initiative in the formation of a Society for Endocrinology, the object of which is to promote the advance of endocrinology by observational, experimental, and clinical studies. The society was founded at an inaugural meeting held at Guy's Hospital on April 26, when the following elections were made: hon. secretary, Dr. S. J. Folley; hon. treasurer, Dr. C. W. Emmens; hon. editor of the Society's *Proceedings*, Prof. S. Zuckerman; members of committee, Dr. P. M. F. Bishop, Dr. A. S. Parkes, Mr. P. C. Williams, Prof. F. G. Young. In addition to ordinary meetings at which original scientific communications will be presented, the society hopes to organize from time to time symposia on selected topics in the field of endocrinology. The address of the hon. secretary is: c/o the National Institute for Research in Dairying, Shinfield, nr. Reading.

A meeting of the Medical Society of the L.C.C. Service was held at the County Hall on May 8. Papers were read by Mr. R. V. LEWIS-LLOYD on fractures of the hand, Mr. J. C. GILLIES on infections of the hand, and Mr. J. GABE on injuries to tendons, etc. The three speakers stressed the dangers of paying too little attention to the treatment of minor injuries and gave their views of the ideals to be aimed at in achieving successful treatment.

Correspondence

Hospital Treatment by Doctors outside the Service

SIR,—Considerations of space obviously lead to great condensation of your report on the proceedings of the Standing Committee on the Health Service Bill. Nevertheless, having read those proceedings in full, I feel that Mr. Bevan's remarks on May 21 about the use of hospitals by doctors outside the scheme are of such fundamental importance that the attention of the profession should have been directed to them in no uncertain terms.

Mr. Bevan stated, quite correctly, that "there are instances all over the country where a person who is chronically ill goes into hospital because he or she cannot get treatment at home. It may be that they suffer from something which does not require specialist treatment, but treatment by a general practitioner. I want to make it clear that the general practitioner should give that kind of treatment in a general practitioner hospital." On which he was asked: "Is the general practitioner covered who may be outside the service altogether?" And he replied: "Now the hon. Member is not pushing the door open, but is pushing the house down. If he is asking that a general practitioner who is entirely outside the public service is to have available the hospitals of the public service, he is asking for more than the specialist gets."

The obvious and only possible inference from Mr. Bevan's remarks is that no doctor who stays outside the service will be able to make use of any hospital at all, for all hospitals are to be inside the service. Mr. Bevan emphasized it later by adding: "If a doctor or a specialist cares to stay outside the service, it will be a little hard for us to provide facilities. I do not want to have a principle inserted in my scheme whereby general practitioners and specialists can sabotage the service by remaining outside."

That gives the whole show away. All the talk of the freedom of doctors to remain outside is meaningless if they are to be deprived of hospital facilities. All the talk of free choice of doctor is meaningless; for how can a patient choose a doctor who will be unable to attend him for any but minor ills? This rule—that only doctors in the service can use the hospitals—is blatantly a method for forcing all doctors into the service whether they wish it or not, for only by being in the service will they be able properly to treat their patients.—I am, etc.,

Ashted, Surrey.

W. EDWARDS.

Health Service Bill

SIR,—Perhaps you will allow me to make some comments on the Second Reading of the Health Service Bill. My first criticism is the unseemly haste with which the Second Reading was conducted. I would draw attention to the levity with which the Government has treated both the public and the profession with regard to the arrangements for the Second Reading, at which the principles of a Bill are settled. The Leader of the House at first proposed to take the Second Reading four days after the publication of the Bill, leaving only the week-end (which many members use for visiting their constituencies) for study of its eighty closely printed pages. The final allocation of time was 2½ days. The same levity is apparent in the decision to take the Committee Stage, not on the floor of the House as is the rule with all important measures, but in a committee room "upstairs." By this arrangement the Committee Stage is left to 50 members, whereas on the floor of the House the full 640 members form the committee. Perhaps I may mention in passing that as an independent Member—a status which I have maintained for 22 years—I receive no support from Party Whips, with the result that I had difficulty in catching the Speaker's eye during the debate and find no place on Committee "C."

I propose to confine my comments to the measures contemplated for the consultants, for whom I am most qualified to speak. The position of consultants was left practically untouched in the White Paper published by the Coalition Government in 1944, and the position of consultants still remains more fluid than that of the general practitioners' section. Whole-

hearted co-operation of the consultants is, however, of prime importance to the Minister. His scheme for health services differs from the provisions of the N.H.I. Acts precisely in the promise of specialist and institutional treatment, which was excluded from those Acts, and this provision has obviously been one of the principal baits offered to the public in the new Bill. The Minister's personal reaction to this section does not augur well for his ultimate control of consultants. There are ominous hints already in the proceedings of Committee "C" that he is preparing to make his own selection of consultants and his conditions for their terms of service and remuneration.

I would instance in particular his reference to the power he would exercise, when he has obtained control of the hospitals, in admitting to hospitals only those consultants whom he wishes to favour, with the implication that without that admission it will be impossible to follow consultant practice. It is true that he declares his intention of consulting an expert body in his choice of consultants, but that consultation remains permissive, not obligatory, and as the "expert body" is to be for practical purposes appointed by himself, its impartial authority is undermined. May I, in a digression, point out how farcical such protection proves in practice. In 1920 the House appointed a "consultative committee to advise the President of the Board of Education." It included some of the most distinguished educationists of our generation, but it was so seldom consulted that its final demise in 1938 was unnoticed until my question (*Hansard*, Jan. 26, 1944) revealed these facts. That committee was appointed by Parliament, whereas the consultative committees named in the Health Bill are to be appointed exclusively by the Minister.

The nationalization of the hospitals, which again constitutes one of the principal differences between the White Paper of 1944 and the present Bill, has a vital importance for the consultant section, and in no respect more vitally than in the effect nationalization must have on the prosecution of research, which has been conducted almost exclusively by consultants at the voluntary hospitals. I pointed out in my speech, in a passage which you were good enough to reproduce, that the Bill devoted only nine lines to the subject of medical research, which, those lines indicated, would be "conducted" by the Minister from Whitehall. Research conducted by a State Department has little attraction for the research worker, as has been shown in a recent incident. When the "conduct" of research into the atomic bomb was entrusted to the Minister of Supply the immediate result was the refusal of almost all the scientists most actively engaged in such research to accept membership of the Minister's team of workers. The reaction of British consultants immediately upon publication of the Bill showed a similar revolt against the proposal for nationalization of the hospitals, which, it was at once seen, would destroy the whole atmosphere of research as at present conducted at the voluntary hospitals.—I am, etc.,

House of Commons.

E. GRAHAM-LITTLE.

Medicine and the State

SIR,—It is interesting to note the marked alteration in tone in the correspondence in your columns on this subject which has occurred lately, and which coincides with Mr. Bevan's assumption of power as "medical dictator." To-day, almost every letter reveals a rising tide of justifiable indignation at the methods employed and the indignities to the profession resulting therefrom. In the past there were many letters appraising the Bill, or certain elements in it, but these voices are growing fainter and fainter as the days pass. For it is now clear where we are being led, and all the trappings and trimmings and unessentials are falling away. We are just left with the cold, hard, naked fact that the "dictator" intends as his first step to wrest freedom from the medical profession and the public, so that he and his Government have power to do anything and everything they think fit in medicine.

This he realizes he must do, and indeed his ultimate intentions are only thinly veiled. He can either ingest the meal at one gulp, which he is rather scared of doing, or take it piece by piece, more insidiously, until he has achieved his ends. It all savours, rather sickeningly, of the old, hackneyed phrase, "I have no more territorial demands to make." It is commonplace to-day to hear such pronouncements as, "Whether you like it or not, you are going to have it" and "We shall go

through with this scheme, co-operation or no co-operation" and "The Minister refuses even to negotiate with the profession."

A most excellent letter from Dr. Alfred Cox exposing the dangers of dictatorship in medicine is sent to the *Times* for publication, but the editor regrets that he is unable to publish it. To my mind there is no other issue at stake worth consideration except the preservation of freedom in thought and action for the medical man and the patient, and this is being, or is going to be, denied to both. If we stand by and acquiesce we are sacrificing the one essential for the future of medicine. Is, then, the profession to consent to such tactics?—for its consent to working the Bill is indispensable to the Minister, even if he does not yet realize it. Or is the profession to stand and fight and grasp with both hands a heaven-sent opportunity to hammer a long nail into the coffin prepared for dictatorial methods, which we have striven and suffered six long years to eradicate, spilled much blood in the doing, and emerged to find that we have only been loaded with it ourselves?—I am, etc.,

London, W.1.

A. R. DINGLEY.

"Appointment with Fear"

SIR,—This is a reasonable title, I think, for the situation facing most practitioners. For what stake will a thoughtful, well-educated man gamble with one throw practically the whole of his capital and his total income? This includes, of course, not only his own bread and margarine but a home for his wife and education for his children. For that is the situation if he decides to "strike" or, put into other words, "fight the Government." If the stake is "buying and selling of practices" will the man who has no practice fight? Will the man who has a big debt on his practice fight? Will all those who can get their money now on a good market fight? If the stake is "no part-salary" will the man fight who has a salary or a part-salary now? Will all those who publicly say they will fight do so to the limit or quietly quit?

I consider that before any husband or father can seriously consider this particular gamble he should have knowledge of certain facts: (1) The total numbers of doctors (including those in Government or local government employ) available. (2) The number of doctors who promise to refuse service and strike (I think there should be 80%). (3) Certain knowledge that those agreeing to strike are doing so and continuing to do so. For this latter the only knowledge of "form and fitness" of our team was the last time out in 1912. Then many were non-starters, most of the others failed to finish the course, and those who did received severe penalties.

It is necessary on this occasion to have some outward visible sign of those maintaining the fight. I think that every "striking" doctor should agree to take a locumtenency at least 15 miles away from his practice. The executive committees or adjoining Divisions could arrange this general post, and a rehearsal could be held at any time. I am willing to add my name to the list.

Without a well-organized plan we doctors should not attempt a "strike," as we would certainly fail. We can only war the public that there are not the doctors, buildings, equipment or staff to implement the promises of the Government, and that, with the limitations on the independence of doctors, their future service to the public must be worse and not better than at present.—I am, etc.,

Heacham, Norfolk.

P. S. MARSHALL.

Compensation under the Bill

SIR,—Dr. Geoffrey Dudley (May 25, p. 811) draws attention to the case of the medical man who "would not wish" to enter the service. Almost similarly placed is the consultant who, on account of age limit, has been retired from a hospital appointment but still continues in practice, and offers his services to the State and they refuse it—as they almost certainly would on account of his age. Under such circumstances the Minister would also be confiscating the practice. While the letters which appear weekly in the *Journal* are no doubt an outflow of righteous indignation, one wonders whether they are a useless outflow. It may be assumed the Minister of Health does not read them. Is the B.M.A. doing anything to bring the ideas expressed in them to his notice?—I am, etc.,

Norwich.

ARTHUR GREENE.

Notification of Venereal Disease

SIR,—A recent discussion at the Royal Sanitary Institute again focused attention on the much-disputed topic of the notification of venereal disease. Col. Harrison summed up against the proposal, and we have therefore to conclude that officially it is not yet in the region of practical politics.

The one big argument for the proposal put forward was the need for sanctions, as a final resort, for persistent recalcitrance. The present Minister of Health was quoted to the effect that at the back of all fields of endeavour in social effort there must be compulsion. The speaker quoted the work of a public health department where statutory powers are in existence, but where most of the results are obtained by compromise and agreement. Actual cases in the courts are rare. In other words, compulsion is a weapon to flourish, but not to use except in the last resort. With this premise and argument I think most people would agree, but where to find the weapon in this vexed question of venereal disease is a difficulty.

Article 148 of the Public Health Act, subsection (a), reads as follows: "A person who, (a) knowing that he is suffering from a notifiable disease, exposes other persons to the risk of infection by his presence or conduct in any street, public place, place of entertainment or assembly, club, hotel, inn or shop" shall be liable to penalties. If for "notifiable" disease in this section "infectious" disease was substituted and infectious disease, by Order, made to include venereal disease, it appears to me to give us such a weapon. Actually if it were cut short to read as follows it would answer the purpose: "knowing that he is suffering from an infectious disease, exposes other persons to the risk of infection, shall be liable to specific penalties."

The two chief types who are mainly concerned in the spread of venereal disease are: (1) defaulters; (2) the irresponsible professional and amateur.

(1) I should be prepared to put up notices in all clinics to the effect: (a) that treatment is free and confidential; but (b) draw attention to and quote the suggested enactment about spreading the disease; (c) urge continuance of treatment till freedom from infection is certified by the doctor. In the case of letters sent to defaulters the enactment should again be quoted. With the drastic decrease in the time factor in modern treatment and with the help of social workers, armed in the last resort with this enactment, a vast improvement should ensue.

(2) The persons here concerned are mostly subnormal or abnormal mentally or psychologically. They belong to one of the antisocial groups, and it is a question whether in a well-ordered society such groups should be allowed the amount of liberty they now enjoy. As things are, however, they form a very formidable problem. There is so often the practical difficulty from a legal point of view of establishing identification in specific cases—strong suspicion but not legal certainty. Pinning down one of these cases is one of the most difficult problems a social worker can encounter. Even so, an enactment of the kind suggested could be a weapon. So often, in this type—where it is morally certain a particular person is at fault—evasion is practised. To serve a copy of this enactment may at least have the effect of frightening where persuasion had failed.

I am not sufficient of a legal expert to know whether this clause could be made law under present Orders in Council or whether an amending Act would be necessary, but there appears no great difficulty in making it law if thought advisable.—I am, etc.,

C. M. OCKWELL.

Dartford.

Pregnancy in a Uterus Bicornis

SIR,—There would appear to be some serious confusion of thought in the mind of your correspondent, Dr. D. W. Robinson (June 1, p. 836), writing on the subject of "Pregnancy in a Uterus Bicornis." Can it be possible to remove "the right horn" and yet leave the uterus "almost like a normal one . . . with both tubes and ovaries in the usual position"? I suggest that it is frankly impossible. The possibility of angular pregnancy should be considered, and there is the exceedingly rare condition of diverticulum of the uterus which may account for this strange phenomenon.

Would it be possible for your correspondent to let us have some more details, and, if possible, a sketch of what actually was seen at operation? The case is surely worthy of careful presentation.—I am, etc.,

Carlisle.

G. A. ARMSTRONG.

"Cord Round the Neck"

SIR,—My own experience leaves me quite convinced that many stillbirths are attributable to this cause, and I have no "grave obstetric doubt." Unfortunately, I have not had the opportunity of carrying out all the tests and experiments suggested by Dr. Reddington's (Jan. 19, p. 109) and subsequent letters, but the following may be of interest.

In order to test the tension required to arrest the flow through the umbilical vessels a cork of a Winchester was fitted with three small copper tubes, to which were attached three lengths of cycle-valve tubing. One of these was attached to another short length of copper tube, filed and tapered for insertion into the umbilical vein, and the other two were fitted to serum needles with their points ground off and butts removed. A glass tube as an air vent was carried to the bottom of the Winchester. On inverting and suspending this apparatus, as in transfusion, before attaching to an umbilical cord, water flowed freely from all three outlets. The copper "nozzle" was inserted into the umbilical vein and tied with silk and the two needles were inserted into the arteries and tied. Though three umbilical cords were tried a satisfactory flow of water was not obtained through the arteries, but the flow through the vein was free and continuous. A flexible tube was attached to the external end of the air vent so that air could be blown through to increase the air pressure within the Winchester. The cord was suspended on a wire which perforated the end between the insertion of the "nozzles" so that the suspension did not pull the vessels away and were not accidentally compressed. Direct tension on the cord of several pounds had little or no effect on the flow of water, but with one coil of cord round one's wrist held horizontally the flow of water through the umbilical vein, at a pressure of 80 mm. Hg, was completely arrested with a pull of 1 lb. 2 oz. (510 g.). With two coils round the wrist the flow was arrested with a weight of only 8 to 10 oz. (224 to 280 g.). It was found with the cord hanging loosely and water flowing freely with forced pressure from the Winchester that the flow was completely arrested by the action of a mercury sphygmomanometer at 80 mm.

It may be that the "live" cord with both arteries conveying blood under pressure might continue to supply oxygenated blood to the foetus against considerably greater pressure or tension on the umbilical vein than that required to arrest the flow of water in this simple experiment. It was my intention to repeat this experiment after having forced a flow through both arteries. The experiment was attempted from both ends of the cord—i.e., with the needles inserted into the umbilical end of the vessels and in the foetal end, the results appeared to be the same. I wished also to take the B.P. of the umbilical cord before pulsation ceased, immediately after birth, and to test the required tension on the cord wound round the wrist to stop pulsation. As I am not likely for many months to have the opportunity of doing this, I suggest it to others. From this it would appear that a child could very easily be asphyxiated by tension on the cord round the neck as the head is forced further from the placental site, and I believe this is what not infrequently takes place.

I remember one case, particularly, which occurred some years ago. I was satisfied at the time and I am still satisfied that the cause of death was asphyxiation due to tight coils of cord round the neck. The mother was a healthy young primipara with good pelvic measurements, but the head remained on the perineum without advancing for about two hours and with no obvious reason for the delay. I fidgeted to deliver with forceps, but fearing the accusation of impatience, and having taken to heart too deeply the preaching on "meddlesome midwifery," I allowed this woman to deliver herself of a stillborn infant with the attenuated cord stretched tightly round the neck. Perhaps this life could have been saved by early forceps delivery. As the frequency of cord round the neck is said to be one in four or one in five deliveries, one might expect an even greater mortality than actually occurs, and it is difficult to imagine that one can have attended a great number of confinements without having been confronted with this tragedy.

It would seem probable that repeated tension on the cord if the cord be looped round any part of the child's body, limbs, or neck during a prolonged second stage would cause foetal distress and eventually asphyxiation, and that asphyxiation would result from occlusion of the umbilical vessels, and this would probably occur in the case of cord round the neck before constriction of the cervical vessels could occur. In another case of my own I attributed death to asphyxiation due to tension on the cord, which was wound tightly twice round the body of

a child delivered by the breech. Except for this unexpected complication of the cord, delivery was easy, and I do not think that in this case the cord was compressed against the maternal pelvis.

In addition to the possibility of asphyxiation due to tension on the cord round the neck are to be added the possible difficulties and complications due to the artificially shortened cord, such as retroplacental haemorrhage as mentioned by Dr. I. G. Cameron (Feb. 23, p. 291). I have noticed several times when patients have had strong uterine contractions with only very slow progress but have complained of intense pain at each contraction, and often after forceps delivery, that there has been a very short cord or the cord artificially shortened by being wound round the neck. These patients are often thought to be making a great fuss over nothing. "She has good pains but won't use them" is often reported.

Other points which occur to me and perhaps have not been fully investigated are: What effect, if any, is there on the capillaries of the placenta if the cord is sufficiently constricted to occlude the umbilical vein for considerable periods without compressing the arteries? Can the strain on the foetal circulation due to constriction of the umbilical cord be an aetiological factor in congenital heart disease—e.g., patent foramen ovale or ductus arteriosus?—I am, etc.,

Huddersfield.

S. H. WADDY.

Congenital Hypertrophic Pyloric Stenosis

SIR,—I am grateful to Dr. Margaret Smyth (June 1, p. 851) for drawing attention to an error of omission in my paper on pyloric stenosis. As I had previously (*Lancet*, 1944, 2, 748) given a detailed account of my method of medical treatment, I included only a brief summary of it. I failed to point out that the initial feed-volume reduction is maintained for 24–48 hours, and subsequently there is a daily increase of 1/2 oz. (14 ml.) until the infant is taking its full caloric requirements. When this stage has been reached the vomiting does *not* return and the gain in weight is satisfactory.

Dr. Smyth gracefully admits that her experience in this field is limited, and had it not been so I am sure she would not have been under the impression that my care of each case was limited to ten days. Actually, every case treated medically was seen periodically for at least four months and until medication had been stopped and it was certain that the vomiting had not returned. I can assure Dr. Smyth that my "optimism" is not based on ignorance of what happens after the infant leaves hospital.

I read with interest Dr. Smyth's report of her own two cases, and I note that the second was given atropine methyl nitrate for only three weeks. She will observe that I continue medication for sixteen weeks. The reason for this is that the average duration of pyloric stenosis is about sixteen weeks, and if medication is stopped before the disease has run its natural course the vomiting is likely to return. I believe that, even at its late stage, if Dr. Smyth restarts her second son on a full course of atropine methyl nitrate his vomiting will cease.—I am, etc.,

Tunbridge Wells

N. M. JACOBY.

Psychology in the Child's Education

SIR,—An Educational, Scientific, and Cultural Organization has been established under the auspices of U.N.O. This offspring of the parent body is likely to exceed it in importance and achievement if it can direct and control educational curricula throughout the world. The place to plan world security is in the class-room. We know from unfortunate experience how successfully children can be indoctrinated with principles of racial superiority. It should be possible for an educational system to inculcate ideas of racial equality with tantamount facility. Children are generally curious, impressionable, companionable, sympathetic, and unselfish. They want to play with their neighbours no matter their status, colour, or religion. They behave instinctively, and only tend to develop class-consciousness, prejudices and prejudices when these are fostered by

No serious attempt has been made to render children fit for the responsibility of citizenship. Arithmetic and literature are crammed into their fertile minds to the exclusion of elementary psychology. How much more harmonious would their lives

become if they were taught something about instincts and emotions. Surely human relationships are worthy of as much attention as geographical and historical data. The study of human nature has been seriously neglected. Children learn something of love, charity, honour, sacrifice, humility, modesty, good, and evil from religious instruction, but this should be complementary to the teaching of simple psychological mechanisms. They should be taught to appreciate the nature of hate, envy, greed, spite, guilt, and temper, so that in later life they will be capable of applying elementary psychology to counter and control these tendencies in themselves and others.

It seems to me that too much effort is directed towards the winning of prizes and coming out top of the class. Competition is a useful stimulus, but as only a few pupils can succeed at the expense of many others, the frustration, feelings of inferiority, and enmity which these successes engender cause greater harm than benefit. Competition in sport also tends to stimulate feelings of rivalry and animosity. The desire to excel, either in athletics or in scholastics, is more determined by neurotic exhibitionism than by worthy self-satisfaction over an achievement which is the reward of painstaking effort and training. We all admire "the best pupil of the year," who frequently combines charm and modesty with outstanding scholastic and athletic performances. He is no exhibitionist, but capital is made out of his achievements, and the emphasis laid on his successes inspires exhibitionist urges and compulsions in less stable personalities. I maintain that this emphasis is harmful. Children should be taught to strive and succeed for the benefits to be obtained from knowledge and physical fitness. Unfortunately their efforts are essentially stimulated by the desire for superiority, aggrandizement, and acclamation.

Failure to educate all children along the right lines may well be the ultimate explanation of much parochial, national, and international strife. Let them be taught, *pari passu* with academic subjects, to understand themselves, their instincts, reactions, emotions, behaviour, and character. Only in this way will they be able to carry enlightenment into the future and undermine the fears, suspicions, and resentments which are always tending to tear the earth asunder. The most careful scrutiny of candidates for the instruction of school-children should be carried out. They should be tested for stability, character, and aptitude. Neurotic types with rigid traditional attitudes and prejudices—whether social, political, or religious—should be eliminated. The experience gained in the selection of officer candidates during the war should be used and improved in order to find the most suitable types of teacher. A watchful eye should be on the look out for behaviour disorders and personality defects in school-children. The advantages to be gained from early reference to the appropriate specialist cannot be over-emphasized. Children are the citizens, parents, and administrators of the future. No effort should be spared in their supervision and training.—I am, etc.,

London, W.1.

ELLIS STUNGO.

"Congenital Malaria"

SIR,—I have followed the recent correspondence with great interest and would like to add these few observations.

It is not generally realized that the incubation period in *P. falciparum* may be as short as five days. There is some, but not conclusive, evidence to suggest that the number of sporozoites injected influences the incubation period. For example, some recent researches have shown that, in M.T., when one million sporozoites are injected fever begins on the fifth day and scanty ring forms are present in the peripheral blood. Whether this number is ever injected into a patient in nature is very doubtful; to obtain this I used an emulsion of dissected salivary glands and the sporozoites were counted before being injected. (See *Transactions of the Royal Society of Tropical Medicine*, July, 1945.) Even in patients infected in the usual manner by the bites of several heavily infected mosquitoes the incubation period is frequently six or seven days. Therefore if the incubation period can be as short as five to seven days in an adult it is conceivable that it may be even shorter in infants.

From the study of hundreds of primary cases infected with M.T. by mosquito bites I have never seen a case where parasites could be demonstrated in the peripheral blood over a period of five days before fever developed. Usually fever

occurs twenty-four to forty-eight hours before parasites can be demonstrated even after a prolonged search of well-stained thick films. These observations are with adults only.—I am, etc.,

Ministry of Health's Malaria Laboratory,
Horton Emergency Hospital.

P. G. SHUTE.

SIR.—Contributors to your columns on the subject of congenital malaria appear to have overlooked the results yielded by chance experiments. These would seem to give strong support to the existence of such an entity. Cases are recorded by Leven (*Maschr. Kinderheilk.*, 1931, 49, 46) and Schadow (*Münch. med. Wschr.*, 1931, 78, 947) where children born to syphilitic mothers who were treated with experimental malaria therapy were found to have malaria parasites in their blood. These cases occurred in areas where natural malaria was non-existent, and would appear to show conclusively that transmission from mother to child via the placenta can occur.—I am, etc.,

Brentford.

E. CRONIN.

SIR.—In this hospital malaria parasites (malignant tertian) have been found on several occasions in the blood of newborn infants, taken from the umbilical cord or subcutaneously. Recently a primipara was delivered of a live premature child (8½-months pregnancy) during an attack of malaria. Blood smears from the maternal surface of the placenta showed ring-form parasites, and subcutaneous blood from the child taken within twelve hours of its birth also showed ring-form parasites.—I am, etc.,

Mission Hospital, Bantyre, Nyasaland.

R. GWEN DABB.

Volvulus of the Small Intestine

SIR.—Dr. W. G. Kerr and Mr. W. H. Kirkaldy-Willis (May 25, p. 799) make this generalization when referring to volvulus of the small intestine: "the condition is relatively common in the East African native"; and Sir Henage Ogilvie (p. 800) makes an even wider generalization by referring to "the proneness of the African to volvulus."

Now Africa is a vast continent with a population estimated in 1944 as 165,348,543 (*World Dominion Press*, 1945), consisting probably of many thousands of separate tribes. Many of these tribes differ not only very markedly in structure and habit but also in the diseases from which they suffer. The epidemiological factors producing these differences cannot be discussed here except to state that they are very imperfectly understood and offer a vast field for research. Recently I have spent five years in Ruanda-Urundi (East Central Africa) and was greatly struck by the difference in the acute abdominal conditions occurring in comparatively near-by hospitals. For example, during my stay I had 17 cases of subacute idiopathic intussusceptions in adults, but did not see one case of volvulus, and I heard of a number of other cases of intussusception in Ruanda-Urundi but no case of volvulus. In 1940 Dr. Dunlop informed me that whereas intussusceptions were extremely rare in the Uganda Government Hospital of Masaka—about 200 miles (320 km.) from us—volvulus of the intestine in women was his commonest emergency. About 100 miles (160 km.) beyond Masaka is the C.M.S. Hospital of Mengo in Kampala. Here, I understand, both intussusception and volvulus are very rare, whereas strangulated herniae and acute retention of urine due to gonorrhoeal stricture are exceedingly common. In five years I saw four cases of strangulated herniae, and only about three cases of acute retention, although gonorrhoea was common.

Thus it will be seen, I think, that the statements quoted in the first paragraph are far too wide to be of any scientific value, and, indeed, are apt to be misleading. In a similar manner Sir Henage's remark "to . . . peptic ulceration . . . he seems to be immune" cannot, from our experience in Ruanda, be accepted unqualified.—I am, etc.,

Old Hill.

T. B. L. BRYAN.

The Catheter and the Prostate

SIR.—I note Mr. Winsbury-White's death rate of 1.05% for suprapubic prostatectomy (June 1, p. 849). Surely we must be dismayed by his death rate of 11.1% for suprapubic cystostomy—that is, if we are to take seriously the expression of mortality as a percentage in so small a series of cases.—I am, etc.,

Cambridge.

TERENCE MCCALL.

"Open Ether"

SIR.—May I add to the many comments on the inability of newly qualified practitioners to administer "open ether" anaesthesia?

I have only recently qualified in South Africa and arrived in England a few months ago; it is a strict ruling at the Medical School of the University of the Witwatersrand that all students before qualifying must give at least 20 anaesthetics themselves with a qualified anaesthetist standing by, and all of these must be "open ether," usually with ethyl chloride induction. Modern machines are available and in use every day; they are demonstrated and students are allowed to assist in their use, but the possible nature of one's work in far-off and primitively equipped places has proved, time and again, the value of the ability to administer an "open" anaesthetic.—I am, etc.,

Cambridge.

D. HAMILTON WALKER.

Judicial Responsibility of G.M.C.

SIR.—The most recent pronouncement by the President of the General Medical Council on the judicial responsibility of that body must give rise to the utmost alarm and despondency. In restoring to the *Register* the name of a practitioner erased as a result of a "gross miscarriage of justice," the President affirmed that: (1) If a practitioner neglects to call all material and relevant evidence he does so at his peril. (2) If there is evidence that is relevant and is not adduced on behalf of the practitioner the responsibility of any adverse view by the Council must rest with the practitioner.

Is not this a circumlocution for "It is up to the accused to prove himself innocent"? And is not this a novel, alarming, and abhorrent view of the responsibility of a judicial body to give fair trial and not to assume guilt until guilt is proved beyond all reasonable doubt?—I am, etc.,

Worcester Park.

ROBERT V. GOODLIFFE.

SIR.—Dr. Hennessy's name has been restored, if somewhat tardily, to the *Medical Register*. This right and proper action is doubtless applauded by all, in view of the gross miscarriage of justice by which the practitioner was deprived of his means of livelihood. One would expect to read of some fitting expression of regret by the President that the General Medical Council should have come to such an erroneous conclusion. But not one word of this is to be heard.

It did not take Mr. Justice Charles many minutes to decide that the evidence of the woman in the case was a tissue of lies, and this he did to a great extent by observing her demeanour in the witness-box. The General Medical Council, on the other hand, swallowed her story, and I doubt if they would have altered their opinion had this "additional evidence" been placed before them at the time. Only one excuse can be offered on their behalf. A judge is trained to detect the false from the true. He is a good psychologist. They are only doctors.—I am, etc.,

Gillingham.

G. E. ELLIS.

Colonial Medical Service

SIR.—There have been for some time such evident signs of dissatisfaction among new members of the Colonial Medical Service (West African) that I think it would help those who contemplate joining it if one with some experience set out some of the conditions to be met in at any rate one West African Protectorate. This letter is not intended to deter men from joining, as there never was a greater need for men of the right stamp, but it is fair to them that they should in some small measure be acquainted in advance with what they are likely to encounter. They can then better make their choice and at any rate enter with their eyes partly open. The prospective medical officer should know that:

1. He will probably not find much private practice. It may be said at once that if a medical officer does his Government work conscientiously he will not have time for private practice.

2. He will probably not find adequate facilities for indulging in a speciality such as surgery (or any special branch of it), research, etc. Working conditions are far more primitive than he is likely to visualize. It should, however, be pointed out that a "specialist" medical officer is not wanted in Protectorate work. The Protectorate medical officer must be a man of parts and able to tackle adequately problems connected with almost any branch of his

profession. A man who "really only does surgery" is of small use to, for example, a district administrative officer. If he is of a specialist turn of mind he should know that the number of specialist posts are now extremely few. He must not expect to be spoon-fed in a Protectorate hospital, and if he does surgery, for instance, must be prepared to supervise the preparation of instruments, etc., himself, as the African staff are quite inadequately trained for this sort of work. If he trains his staff himself and renders a good report on them, he must be prepared to have them seized by head office and to start all over again.

3. He must expect some 33% or more of his time (better spent in improving his medical knowledge) to be taken up with office work. He will have to draft all correspondence himself, "carefully scrutinize" (a favourite head office injunction) all returns, requisitions, pay vouchers, expenditure, etc.—in fact, everything. He will have plenty of reports to furnish. Inspecting and checking Government property, unexpedient and expendable, is also an important part of his duties. In the end he will wonder what on earth the African staff are paid for. It must be borne in mind, too, that his own department is by no means the only one with which he has to correspond. If the Service is to be what it is claimed to be—viz., a medical service—the amount of office work *must* be reduced instead of, as it is, being increased.

4. If he is worldly wise he will concentrate rather on efficiency in office than in clinical work, for in the former lies the road to preferment. If he is still wiser he will qualify to join the Health Department, for to them fall the plums of office. The assumption of superiority by the Health Department has long been a source of wonder and irritation to the clinical medical officer, not eased by the reflection that he does half their work for them in addition to his own. The medical officer could bear the inequity (and iniquity) with composure if he could look forward to some compensation in clinical work within a reasonable period. This inequality must cease.

5. He must realize that the life is more favourable for a bachelor, and must contemplate the possibility of a wife being unable or unwilling to put up with the climate or social conditions. In any case he will be separated from his wife and family for a large part of his career, with the consequent additional expense.

6. He must expect to lead a somewhat nomadic life for his first two or three tours. He will probably (especially during the present shortage of medical officers) be moved, to his intense annoyance, several times in a tour, and at short notice, and see much of his endeavours rendered apparently nugatory and his domestic life disarranged. If he has a car, he may not be able to use it in his next post. But he must realize that it is only fair that the claims of senior officers, who have already been through it themselves, should be recognized, and that his own time will come.

The above may not be a first-class advertisement for the Colonial Medical Service. Nevertheless colonial life has a lot to recommend it in these days of over-civilization. There is still, even in 1946, much pioneer work to be done by men of initiative (if allowed to exercise it), and the work is interesting and not at all monotonous taken as a whole, and the large amount of outdoor life should appeal to many. The prospective medical officer must realize that the Service cannot benefit by all the promising men leaving if *everything* does not suit them personally. It is such men who are needed badly to stay and pull the Service through, but the Government must see that they get all reasonable help. In addition I have always found the Government in personal matters a good and reasonable employer.

Finally, let me put in a last plea for better recognition and better working conditions for the ordinary medical officer. He is the most important man in the department and, so far as the Protectorate public are concerned, the *only* man, and he it is who exercises from the medical or sanitary point of view the only real influence in their lives.—I am, etc.,

"ANOTHER WEST COAST."

Nasal Septal Deformities in Identical Twins

SIR.—The account of nasal septal deformities in a pair of identical twins by Dr. T. O. Howie (May 19, p. 760) was of especial interest to me as only a few weeks before I had had the opportunity of making similar observations. The patients, identical twin boys aged 13 years, were referred to me because of recurrent severe epistaxis. I quote from my records of the cases as follows:

A. B. *Nose*.—Slight septal deflection to the left. Hypertrophy of middle and inferior turbinates on the right side. Usual varicose area on both sides of septum anteriorly—more marked on the left.

G. B. *Nose*.—Deflected septum to the left. Hypertrophy of middle and inferior turbinates on the right side. Degree of impairment of airway on left side. Usual varicose area anteriorly on left side of septum only.

It is evident that, although the intranasal anatomy was not absolutely identical in the twin patients, it showed clear evidence of a similar plan of development. This is not surprising, as perhaps the most striking characteristic about monozygotic twins is the facial resemblance, which of course depends largely on the similar development of the paranasal sinuses and related structures in both. The voices are usually indistinguishable for the same reason.

These patients were also examined by a physician (Dr. Gaisford), and he reported that they both had a similar congenital cardiac defect, a further instance of identical development.—I am, etc.,

Birmingham.

W. OGILVY REID.

D.D.T. Pancakes

SIR.—Your annotation (March 16, p. 398) does not contain a record of any human adult ingesting D.D.T. One of my fellow officers has consumed, as the result of a bet, half a dozen pancakes made of D.D.T. powder instead of flour. He was witnessed by the whole of his mess and enjoyed his meal greatly, without any untoward effects.—I am, etc.,

B.A.O.R.

THERESA LAZAR.

Obituary

W. MCADAM ECCLES, M.S., F.R.C.S.

Surg. Lieut. J. B. GURNEY SMITH, R.N.V.R., writes:

May I pay tribute to a very fine man. Of all Mr. Eccles's great qualities, I feel that his deep-seated interest in the welfare of students in general and of Bart's students in particular and his devotion to medical missionary work were outstanding. These were recognized in his chairmanship of the Student Committee of the B.M.A. and his prominent place on the boards of direction of numerous Christian medical bodies. Of the latter, the Medical Prayer Union, which seeks to stimulate missionary fervour among doctors, was very dear to him. He used regularly to preside at its annual peace-time missionary breakfast held at University College, Gower Street. He was always the ideal chairman in making everyone feel perfectly at ease. I am sure that all past and present members of the St. Bartholomew's Hospital Christian Union will salute his memory, as he was one of the Union's readiest supporters and often took the chair at the annual gathering for freshmen held in the College library. His enthusiasm for all pertaining to Bart's was self-evident, and his absence from the recent celebrations, which he did so much to organize, must have distressed him not a little. His smile and friendly greetings and gracious manner will remain as indelible memories. Truly, a great son of Bart's and a fine Christian gentleman has gone, "the fever of life over and his work done." He has left to all who loved him the shining example of a medical life fired by the highest Christian ideals.

We regret to announce the death on May 27 at Brighton of Dr. DUNCAN DAVIDSON MACKINTOSH of Worthing, who went to practise there after the end of the 1914-18 war. He was born at Aboyne, in Aberdeenshire, on March 16, 1871, son of William Mackintosh, and from Aberdeen Grammar School went to the university of that city in 1888, graduating M.B., C.M. with honours in 1892. He then served as house-physician and house-surgeon at the Aberdeen Royal Infirmary and as medical officer to the Deeside District Isolation Hospital at Aboyne, where he practised for many years. In 1916-19 he was resident medical officer at the 1st London Territorial General Hospital after serving on the staff of the Endsleigh Palace Hospital for officers. Dr. Mackintosh joined the B.M.A. in 1894, was honorary secretary of the Chichester and Worthing Division 1924-32, and represented it at six Annual Meetings. He was elected president of the Sussex Branch in 1936. He leaves a widow, and a daughter who married Mr. Derek Curtis-Bennett, K.C.

Dr. CONWY LLEWELLYN MORGAN, who died on May 28 at Fairlight, near Hastings, had been chairman of the Hastings Division of the B.M.A. in 1924-5, and thereafter represented the Division at five Annual Meetings. Born in South Africa at

Rondebosch on Aug. 6, 1881, son of Conwy Lloyd, M.B., F.R.S., he had his education in England at Clifton College and University College, Bristol, and took his clinical course at St. Thomas's Hospital. He graduated M.B., B.S. Lond. in 1905, and after holding a resident post at St. Thomas's and that of clinical assistant at Great Ormond Street Children's Hospital he proceeded M.D. in 1908. Settling in practice at Hastings, Dr. Morgan was for a time assistant physician to the Royal East Sussex Hospital.

There has passed away recently in Middlesbrough Dr. GEORGE SANDYS BELAS. Until his illness he was senior surgeon to the North Riding Infirmary and chairman of the medical staff. The first half of his professional life was spent in general practice, the second half as consultant surgeon with specialization in genito-urinary surgery. In this latter capacity he was appointed consultant to the E.M.S. Hospital, Hemlington. His services to the St. John Ambulance Association were recognized some years ago by his receiving the honour of Commander of the Order of St. John of Jerusalem. He represented the Cleveland Division of the B.M.A. at the Annual Representative Meeting held at Dublin in 1933 and was chairman of the Division in 1933-4. Belas received his medical education at Trinity College, Dublin, and qualified in 1909. He had many of the best characteristics of the Irishman—good nature, high spirits, and a large degree of the sporting spirit. He excelled at sport himself, having as a student represented the Irish universities in the quarter-mile. He held an enviable position in the affections of his fellow practitioners and was very popular with the public, while at the same time maintaining a personal dignity that supported his position as a medical man. He leaves a widow and three sons, one of whom has recently taken his degree of M.B.

We regret to announce the death of Dr. AUBREY DALLAS PERCIVAL HODGES, C.M.G., late lieutenant-colonel in the Uganda Medical Corps, who was principal medical officer of the Uganda Protectorate, 1908-18. Son of Dr. H. B. Hodges of Watton, Herts, he was born in 1861 and was educated at Epsom College and the London Hospital, where he held three resident posts, and then became assistant R.M.O. at the South-East Fever Hospital, New Cross. He had graduated M.B. Lond. in 1890 and M.D. two years later. During his service in East Africa Dr. Hodges was for a time medical officer in charge of an extended investigation into trypanosomiasis and was A.D.M.S. for Uganda in the war of 1914-18. A colleague writes: "Apart from his skill as a doctor and administrator of his department, he was a scientist and naturalist of no mean order, and his research into the habits and life history of the tsetse fly did much to solve the problem of dealing with the fly and the control of sleeping sickness in early days. He will also be remembered for his hospitality and the genial atmosphere he created wherever he was."

Major COLIN CAMPION, R.A.M.C., who died recently at sea after a short illness while on a troopship, was the son of Mr. Ernest Campion, of Isleworth, Middlesex. While a student at St. Bartholomew's Hospital he won a junior scholarship in chemistry, physics, and biology, and junior and senior scholarships in anatomy, physiology, and chemistry, and also the Herbert Paterson gold medal in biochemistry. He graduated M.B., B.S. Lond. with honours in 1943, and had been house-surgeon at Bart's and resident medical officer at the Hampstead General and North-West London Hospital before taking a commission in the R.A.M.C.

The Services

Surg. Lieut. J. G. Reed, M.R.N.V.R., has been appointed M.B.E. (Military Division) for outstanding services while a prisoner of war in the Far East.

Surg. Lieut.-Cmdr. J. A. Page and Surg. Lieut. J. P. Corcoran, R.N., and Temp. Surg. Lieut.-Cmdr. A. P. Curtin, R.N.V.R., have been mentioned in dispatches for good services while prisoners of war in the Far East.

Majors (Temp.) H. M. S. G. Beadnell and C. W. Maisey, R.A.M.C., have been mentioned in dispatches in recognition of gallant and distinguished services in Java in 1942.

Capt. I. Shragovitch, R.C.A.M.C., has been mentioned in dispatches in recognition of gallant and distinguished services in Italy.

CASUALTIES IN THE MEDICAL SERVICES

Killed in road accident in Middle East.—Capt. Edmund Timothy Gurney Meade-Waldo, R.A.M.C.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The Senate, on the recommendation of the Council, has resolved to confer the degree of Doctor of Science, *honoris causa*, on Sir Henry Tizard, F.R.S., President of Magdalen College, Oxford; Mr. C. J. Mackenzie, president of the National Research Council of Canada; Dr. C. H. Best, F.R.S., professor of physiology and director of the Banting-Best Department of Medical Research in the University of Toronto; B. F. J. Schonland, Ph.D., F.R.S., president of the Council of Scientific and Industrial Research of South Africa; and Dr. F. M. Burnet, F.R.S., director of the Walter and Eliza Hall Institute for Medical Research, Melbourne; also to admit J. N. Mills, D.M.Oxon, Fellow and lecturer of Jesus College, to the degree of Doctor of Medicine by incorporation.

During May titles of the degrees M.B., B.Chir. were conferred by diploma on G. C. Thompson, of Newnham College.

UNIVERSITY OF LONDON

The report of the Principal on the work of the University during the year 1945-6 is dated May 2. Among many matters of interest it recalls the innovation by which the Treasury grant for the current academic year to the University Grants Committee was £500,000 for transmission to teaching hospitals. So far less than half this sum has been allocated, on the basis of the clinical entry to medical schools in 1944-5, and London University's share was a little over £94,000. Several grants for teaching and research purposes were received, including financial support from the Wellcome Trustees to institute a part-time chair of tropical medicine, tenable at the London School of Hygiene and Tropical Medicine. The Medical Research Council has made a grant for the establishment of a chair of human nutrition, also tenable at that School, to which Dr. R. S. Platt has been appointed. Newly appointed deans of undergraduate medical schools include Dr. C. F. Harris at St. Bartholomew's, Dr. E. R. Boland at Guy's, Dr. D. H. Brinton at St. Mary's, and Dr. K. Lloyd Williams at the London School of Medicine for Women. "Finally, we welcome Sir Francis Fraser as the first director of the British Postgraduate Medical Federation. Under his guidance will be built up an organization which will co-ordinate and develop all the general and specialized facilities for postgraduate medical education in London." During the academic year the title of reader in pharmacology was conferred on Dr. H. O. Schild. Dr. John Yudkin was appointed to the chair of physiology at King's College of Household and Social Science, and the title of reader in human nutrition was conferred on Dr. Gladys Hartwell. Dr. J. N. Davidson was appointed to the chair of biochemistry at St. Thomas's Hospital Medical School. At University College Hospital Medical School Prof. Wilson Smith has been appointed to the chair of bacteriology and Dr. Walter Fruedenthal to the readership in dermatological histology. At the College of the Pharmaceutical Society Dr. G. A. H. Buttle was appointed to the chair of pharmacology; at the Royal Cancer Hospital Prof. E. L. Kennaway is retiring from the chair of experimental pathology and will be succeeded by Dr. Alexander Haddow. The title of professor emeritus was conferred on Dr. G. W. de P. Nicholson, who held the chair of morbid anatomy at Guy's Hospital Medical School from 1922 to 1944. In his report for 1944-5 the Principal referred to the special committee set up under the chairmanship of Sir Henry Dale to confer with the undergraduate medical schools on the question of the admission of women students. He now writes: "That committee has now completed its work, and I am glad to be able to report that all the medical schools concerned have signified their willingness to accept women students, and the London School of Medicine for Women has agreed to accept men students."

The following have been recognized as teachers of the University in the subjects indicated in parentheses:

St. Thomas's Hospital Medical School: Dr. R. W. John (Morbid Anatomy); Dr. J. L. Pinner (Pathology); Dr. J. L. Pinner (Physiology); St. George's Hospital Medical School: Dr. G. Edwards and E. F. (Surgery); Middlesex Hospital Medical School: Dr. A. E. W. Idris (Anaesthetics); University College Hospital Medical School: Dr. H. N. Webster (Anaesthetics); Lister Institute of Preventive Medicine: Dr. D. M. (Physiology); St. Mary's Hospital: Dr. L. Minns and A. B. Stokes (Physiology); Society of Medicine: Dr. Marthe Vogt (Physiology); Dr. H. F. Rosenberg and O. G. Edholm (Physiology).

Candidates for the M.B., B.S. who passed the second examination for medical degrees in or after March, 1945, will be required to have attended not less than 30 months' course before entry for Part I and not less than 36 months' course before entry for Parts II and III of the M.B., B.S. examination. Arrangements relating to pharmacology at the second examination for medical degrees, under which pharmacology is a separate subject in which candidates may be referred, and an additional examination in pharmacology only is held in

September, was approved "as a war measure." They will be continued for the present, but the matter is to be further considered in October. Additional examinations for the Academic Postgraduate Diploma in Medical Radiology will be held in the session 1946-7 for students who attend the course for the diploma which began in April.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a meeting of the Council, held on May 25, with the President, Mr. Eardley Holland, in the chair, the following were formally admitted to the Fellowship:

A. C. H. Bell, J. L. Cameron, Mabel F. Potter, D. M. Stern. *In absentia*: E. Keelan, N. W. Philpott.

The following were formally admitted to the Membership: Constance L. Beynon, E. W. C. Buckell, W. Calvert, R. G. Cross, G. Dalley, Perla Greeves, Emilie E. Guthmann, W. P. Hirsch, W. Kearney, A. H. C. Walker, Margaret Weddell. *In absentia*: S. N. Garde.

The Council acknowledged with grateful thanks a gift of £1,000 from Sir William Fletcher Shaw to found a lectureship in memory of his son William Meredith Fletcher Shaw, who fell in Normandy in 1944, to be awarded annually to a senior Fellow of the College.

At the annual general meeting of the College, held on May 25, with the President, Mr. Eardley Holland, in the chair, the following were elected to Council in place of those retiring by statutory rotation: *Representative of the Fellows*: R. H. M. Corbet, A. A. Gemmell, A. J. McNair, E. Farquhar Murray. *Representative of the Members*: B. L. Jeaffreson, J. S. Quin. Prof. Hilda Lloyd and Mr. L. C. Rivett were co-opted to the Council for special purposes.

Medical Notes in Parliament

HEALTH SERVICE BILL

Towards the end of the discussion in Committee on May 30 Mr. KEY, in reply to a number of questions, said that the Minister intended that there should be a standing advisory committee on hospital services and that the position of Wales as a region and the relationship of North and South Wales were matters for consultation when regional areas were set up. Clause 11 as amended was ordered to stand part of the Bill.

FUNCTIONS OF BOARDS AND MANAGEMENT COMMITTEES

On Clause 12 Mr. KEY moved to insert words making clear that the Minister was not required to carry out his duties, in providing hospital and specialist services, exclusively through the Regional Boards, but might provide those services direct. The amendment was accepted.

Mr. LAW asked the Committee to delete the reference to "directions given by the Minister" in the provision that the Regional Board must administer the hospital and specialist services in the area "in accordance with regulations and such directions as may be given by the Minister." These words, he said, were objectionable both in this instance and whenever they occurred, which they did frequently. A peculiar character of the Bill was the Minister's wide powers, which he could exercise without responsibility to Parliament or to anyone. The Minister could claim freedom of action, but it should be subject to the approval of Parliament. Mr. KEY said that in the administrative work there might be occasions when it would be necessary to give directions to Regional Boards outside the regulations. Parliament could always call the Minister to book about these directions.

After further debate Mr. LAW's amendment was rejected by 22 to 14 and the Committee adjourned.

On June 4 proceedings began with an amendment, moved by Mr. LIPSON, to vary the wording of Clause 12, subsection 1 of which defines the duties of a Regional Board and subsection 2 authorizes the Management Committee to exercise such functions of the Board as might be prescribed. He proposed first that the Board should appoint such officers as were necessary; and, secondly, to omit the provision that the Board should maintain premises associated with any hospital other than the teaching hospital and could acquire and maintain equipment, furniture, and other movable property. His amendment provided for transfer of these powers to the Management Committee in accordance with regulations and directions given by the Minister. He also proposed that the Management Committee should appoint officers required to be employed at or for the purposes of the hospital, except specialists, and should appoint for each hospital in a group a house committee to which could be delegated any of the Management Committee's functions for each hospital. Mr. LIPSON said the amendment was not intended to weaken the status and authority of the

Regional Board because it gave the Board power to appoint its own secretariat. He could not discover in the Bill what was to appoint officers of the Regional Board, but prestige influence would be added to the Board if it had power to appoint its officers. If the Management Committees were to represent local knowledge and local influence they must have powers equal to their responsibilities.

Mr. WILLINK said Mr. Bevan had moved a little in the direction of giving real responsibility to those who were responsible for the day-to-day work of hospital groups by promising to introduce amendments which would make the Management Committees into legal "persons" capable of receiving legacies and gifts. To maintain local responsibility and feeling the amendment proposed to remove from the Regional Board the functions of appointing officers—nurses, stokers, etc.—to be employed at any hospital in the region. A nurse would be more attracted to be one of the staff of a great hospital group rather than become one of thousands of officers of, say, the North-West Regional Board. He asked Mr. Bevan whether the Bill intended that the Regional Board was to appoint all officers, or did it merely provide that the Board had a duty to appoint such officers as were not otherwise appointed? Would it be the duty of the London Regional Board to appoint all the officers required at, say, the Hospital of St. John and St. Elizabeth? The chairman of the Nuffield Provincial Hospitals Trust had expressed the view that in hospital management every person in the hospital should be in contract with, and be an officer of, the Management Committee, with the exception of the specialist. The Minister should provide for house committees in the Bill, as proposed in the amendment and as he had included in the White Paper.

Dr. CLITHEROW said he had sat on a voluntary hospital board when a matron was appointed by the Board in face of opposition from the medical men. In six months the lay committee was shown to have been wrong. That would not arise under a Regional Board. Mr. SOMERVILLE HASTINGS said the Committee must not forget the danger of another voluntary hospital system growing up within the administration of the Regional Boards. If the Management Committees were to have the best people working with them they must have powers to make quick decisions and to experiment, but he saw danger in their appointing any but the junior staff. He was chairman of the staff subcommittee of the Hospitals and Medical Services Committee of the L.C.C. When a senior appointment was made at any L.C.C. hospital the subcommittee invited the opinion of the chairman of the hospital. In nine cases out of ten the recommendation was for an individual who had been at that hospital. This also applied to voluntary hospitals. He himself was an example of that danger, because he had never left the hospital at which he was a medical student.

AVOIDING "EXISTING ANARCHY"

Mr. BEVAN said those who complained of the dangers of a rigid health service were those who moved amendments putting the service into the strait-jacket of a Statute. The Committee was starting something experimental which might require modification from time to time, and this would be impossible if every time modification was wanted the Ministry found it was kicking its shins against words in the Bill. The Committee was organizing a service, not defining a statutory contractual relationship. He sympathized with the purposes of the amendment, and the schemes would not be approved unless there was considerable devolution of responsibility to the Management Committees. Domestic and junior staffs would be appointed by the Management Committees but would be in contract with the Regional Boards. It would not be right for Management Committees to use their powers to have differential incomes for workers doing the same work in hospitals in the same region. That would re-create the existing anarchy in the hospital service. One of the reasons local hospitals were not as good as they ought to be was that they were too much under local influence and too little under the influence of the medical schools. Greater mobility within the service would be achieved if officers were in contract with the Regional Board and not the Management Committees. At present medical workers and hospital staffs were enchained by their particular institutions. He had met several deputations of workers, who complained that their possibilities of promotion were almost negligible because they were limited to the institutions in which they now worked.

Sir H. MORRIS-JONES said that under Mr. Bevan's proposal general practitioners would function under two bodies. On the one hand the executive committees would be their employers, and on the other hand they would be appointed to the hospitals by the Regional Boards. That was an anomaly. Mr. MESSER said he understood responsibility being delegated to select up to a certain standard of staff, but after that there

must be a selection body, such as existed in some big counties, which would ensure a certain standard of medical staff, composed of members of the medical profession. It was essential that nurses should be identified with a particular hospital.

Mr. BEVAN replied that Mr. Lipson was harbouring an unjustifiable fear; "it would be stupid for the Minister to appoint the officers of the Regional Boards; how would it be possible for the Boards to function properly if they were puppets of the Minister?" Mr. Messer had described admirably what would happen in practice. Certain ranks of staff would be appointed by the Management Committees with no reference to the Regional Board. For staff higher up the Management Committees would make recommendations to the Regional Boards, which the latter would usually accept. The amendment was defeated by 27 to 14.

Mr. PIRATIN moved to add to the powers of the Regional Boards the duty to provide for the training of all types of health workers, other than doctors. Mr. BEVAN said it would be an obligation on the Regional Boards to train such health workers as were not trained by other institutions. Mr. Piratin withdrew his amendment.

Mr. RANKIN moved to add a proviso that the M.O.H. should act as epidemic officer for the area under the Regional Board. Mr. BEVAN said the hospital service would be at the disposal of the local authority for all its purposes and therefore there was no need to appoint an epidemic officer in an area. The amendment was withdrawn.

STAFF COMMITTEES DEFINED

In subsection 2 Mr. SOMERVILLE HASTINGS proposed a change of words to provide that hospitals which were attached to the Regional Board need not be in the same region. If the Minister decided that the L.C.C. should be a region, none of its mental hospitals would be in the county. Mr. BEVAN said the amendment was unnecessary, because a Regional Board was a congeries of hospitals and it would be possible for the geographical area of London to reach out and take in any hospital necessary for its purposes. He was not prepared to give an assurance that the L.C.C. area would be a region. In one area there might be a considerable number of fever hospitals or of mental hospitals and in another area very few. There might be two Regional Boards astride these two areas. The word "area" included the power for a Regional Board not possessing a particular institution to take in such other hospitals as were necessary to complete its services. The amendment was withdrawn.

Dr. MORGAN moved an amendment to make a statutory provision that for every hospital under a Management Committee a medical staff committee should be appointed to work in conjunction with the management. Dr. STEPHEN TAYLOR asked the Minister to consider having medical and other health staff committees. Mr. BEVAN replied that if the Bill said there should be a particular staff committee the implication would be that there were to be no other staff committees, or that one staff committee had a higher status than others. It was intended to have staff committees of all the health workers in hospitals. He hoped the Committee would not regard medical workers as different from other workers. Dr. Morgan accepted the assurance and withdrew his amendment.

On the motion that Clause 12 stand part of the Bill Mr. LINSTAD said that Clause 41 contemplated that all officers employed for providing hospital and specialist services should be officers of the Regional Board. It was also contemplated that local authorities when they provided health centres should not themselves employ the medical staff. Clearly the executive council were not to employ the specialists at the health centres. Ought not some provision to be made whereby specialists at health centres were declared to be on the regional staff and not on a local authority staff or an executive council staff?

Mr. PIRATIN asked for an assurance about the Regional Board's planning responsibilities. Clause 12 limited the responsibility of Regional Boards and Management Committees to administration. The explanatory memorandum said each Regional Board "in collaboration with the Minister and with the teaching hospitals would plan, and execute the plan for, a co-ordinated hospital and specialist service for its region." He found no reference to this in the Bill.

THE MINISTER'S "DIRECTIONS"

Mr. WILLINK said there now stood in Clause 12 three provisions for directions which could be given by the Minister: directions to the Regional Board in general terms; to the Management Committee by the Minister or the Regional Board; and to the board of governors of every teaching hospital. During the war medical "directives" were issued in connexion with the E.M.S., but he believed that in the Clause

the true meaning of the word "directions" was in the administrative sense, and anxiety would be relieved if the Minister gave an assurance that he was not taking powers to give directions of a purely medical character to his medical officers. Dr. MORGAN added that during the war directions or guidance sheets about dosage and things of that sort had been issued to hospitals. In the E.M.S. that was only done subject to the discretion of the medical officer in charge of the case; it had never been regarded as compulsory that the medical officer must be guided by the direction.

Mr. BEVAN said that specialists employed at a clinic would be in contract with the Regional Board except in so far as they would be employed by the local health authority under Clause 61. He could give no assurance that medical officers of health would be put in any special relationship with the health service; they would carry on their responsibilities as at present except as these were modified by the provisions of the Bill. There would be no difficulty about the medical officer getting from the hospital system the services he required; because these services were at the patient's disposal. He (Mr. Bevan) had already stated specifically that he wanted Regional Boards appointed soon so that they might set about planning. With regard to directions, the intention was that they should be administrative and not medical. The Minister would not accept the odium of giving directives about any particular form of therapy. That was a matter for the professional man without any interference, directions, instructions, or prohibition.

Clause 12 was ordered to stand part of the Bill, as was Clause 13 on the legal status of Boards and Management Committees.

MACHINERY FOR APPEALS

On Clause 14, which deals with conditions of service and appointment of officers, Mr. LINSTAD moved to add a subsection to provide machinery for dealing with dismissals or with complaints made against officers or doctors employed by Regional Boards and to provide for appeals against such dismissals. He said the medical profession were apprehensive about their position when a large number of them had become, in effect, State servants. If they became liable to be "shot at" by patients there ought to be clear machinery which would satisfy doctors that, in the event of complaints or dismissal by a Board, they would be able to appeal and have opportunity to state their case. Mr. BEVAN said there was provision for dealing with the dismissal of general practitioners and there would be a special tribunal for dentists. He doubted whether it was necessary to have a tribunal for specialists, because they were under a different kind of contract and he doubted whether they would desire it. If it was found on investigation that a specialist had been guilty of misconduct in a professional matter there would be the professional tribunal to deal with it.

Mr. Linstead withdrew his amendment and Clause 14 was added to the Bill. Clause 15 was also added to the Bill without discussion.

On Clause 16, which gives the Minister power to aid research, an amendment from Col. Stoddart-Scott was accepted to add "causation" of illness or mental defectiveness to the subjects of research which the Minister may conduct or assist. The Clause as amended was ordered to stand part of the Bill, as was Clause 17 providing bacteriological service. On Clause 18 Mr. BEVAN said the Ministry proposed to set up a standing advisory committee on which blood donor organizations would be represented for continuous consultations. This was not a private enterprise carried on for profit.

Further consideration of the Bill was then adjourned.

On June 5 the Committee discussed Clause 19 and accepted a drafting amendment proposed by Mr. Key to secure that local authorities could be formed into joint authorities for the purpose of carrying out health functions other than those mentioned in the Bill, such as those connected with the Lunacy and Mental Treatments Acts and the Mental Deficiency Acts.

POWERS OF THE L.C.C.

In the same Clause Mr. WILLINK moved an amendment to re-define the application of the Clause to the administrative county of London. He said the main purpose of the amendment was to provide for a division of functions between the L.C.C., the Common Council of the City of London, and the councils of the 27 metropolitan boroughs and the city of Westminster. The change which Mr. Bevan proposed to make in administration of health services in London went far towards destroying local government in London. In the Clause maternity and child welfare work, the work of health visitors, and the new functions with regard to home nursing would all go to the enormously overburdened L.C.C., consisting of 120 elected councillors. The amendment suggested that health services could all be functions of the L.C.C., but that the

administration of those which were of a particularly personal kind should be delegated by statute to the 29 authorities which he had mentioned. The Minister had come to an unfortunate decision to nationalize all hospitals, including L.C.C. hospitals. Mr. Willink suspected that the L.C.C. had received additional functions as a *quid pro quo* for losing the hospitals. He contended that healthy government in London could be restored only by increasing the local patriotism of the old communities which made up the metropolis.

Mr. KEY said Mr. Willink's speech had not been directed to the problem which the Committee had in hand. Medical inspection and care of school-children rested with the education authority—which was the L.C.C. The Government scheme brought maternity and child-welfare care in with that service, and by giving it to the same authority would lead to greater efficiency. Mr. Willink's scheme would divorce the maternity and child-welfare service from the midwifery service, which was to be maintained and provided by the L.C.C. By making the L.C.C. the authority for the health services that were being provided, London would secure services of a proper standard despite the rating poverty of particular areas; it was in the interests of the health of the people of Poplar, Shoreditch, and Bethnal Green.

Mr. BEVAN said the amendment asked the L.C.C. to consider functions in relation to the metropolitan boroughs without considering its obligation to all the population which was contiguous. The population of London was undergoing a big redistribution, which must affect the functions of the L.C.C. and the metropolitan boroughs. Once the Ministry admitted that London metropolitan boroughs ought to be health authorities under the Bill it would create an argument of a similar kind for non-county boroughs in other parts of the country. He agreed that the L.C.C., if it attempted to carry out its functions under the Bill without co-operation from area committees and metropolitan boroughs, would soon become over-centralized. The L.C.C. would arrange a scheme by which there would be area committees in London on which the metropolitan boroughs would be represented for the purpose of carrying out certain functions, but these committees would not have delegated powers. They would have agreed responsibilities.

After further discussion the amendment was defeated by 23 to 17, and the Clause was added to the Bill.

PUBLICITY FOR LOCAL PROPOSALS

On Clause 20 Mr. Linstead moved an amendment to ensure publicity in the press for the proposals relating to health services which health authorities must send to the Minister. Mr. BEVAN believed that insistence on the admission of the Press into meetings would serve better. The amendment was rejected by 24 to 14. Mr. Linstead withdrew an amendment which suggested that the local health authority should also submit its proposals to the minor local government authorities within its area. Clause 20 was then added to the Bill.

HEALTH CENTRES

On Clause 21 Mr. BEVAN moved the adjournment after Mr. Willink had opened a discussion upon amendments designed to provide that in every case the local health authority could make representations as to the desirability of the provision of health centres, and that the Minister should consider the point of view of the Regional Board.

When consideration was resumed on June 6 on an amendment proposed by Mr. WILLINK it was agreed to have a general debate on health centres.

Mr. Linstead said that paragraph 42 of the White Paper stated that the object of the general scheme was that the health centre system should afford facilities for general medical and dental services, special clinic services, and "outpost" clinics of the hospital and specialist services, and also serve as a base for activities in health education. The health centre was a new conception of a focus for health services which had not yet been developed in this country, and the proposals in both the Bill and the White Paper tended to go too far and too fast. We did not know how far the idea of a health centre would appeal to the general public. They had to be educated to the idea of going to a public centre every time they wished to see their general practitioner. Administrative difficulties, too, could be too easily overlooked. The health centre would be a place where the hospital service run by the Regional Board, the local authorities' service, and the general practitioner service run by the local executive council were all to meet. At least three administrations would meet in the same building. The health centre might be a hive of industry but it would also be a hornets' nest. The patient would rather see his general practitioner, at least for the first interview, in the general practitioner's own consulting room on terms of friendship and informality. Health centres with full diagnostic facilities were required, for the weakness of the general prac-

itioner service at present was the difficulty of getting these facilities. The White Paper did not make clear what type health centre was contemplated. Much had been heard of health centres as places where groups of general practitioners got together; such a health centre was little better than a communal consulting room. What the public and the doctor would prefer was a private consulting room elaborated to proper modern standards, with, very close behind it, a well-equipped health centre—a diagnostic centre—where the general practitioner could send, it might be, a quarter of his patients for a second examination. He hoped the Minister would assure the Committee that there would be a good deal of experiment before public money was directed into any particular form of health centre.

Cmdr. MATTLAND said that in the countryside the three administrative functions mentioned by Mr. Linstead were performed by one man and would be so performed for some time. He asked whether in the country beds would be provided at these clinics. Would there be facilities for emergency operations? He asked the Minister to give a full exposition of his ideas, and hoped that at the same time he would ensure that it did not go out from that Committee that all country doctors posed as specialists and that all hospitals were run by matrons for their own ambitions. Mrs. RIDEALGH asked whether the Minister intended that all health centres should have child-guidance clinics.

ONE DISADVANTAGE OF HEALTH CENTRES

Dr. STEPHEN TAYLOR said the general practitioner service in the Bill would stand or fall by the success of the health centres. In the past the general practitioner had felt that the clinic was taking away his patients. If the doctors were operating under the same roof they would be colleagues. The progressive general practitioner recognized the value of team-work, and some successful general practices had multiple surgeries where the doctors had installed x-ray plants, dispensaries, and so on under a common roof. That had been done in Winchester and a number of other large towns. To educate the public to visit these centres was not difficult, because a great part of the public already visited clinics or, unfortunately, the outpatient departments of voluntary hospitals, which they used as general practitioners' centres. He thought they agreed that the doctor should have his own consulting room at the health centre, and there could be an appointments system for patients. The health centre had one obvious disadvantage. If four, five, or more doctors were grouped together any patient would have to travel a greater distance to get to his own doctor. That should be minimized by the proper siting of centres. He hoped to see the educative function of the health centre developed. In the past doctors had felt they must not talk about professional subjects; they should take the patients more into their confidence. He hoped there would not be beds in health centres. Captain BAIRD asked for an assurance that the health centre would not be provided solely for general dental services.

Dr. BARNETT STROSS said he was happy to note that the Clause said each health centre must be provided, equipped, and maintained to the satisfaction of the Minister. If the doctor who practised in the health centre became a health servant rather than a sickness servant he would want additional instruments, some of which he had never had in the past, and also a lecture hall and the opportunity of educating his patients on how to prevent themselves getting ill. He would not require in the immediate future to compete with the consultant or specialist, and the provision of x-ray apparatus, operating theatres, beds, and so on was very debatable. But there should be pathological services on the premises of any reasonably sized health centre. Dr. CLITHEROW associated himself with the subsequent amendment put down by Mr. Linstead as to pharmacists to the persons who, by a proviso to Clause 2 must not be employed by a local authority at health centre for the purposes of providing medical or dental services. He said that pharmacists preferred to come under the Regional Board as being professional men, and he hoped the Minister would think well before he forced them to be officers of local authority. Dr. Clitherow also drew attention to another amendment in his name which would permit the provision in health centres of "general ophthalmic optical services by optical practitioners."

Mr. MESSER said local authorities' organizations viewed with disquiet the administration which was outlined in the Bill. The local authorities were responsible only for the preventive and not for the remedial services, yet they were to be the administrators of the health centres. They were to provide and equip them. Who was to decide the range of equipment? It was a bad principle that the user of a health centre should not also be the authority responsible for its control. For that reason the local authorities felt it would be wise if control were in the hands of the Regional Board and, if necessary, the local

authorities could obtain permission from the Regional Board to use the centre under the Management Committee of the hospital.

Mr. J. S. C. REID asked what priority of building the Minister would give to these health centres. In the White Paper there was a phrase about using the health centres as "outposts" for hospitals. Nothing in the Clause would entitle the local authority to lay out any part of a health centre for that purpose. He saw nothing in the Bill to link up the health centre with the Regional Board. He thought the matter should be examined again. If records were to be kept in the health centre by a local authority employee the public would want clear assurance and strict regulations that these records were not made available beyond the doctor who was looking after that particular patient.

INTELLECTUAL ISOLATION OF THE G.P.

Mr. BEVAN said there was much controversy about health centres, but no controversy about the need to establish them. The only way in which the intellectual isolation of general practitioners could be broken down and a higher standard in the service built up was by bringing independent practitioners into intimate and frequent contact with their fellow doctors. Doctors had told him how much keener they were because they had been brought into association with each other in the E.M.S. There would be no experimenting with the initial idea of health centres; only experiments on how the idea was to be carried out, for instance, with regard to building. The centre must serve a fairly large unit of population. They could not have expensive diagnostic apparatus in each street. They were looking forward to a healthy population, and that was why it was necessary to give more attention to the preventive side of medicine. At every large health centre there should be opportunities for doctors to talk to children, to mothers, and to separate sections of the population about their particular problems. If they could get a stream of healthy people attending the centre it became a real health centre. One of the chief drawbacks of the out-patient departments of hospitals was that everybody in them was sick. Everybody had something wrong. All sorts and sizes of people sat on squalid hard benches for hours waiting for tired doctors to attend them. It was an appalling atmosphere. What the Government had not been able to make up its mind about was whether the country was to have health centres providing a variety of services, or rudimentary consulting centres nearer to people's homes where five or six general practitioners attended with comparatively rudimentary apparatus, and from which the doctors could send their patients for more extensive examination to health centres. The latter method would probably be the one for rural areas, where they would not be able to provide a large number of fully fitted health centres.

Lord WILLOUGHBY DE ERESBY asked whether the way out of the difficulty was to encourage doctors to develop their own surgeries. Mr. BEVAN: We do not want them to do that. We want them to get away from their surgeries and mix with each other.

MORE PARTNERSHIPS WANTED

Continuing, Mr. Bevan said the Ministry would be ready to encourage larger groups. It wanted more partnerships. The service must be a national one; to allow local authorities to experiment themselves with health centres would permit backward local authorities to deny their citizens health facilities. The first priority must be houses, and hospital facilities must come second because in some parts of the country there were long waiting lists and scarcely any possibility of patients being seen. But there were places where health centres could be established quickly. He did not suggest that this could all come into operation on the appointed day. It would have to be a growing service, adapted from year to year as experiences dictated. Mr. Reid was wrong when he said the Bill contained nothing to provide specialist services at health centres. Clause 3, Clause 61, and other Clauses provided the Minister with all the authority he needed. If they did not the Government would amend the Bill. Dental clinics would be at the health centres because the Ministry did not wish them to be separated from the rest of the health services. He had been asked about opticians and ophthalmologists; if facilities were available and if there were enough ophthalmologists it was desirable that anybody who felt that he or she had something wrong with their eyes should see the ophthalmic surgeon first. If spectacles were required the eye-testing optician provided them.

Dr. CLITHEROW thought the examination of eyes first by an ophthalmologist was a gigantic requirement. Mr. BEVAN said that opticians would not be under greater disabilities than other employees of local authorities. He could not agree to health centres being provided by the Regional Boards. These Boards were much too wide. It was far better for the local

authorities to have these functions. He agreed that large numbers of people wished to be assured that there would be complete privacy, for confidences they reposed in their doctor. There was no intention of mutilating that tradition. What the Ministry wished to avoid was the patient having to go through the same painful diagnosis by different doctors because his medical history was not available.

Mrs. RIDELGH asked about child-guidance clinics at health centres; many of the sufferings of backward and delinquent children were caused by physical defects which were undiscovered unless the child was seen by a psychiatrist. Mr. BEVAN could not promise that every health centre in Great Britain would be staffed by psychiatrists. There was a great shortage of trained psychiatrists. Numbers of people who had learned the nomenclature of psycho-analysis were masquerading as psychiatrists. The guidance given at the health centre should be skilled. Later the medical service of the schools would be assimilated into the National Health Service and that branch could be expanded.

Mr. WILLINK hoped the Minister was satisfied that the wording of the Bill would enable him to prevent an unwise local authority building six unsatisfactory health centres when they should build two good ones. He was reassured by what Mr. Bevan had said and was prepared to withdraw the amendment.

The amendment was by leave withdrawn, and Mr. Linstead moved one in the same Clause to transfer the pharmaceutical service in the health centres from the supervision of the local authorities to the supervision of the local executive councils. After some discussion this amendment was withdrawn.

On the motion that Clause 21 stand part of the Bill, Mr. BEVAN, replying to Mr. Willink, said it was intended that all V.D. services and clinics should be taken over by the Regional Boards. The Clause was ordered to stand part of the Bill.

Service Hospitals and the Bill

Mr. HARDY on May 30 reported grave concern at the disabled persons' and Servicemen's hospitals and homes not being included in the national scheme for hospitals. Mr. KEY said the hospitals which were subject to the provisions of the Health Service Bill and would normally be included in the future service were local authority and all other hospitals which were not provided by some other public authority and were not run for profit. The relationship to the general service of hospitals belonging to other Government Departments would be a matter for later consideration.

Cancer Research Expenditure

Replying on May 30 to Col. Byers, Mr. HERBERT MORRISON said the amount already allocated to cancer research out of the grant-in-aid to the Medical Research Council for 1946-7 was £7,600. It was not possible to forecast what additional expenditure on the subject would be incurred during the year, but no promising research proposal would be declined owing to lack of funds. This allocation of public money was supplementary to the substantial expenditure from the endowments and other resources of unofficial bodies and institutes existing specially for the purpose of research into cancer.

Invalidity and Pension Awards.—Mr. WILFRED PALING states that from the outbreak of war to April, 1946, the number of officers and other ranks invalided from the Forces and dealt with by the Ministry of Pensions is approximately 720,000. Awards have been made in nearly 315,000 cases. In over half the cases where no award has been made the man concerned has at no time inferred a claim. From persons released from the Forces 64,000 claims have been received. Awards have been made in nearly 42,000 cases, 10,000 claims have been rejected, and 12,000 are under consideration.

Conscription Period.—Mr. ISAACS announced on May 30 that young men reaching the age of 18 and called up for the Forces in 1947 would serve for two years. If no unforeseen circumstances arose, this period would be progressively reduced for those called up during 1948. The arrangement for students during 1946 was as announced on April 30. Definite arrangements have not yet been made for 1947, but it was hoped to make the same arrangements.

Release from R.A.F.—Sir E. GRAHAM-LITTLE on May 30 inquired about the release of medical officers of the R.A.F. He pointed out that by July these officers would be about 10 groups behind the Navy. Mr. DE FREITAS said the release of medical officers of the R.A.F. was slower than in the other two Services because the wartime proportion of medical officers in the R.A.F. had been much lower than in the Army or Navy. The Air Ministry was doing all it could to increase the intake in order to reduce the differences, but he could not forecast when approximate equality between the Services would be reached.

Notes in Brief

The Control of Penicillin (No. 1) Order, 1946, made by the Ministry of Supply, was presented to Parliament on May 28.

Medical News

A Chadwick Lecture on Plants in the Service of Mankind will be given by Miss Ellen M. Delf, D.Sc., on Thursday, June 20, at 4 p.m., at the Chelsea Physic Garden, Swan Walk, S.W., when Sir William J. Collins, M.D., chairman of the Chadwick Trustees, will preside.

The annual meeting of the Faculty of Radiologists will be held in Glasgow on Friday and Saturday, June 28 and 29. At the annual general meeting on June 28 in the Lister lecture theatre of the Royal Infirmary the president, Dr. Ralston Paterson, will take the chair for formal business, and after that the Therapy Section will meet under the chairmanship of Dr. Robert McWhirter; at 2.30 p.m. the Diagnosis Section will meet at the Western Infirmary, with Dr. Peter Kerley in the chair; and at 5 p.m. the National Health Service Bill is to be discussed by Fellows in general session. On the morning of the second day both sections will meet jointly at the Natural Philosophy Department of Glasgow University for a symposium on applications to biological and medical research of modern developments in nuclear physics.

With the agreement of the Colonial Office, the National Association for Prevention of Tuberculosis has formed a special committee to give advice on x-ray methods and apparatus used throughout the British Colonies. The members of the committee are Dr. R. R. Trail (chairman), Dr. J. M. Cruickshank (representing the Colonial Office), Mr. J. T. Ferrier, Dr. A. Stephen Hall, Dr. P. Kerley, and Dr. Harley Williams (secretary).

A silver cigarette-box and a cheque were presented to Major-Gen. R. C. Munday, C.B., retiring chairman of the Plymouth Medical Recruiting Board, at a luncheon given by him to fellow-members of the Board in the Grand Hotel, Plymouth, on May 25. Gen. Munday said it was his wish to give the cheque to the Royal Medical Benevolent Fund.

Penicillin can be supplied only on a prescription from a registered doctor or dentist. The Pharmaceutical Society points out that the retail prices fixed by the Ministry of Supply are for dried penicillin powder and not for the various preparations in which it will be used by the public.

Dr. C. H. St. John has been appointed a member of the Legislative Council of the Island of Barbados, and Mr. Aubrey Scott Gillett, F.R.C.S., has been appointed a member of the Executive Council of the Island of St. Lucia.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* an increasing incidence was reported for measles 629, acute pneumonia 96, and dysentery 80; the only fall of any size was whooping-cough 231.

The largest variation in the local trends of scarlet fever was an increase in London of 26. The only appreciable change in the returns of diphtheria was an increase of 12 in Yorkshire West Riding. The fall in whooping-cough was common to all regions except London and the south-eastern and northern counties, which showed little change.

Measles appeared in Anglesey during the week, and 101 cases were notified; the remainder of the increase in measles was accounted for by the counties where the disease was already prevalent. The largest rises were London 198, Essex 115, Surrey 67, Lancashire 57, Yorkshire West Riding 51.

The rise in dysentery resulted from increases in existing outbreaks. The largest returns were Lancashire 35, London 16, Middlesex 16, Oxford 12, Essex 12, Warwickshire 12, Devonshire 11, Surrey 9.

In *Scotland* the chief feature of the returns was a fall of 31 in the notifications of diphtheria, other declines in incidence being whooping-cough 43, dysentery 14, scarlet fever 11. Increases were reported for measles 49, and acute primary pneumonia 21.

In *Eire* a fall occurred in diphtheria 19, and measles 40. There were 22 cases of diarrhoea and enteritis.

In *Northern Ireland* the only change of note in the returns was a fall of 7 in diphtheria.

Week Ending June 1

The notifications of infectious diseases in *England and Wales* during the week included: scarlet fever 1,070, whooping-cough 2,059, diphtheria 304, measles 3,931, acute pneumonia 596, cerebrospinal fever 54, acute poliomyelitis 9, dysentery 163, smallpox 2, typhoid 5.

Corrigendum

In the figures for the week ending May 18 the increase of 20 cases of diphtheria in *Eire* has since been corrected to an increase of 14.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 21

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) *Eire*. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in *Eire*. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	67	6	24	1	—	50	3	29	—	—
Deaths	—	1	2	—	—	—	—	—	—	—
Diphtheria	371	26	74	34	9	396	24	132	73	1
Deaths	7	1	—	1	—	10	1	—	1	—
Dysentery	200	16	45	1	—	374	34	107	3	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute	5	—	—	—	—	—	—	—	—	—
Deaths	—	1	—	—	—	—	—	—	—	—
Erysipelas	—	—	52	4	—	—	—	41	5	—
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	52	5	5	22	4	40	—	10	32	9
Deaths	—	—	—	11	—	—	—	—	—	—
Measles*	3,287	1,034	674	24	5	11,408	614	385	61	1
Deaths	1	—	4	—	—	9	1	—	1	—
Ophthalmia neonatorum	75	7	14	2	—	81	5	16	1	—
Deaths	—	—	—	—	—	—	—	—	2(B)	1(B)
Paratyphoid fever	—	—	1(B)	—	—	—	—	—	—	—
Deaths	1	—	—	—	—	—	—	—	—	—
Pneumonia, influenza	557	24	6	3	3	487	28	3	4	—
Deaths (from influenza)†	7	1	—	—	1	6	—	3	—	—
Pneumonia, primary	—	—	218	28	4	—	22	204	28	12
Deaths	—	26	7	—	—	—	3	—	—	—
Polio-encephalitis, acute	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute	9	1	1	1	—	6	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	3	17	—	—	—	4	9	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡	151	16	11	1	—	117	5	9	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	1,089	100	143	18	26	1,295	65	239	16	2
Deaths	—	—	—	—	—	1	—	—	—	—
Smallpox	8	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	8	—	3	2	1	8	1	1	3	1
Deaths	1	—	—	—	—	—	—	—	—	—
Typhus fever	1	—	—	—	—	6	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough*	2,075	182	69	30	22	855	44	76	18	2
Deaths	15	4	—	—	1	7	—	3	—	—
Deaths (0-1 year)	378	53	56	27	13	301	28	54	43	5
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	4,635	660	636	183	113	3,937	475	586	223	12
Annual death rate (per 1,000 persons living)	—	—	14.0	11.7	—	—	—	13.3	14.4	—
Live births	8,976	1414	1062	423	308	6,775	736	897	374	28
Annual rate per 1,000 persons living	—	—	21.4	27.1	—	—	—	17.9	24.1	—
Stillbirths	249	35	52	—	—	—	211	23	30	—
Rate per 1,000 total births (including stillborn)	—	—	47	—	—	—	—	32	—	—

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and *Eire*.

Letters, Notes, and Answers

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ANY QUESTIONS?

Metabolism of the Nervous System

Q.—Please give an account of the metabolism of the nervous system. What is the influence of the central nervous system on the general metabolism?

A.—The gaseous metabolism of the brain has been studied in animals, including man, by comparing the composition of arterial and venous (internal jugular) blood and measuring the cerebral blood flow. Studies of isolated brain tissues (sliced or minced) have also been made. It seems likely, because the L.Q. is usually 1, that the brain gets its energy mainly by the oxidation of carbohydrate. Both glucose and lactic acid are taken up from the cerebral blood and apparently oxidized, since there is no evidence of glycogen storage. The reserves of carbohydrate are low. The mental confusion, delirium, and possibly convulsions which develop in animals in "insulin shock," or after hepatectomy, are probably due to hypoglycaemia, and the relief of the condition by the injection of glucose suggests its importance in the normal functioning of the brain. Vitamin B₁ probably acts as a coenzyme in facilitating the oxidation of glucose; this may explain the nervous symptoms which accompany B₁ deficiency. The scope of the question is, however, so large that no adequate answer can be given here and the questioner is referred to Page, *The Chemistry of the Brain* (1937), and Holmes, *The Metabolism of Living Tissue* (1937).

Diphtheria in the Immunized

Q.—I saw recently a fatal case of diphtheria in a girl of 6 who had been immunized about two years ago. Would it not be desirable for county authorities to record the number of diphtheria cases that have actually been immunized?

A.—The occurrence of diphtheria in inoculated persons is now generally recognized and accepted; the incidence of infection among the inoculated has been estimated from the annual returns of local authorities to be in a ratio of 1:3½ of the uninoculated. There are several possible explanations for the appearance of diphtheria in inoculated persons. (1) Diphtheria toxoid immunizes against the toxin of the organism and not against the organism itself, so that strains of the diphtheria bacillus that have a certain "invasive" power, as seems to be the case with the *gravis* and *intermedius* types, may be able to establish a local throat infection with membrane formation (diphtheritic tonsillitis) but without toxæmia. (2) The antitoxic immunity which develops after a child has received a course of diphtheria prophylactic begins to wane after some months, and in two or three years may have fallen to a very low level. If at this stage the child is attacked by the diphtheria bacillus the antitoxic response of the tissues may not be mobilized quickly enough to prevent the formation of enough toxin to do some damage. As a rule such infections are not severe and a fatal issue is rare. Thus, the mortality among immunized children has been estimated at a ratio of 1:25 of unimmunized children. (3) The immunizing agent may be a poor one, as happened in the early years of the war with a particular batch of A.P.T., but the chance of this happening in this country to-day is minimal.

To reduce the risk of infection among children who have been immunized in infancy and who may have lost a good deal of

their antitoxic immunity in the pre-school years, a boosting dose of 0.2 ml. A.P.T. should be given when the child goes to school, and this dose may, if thought necessary, be repeated five years later. In this way antitoxic immunity is maintained at a reasonably high level and the chances of fatal infection are very small.

Proper recording of the state of immunization of the child community is certainly needed, and has been strongly advocated by the Ministry of Health (see *Monthly Bulletin*, September, 1944, p. 142). Provision has now been made for improving the returns made by medical officers of health so that the incidence of diphtheria in immunized and unimmunized children of different age groups can be compared, and more precise data will thus be obtainable on any deaths from diphtheria in immunized children.

Glass and Ultra-violet Light

Q.—Does glass specially made to permit the passage of ultra-violet light lose this property with age? If so, what is the rate of loss?

A.—Such special glasses do lose their transparency for ultra-violet light to some extent with age—i.e., duration of exposure to ultra-violet radiation. The rate of loss, and the final, stable transmissivity, differ for different glasses. When used in windows the ageing of the glass is usually complete within twelve months, and the transmission factor may be reduced appreciably—in some specimens by as much as 20%. The loss is due to the presence of impurities in the glass, and can be made small by careful control of materials in manufacture. A high degree of stability is claimed for some of these transparent glasses.

Wuchereria bancrofti

Q.—Is there any specific treatment for filariasis due to *Wuchereria bancrofti*?

A.—There is no drug therapy which can be relied upon to eradicate *Wuchereria bancrofti*, but several compounds, particularly the organic antimonials, may bring about a temporary disappearance of the microfilariae, and on occasion may even appear to succeed in eradicating the infection. Thus of 30 patients treated with 0.3 g. of neostibosan on alternate days for from five to seven weeks, 13 were free from circulating microfilariae after twelve months. Little or no change occurred in the microfilarial levels during, or immediately after, treatment, and it is suggested that the slow loss of the microfilariae was due to the action of the drug on the adult worm. Progressively increasing doses of filarial antigen may relieve patients of symptoms presumably due to sensitization to products of the parasites, but here again treatment is uncertain in its effects.

Subarachnoid Haemorrhage

Q.—A man of 50, previously healthy and with a normal blood pressure, did four years' service in the Middle East. He was subjected to considerable physical and mental strain for some months before he collapsed with a subarachnoid haemorrhage. He is now well again, apart from some loss of energy and drive. (1) What is the prognosis? (2) What precautions should be advised to avoid a recurrence? (3) Is it true to say that the subarachnoid rupture of a presumably congenital aneurysm is quite unrelated to earlier physical and mental strain? (4) Is 50 the usual age for such cerebral accidents?

A.—(1) The prognosis must be guarded as there is always a prospect of recurrence. In Magee's series of 150 cases, 50 patients had a recurrence of bleeding; and as 52 of the total original series died, the 50 recurrent cases are to be related to the surviving 98 (*Lancet*, 1943, 2, 497).

(2) It is difficult to formulate dogmatic rules to prevent such a catastrophe, especially as in most cases of spontaneous bleeding no precipitating, or even provocative, features can as a rule be traced. Nevertheless, common sense enjoins that the patient should be warned against lifting heavy weights, or cranking his car, or making any sudden and strenuous physical exertion. Over-tiredness from sustained and excessive physical and mental work should also be avoided so far as possible.

(3) Earlier physical and mental strain may well be claimed as an aetiological factor provided that there is a reasonably

such a case. A small boy, listening to a major and a colonel both of whom stammered, and being filled with admiration for them, likewise began to stammer, and continued to do so till he was about 30. He then decided to give it up and spoke normally. Unfortunately, most cases of stammering are much too deeply involved to be cured so easily. There seems little doubt that, in the case mentioned, with the departure of his father the identification was broken, and, the suggestibility coming to an end, the patient spoke normally.

Spontaneous Combustion of Quilts

Q.—A patient put her baby out in the sun in his perambulator. For no apparent reason the baby's quilt, made of artificial silk lined with splint wool (upholsterer's wadding), burst into flames. Are such quilts likely to undergo spontaneous ignition in sunshine?

A.—In the writer's opinion this accident is to be attributed solely to the wadding lining of the quilt, which has become contaminated with oil—probably in a high local concentration. The conditions of warmth have led to rapid oxidation of the oil with an increase in temperature, leading ultimately to combustion. This phenomenon is well known with unscoured oils. If subsequently oil-contaminated, fibre when the conditions are favourable. The writer came across a similar instance in an aeroplane seat about 1916. In that case local concentrations of kapok-seed oil in the kapok stuffing were shown to have caused spontaneous combustion. A rapid and efficient method of determining the liability of oils on fibre to develop heat spontaneously is provided by the Mackey cloth oil tester, which is obtainable as a standard apparatus.

Red Hair and Bleeding

Q.—Do patients with red hair show an undue tendency to bleed during surgical operations?

A.—In thirty-five years of surgical experience the writer has never noted that patients with red hair have shown any undue tendency to bleed during a surgical operation, nor has he ever heard anyone put forward that suggestion. However, the matter could easily be put to the test by estimating the coagulation time of a series of red-haired patients and comparing with control series.

INCOME TAX

Car Expenses

J.P. bought a car in 1939 for £148 and has been allowed depreciation on it every year; he sold the car on Dec. 31, 1945, for £210 and then bought a new car for £400. The practice accounts are made up to April 4. What should he claim "for the year ending April 4, 1946"?

A. The depreciation and similar allowances are due for the financial year, not as a deduction from the profits of the year of account. The relevant question is, therefore, what allowances should be claimed for the financial year ending April 5, 1947. No allowance is due in respect of the old car. As regards the new car, the following allowances should be claimed: (a) an "initial" allowance of 20% of £400 = £80, and (b) a "depreciation" allowance of 25% of £400 = £100.

Sale of Practice and Cars

M. M. asks two questions: (a) He sold his practice and two cars on Jan. 1, 1946. Is he liable for "balancing charges" on the excess of the amount obtained for the cars over their written-down value? (b) He bought the share of a deceased partner in 1942. Does that raise his limit in respect of insurance premiums (Sec. 9 of the Finance Act, 1941) by the income his late partner derived from the practice in 1938-9?

A. (a) M. M. is not liable for balancing charges, and his partner can claim allowances based on the amounts at which the cars changed hands. (b) No. Under the provision referred to the limit of income is "the total income of the year of assessment or . . . for the year 1938-9, whichever is higher." Life insurance relief is a personal matter, and the 1938-9 income is M. M.'s income, unaffected by subsequent events.

Remittances from Colonial Earnings

N. C. M. has bought a house in the United Kingdom and consequently ranks as a "British resident."

A. He will be liable as a British resident for the whole of the present financial year—i.e., the year to April 5, 1947. Remittances to this country will not be liable to income tax if the period of

Colonial employment is three years or more and he is absent for the whole of the financial year concerned. Remittances from capital are not liable as income, but the discrimination involves difficult questions. If, for instance, there is foreign current income available for the remittance and the amount is remitted to meet current (i.e., non-capital) expenditure here, the claim that the remittance was one of capital might fail.

Claim for Arrears of Tax

D. C. was employed during 1940-2 as M.O.H. to four authorities in a combined appointment; it was understood that tax would be deducted by the authorities from their payments for salary but not from their payments for expenses. He has now been informed by the local tax office that the deductions made for the year 1940-1 were insufficient and that he is liable to account for the balance of £125.

A. It seems that something must have gone very wrong with the collection arrangements to produce so unfortunate a result, and D. C. is, we think, entitled to a much fuller explanation than he has so far received. But if the full amount of tax due has been assessed—in which case D. C. will presumably have received a formal notice—but part remains uncollected, it is still a legal liability, and we fear that D. C. cannot avoid it even if he is in a position to show that either the tax office or the authorities, or both, were to blame for failing to obtain the tax at the proper time.

LETTERS, NOTES, ETC.

Peritoneal Gloves in Primitive Surgery

Gp. Capt. G. STRUAN MARSHALL writes from Edinburgh: Dr. A. R. Eates mentions (May 4, p. 709) the use by Arabs of ants as Michel clips. There will be found, in a book written about twenty years ago—*Secrets de la Mer Rouge* by Henri de Monfreid—and published, I think, in Paris, a fairly detailed account by an intelligent layman of an operation in the Sinai Desert that should still further amuse Dr. Eates's virtuosi. De Monfreid seems to have been a pearl fisher in the Red Sea, intermittently dodging those who would interfere with his apparently nefarious trade. He writes of an occasion when he had landed and gone up country; a tribesman was brought in, suffering from a deep spear wound of the belly. After some delay a native "doctor" appeared and gave the injured man something to suck that seemed to blunt his sensation. Then he examined the wound, and got an acolyte to hold it open. He extended the wound with a blade dipped in very hot melted butter, and exposed the stomach, which had been penetrated by the wounding spear and was gaping. He now had a goat killed and its belly opened; he extracted the omentum and draped it over his hands, and with these natural gloves handled the stomach. Holding the cut edges of the stomach wound together, he took a large ant from a vessel, held it just behind the head, and brought it to the approximated edges of the wound, when the ant's mandibles closed firmly on them. At this moment he brought his nails together, nipping off the ant's head, which remained clamped to the cut edges, holding them together securely. Four points of interest emerge: the anaesthetic, in a country where alcohol is forbidden; the keratinous Michel clips, or rather visceral clips, which would presumably not be dissolved by the peritoneal fluid for a very long time, if at all; the surgical gloves of the only ideal material imaginable, which, being themselves peritoneal, would not injure the peritoneum in the slightest; and the sterilization by moist heat, probably greater than that of boiling water, in a medium that would lubricate the knife. I write from a tenuous memory, and may have got minor details slightly wrong, but I am sure of the major ones, and can only wonder at so modern a development of surgical technique in a country where communication is difficult and scanty. *Ex Africa semper aliquid novi*—well, not quite Africa but near enough.

A Close Shave

Dr. FRANK CROSSIE (Ealing) writes: The communication from Dr. L. ERASMUS ELLIS (May 4, p. 710) tempts me to offer to my fellow "tender-skins" the gleanings from upwards of half a century's trial and error. The points in order of importance are: (1) Cold water for both lathering and washing off. (2) A sharp open razor and a pannikin of really hot water into which the blade should be dipped frequently throughout the operation. (3) Perform the operation after the tub, preferably in the shirt and trousers stage. (4) The use overnight of an ointment containing a few grains each of acid. salicyl. and pulv. sulph. praecip. ad 1 oz. (28 ml.) eucerin base. (5) Liq. hamamelidis (B.W.) is unrivalled for post-operative purposes. (6) A base of soap from a stick on the face plus an overlay of cream on the brush; to preserve the life of the latter (a consideration these days) don't remove the remains of the old soap till just before re-use.

Proctalgia

Col. N. J. C. RUTHERFORD (Farnham) writes: This correspondence has interested me as I started the subject in the *Journal* in 1929 by asking for suggestions for treatment. Quite a few doctors answered, but "I evermore came out by that same door where in I went." I have had the complaint since the 1914-18 war. The attacks come on at any time, day or night, and the pain can be severe enough to make one halt if walking or sit down if in the house. The only cure I know is heat; at night sit on a hot-water bottle or electric pad; during the day, when or where available, crouch down, semi-sitting, over an electric or gas fire. Another member of my family, a lady, has also had the complaint for over twenty years. In future I shall try the gastro-colic reflex advised by Prof. F. C. Pybus. Threadworms and slight eczema were suggested to me as causes, but did not fit in my case. As I get older I find the attacks come at longer intervals; perhaps I may grow out of them in my octogenarian years!

Dr. N. H. STEIN (Edinburgh) writes: I suggest that the symptoms described under the headings of proctalga, etc., are due to a prolapse of the lower part of the pelvic colon into the rectum, occurring intermittently and leading to a congested state of the mucous membrane. Incomplete return leads to a small faecal mass being caught in the inflamed area, increasing spasm, and acute pain. The initial cause of the prolapse may be some congenital weakness in this part of the gut, the presence of a polyp, or obstruction by kinking due to the adhesion of neighbouring structures. An adherent appendix would tend to produce this. In many cases, if not in all, it is simply the persistence into later life of the condition of prolapse recognized in young children. In an extreme case, in which this prolapse was easily demonstrable, there was a history of this. I shall be glad to give further details to those interested.

Nocturnal Erections

Dr. WRIGHT LAMBERT (Keighley) writes: Oestrogenic therapy was suggested to me by Mr. H. Hamilton Stewart, of Bradford, for the treatment of troublesome and frequent nocturnal erections in a patient, 58 years of age, on whom Mr. Stewart had performed prostatectomy (5 oz. (140 ml.) of residual urine) by the transurethral route, and whose priapism, without any apparent sexual libido, was not cured by the operation. Stilboestrol, 5 mg. daily, keeps him entirely free from the condition, but he relapses almost as soon as he stops treatment. Mr. Stewart recently suggested that dienoestrol 0.3 mg. would be equally effective and be less liable to produce untoward side-effects. This patient got no relief from phenobarbitone gr. 1/2 (32 mg.) at bedtime. Whilst oestrogenic therapy for this condition would seem to be based on sound physiology, I cannot see why the androgen testosterone (June 1, p. 864) should be successful. Mr. Hamilton Bailey in the *Medical Annual* (1945, p. 232) mentions Cave's operation, incision of the corpora cavernosa, evacuation of blood clot, and packing with gauze, as having been completely successful in one case.

Nasal Cleanliness

Dr. PERCY TATCHELL (London, S.W.5) writes: The late Sir Buckston Browne was emphatic that by taking snuff he avoided colds in the head. Snuff-taking was a common practice in the last century, with the object largely of preventing infection. This presumably it did by creating a profuse discharge, which washed out the nose. There is no need, however, to take snuff to attain that end; it is easily done manually when washing the face. One may say: "Why not use a spray, is that not better?" People will not be bothered; they use the spray once or twice, and get tired of the paraphernalia and the mess. Besides, a spray by-passes the glutinous mucus found in the wings of the nose, a first-class nidus for bacterial growth. It is only a matter of a few moments to do it with the soapy fingers, and experience will show that soap does not sting appreciably unless sucked up to the turbinate bones. In this region matters can be left to one's natural defences. I believe, by the adoption of this simple routine, the risk of infected colds, all the fevers of adolescence, and such mysterious air-borne ailments as influenza, and the appalling catastrophe of infantile paralysis, can be greatly diminished.

Remedies for Herpes Zoster

Dr. W. H. MARSHALL (East Grinstead) writes: The experience of general practitioners is often different from that of consultants. In my experience pitressin 1 ml. (0.5 ml. for the aged) gives striking relief to almost all cases of herpes zoster if given in the early stage before the rash has finished coming out; the earlier crops lose their pain, and the later ones appear as an erythema and then vanish with little or no vesicle formation. Relief is obtained within five minutes, or at the most half an hour, or not at all.

Dr. HUGH DICKIE (Morpeth) writes: May I give a brief account of an accidental discovery of mine which appears to be a complete

cure for herpes zoster? While acting as M.O. to Offlag IVc, Germany I was desperate to find some relief for a young officer with a very severe attack of dermatitis herpetiformis. I had tried everything in my short range without effect, and, more in an attempt to raise his general tone, I gave him 4 ml. of a liver extract intramuscularly. The next day he was well! No new spots and the pain had gone from the old ones. Five months later he had another attack; same treatment immediately and the whole thing aborted. We then tried this "treatment" on a French lieutenant with a very severe intercostal herpes. This man had some experience of shingles—his wife and mother had both been very ill with it some years previously. On the day after the injection of liver extract I was overwhelmed with a profusion of Gallic thanks—all the pain had gone, no new eruptions, and within a week all the original papules had healed. Next came two British soldiers, with equally startling results. I have now "treated" 7 civilians at home in this way, age range from 26 to 81 years, with herpes ranging from supra-orbital to twelfth dorsal. All cases were treated within the first forty-eight hours of the appearance of the rash, and all responded overnight. Admittedly the number of cases, 10 in all, is slight, but the results are so striking that I feel some publicity should be given to them, and perhaps someone with a more scientific outlook may find the reason.

Contramine for Herpes

Dr. E. S. HAWKES (Budleigh Salterton) writes: May I correct your reply to the first of "Any Questions?" (May 25, p. 822). If you refer to a Medical Memorandum (Sept. 25, 1943, p. 391) you will find my article which gives the inquirer the information he seeks. It will be noted that it does not apply to a few isolated cases, but a series of 15. The remedy is effective only in early cases. It is also most effective in early chicken-pox.

"Cord Round the Neck"

Dr. V. P. ROBINSON (Norfolk) writes: It may be of interest to report that I recently confined a girl aged 16; the cord was round the neck loosely and was easily slipped over, but the child was born dead. A tight knot was found in the cord, which was 39 inches (1 m.) long. Movements had ceased for about two days.

Injections on Board

Mr. C. D. L. STEWART-FORSHAW (Roche Products, Ltd.) writes: Surg. W. S. Parker in *Referring* (May 18, p. 775) to a specially developed "tubonic" ampoule appears to be unaware of the remarkably efficient unit called "tubonic" ampoule syringe (tube unique) originally introduced by my firm some years before the war. This unit is essentially for such emergencies. During the war it was part of the equipment in the Merchant Navy in all lifeboats, and it was also employed by a number of special units of the Services. I am proud to say that it was responsible for saving a number of lives.

Medical Journals for Hungary

Mr. EDWARD FULLER, Editor of the *World's Children*, writes from 20, Gordon Square, London, W.C.1: Some little time ago you very kindly gave publicity to a letter from me, passing on a request from the Save the Children Fund's administrator in Hungary, for British medical periodicals, to help bring Hungarian practitioners' knowledge up to date. A number of your readers generously responded—and some pass on their own copies regularly after use. These—and any prospective new donors—may like to know that I have to-day had a letter from the Hungarian correspondent, who says: "Please thank for me all who are concerned in sending the medical papers. They are of infinite value. They go round among the doctors and will finish their career in the library of the central clinic."

Medical Golf

By courtesy of the Stockport Golf Club the annual competition of the Manchester and District Medical Golfers' Association will be resumed on the course at Torkington on Wednesday, June 26. The Challenge Cup will be competed for by medal play under handicap; the winner will hold the cup for one year, and the captain (Mr. R. L. Newell) will give a second prize. The Walter Gold Medal will be held for one year by the member returning the best gross score, and the Walter Silver Medal by the member returning the best gross score from among those with handicaps of ten and upwards. Prizes will be provided for the winners in lieu of replicas. All correspondence should be addressed to the hon. secretaries, Manchester and District Medical Golfers' Association, c/o British Medical Bureau, 33, Cross Street, Manchester, 2.

Correction

The figure 0.4 in line seven under the subheading "Results" in the article by Dr. R. C. Browne on "Amphetamine and Caffeine Citrate in Anoxaemia" in last week's issue (p. 871) should read 1.2.

LONDON SATURDAY JUNE 22 1946

SOME ASPECTS OF CHEMISTRY RELATED TO MEDICINE*

BY

Sir ROBERT ROBINSON, D.Sc., P.R.S.

It is a great privilege to be the first to have the opportunity to congratulate the Board and all those who labour within these walls on the Bicentenary of the Middlesex Hospital. The Foundation took place shortly after the death of Boerhaave, of Leyden, the greatest of eighteenth-century teachers, and also near the date of the birth of Lavoisier. Thus the entire development of scientific medicine and modern chemistry occurred during the period now celebrated. I speak to you as a chemist, and my acquaintance with medicine is superficial—rather like a Nature-lover's knowledge of scientific botany and zoology. As a concession to my diffidence I trust I may be allowed to alter the title of my address from "Chemistry and Medicine" to "Some Aspects of Chemistry Related to Medicine."

There are few human activities that have no relation to medicine, and it is equally true that all branches of medicine are already connected, or are destined to be connected, with chemistry. It would be preaching to the converted to develop that theme as propaganda, because the clock will not be set back, and the fundamental nature, for medicine, of the science of the transformation of matter is already fully recognized. Chemistry is of service to medicine in very many directions, of which I will mention only the more important. There are the alloys, plastics, and other materials used to improve the technique of medical and surgical practice. Many of these are incidental to more general developments, but others have involved specific research. In the field of preventive medicine the purification of water, for example by chlorination, should not be overlooked as an application of chemistry, whilst the production of new insecticides and insect repellants is making an increasingly important contribution to hygiene. The huge subject of nutrition, involving vitamins, essential amino-acids, minor elements, and the balance of diet, is obviously a meeting-ground of chemists and physiologists.

Then, more directly, we have the general and local anaesthetics, the analgesics and hypnotics; also the substances which promote or inhibit various bodily functions—an omnibus definition which could embrace the natural and synthetic hormones, insulin and the liver factors, thiouracil, etc., and also groups such as the laxatives, diuretics, and so on. There is no danger of forgetting the chemotherapeutic agents, which we may class together irrespective of the mechanism of their action. Finally, we have the subject of toxicology, the use of chemical analysis and biochemical control in diagnosis, the blood groups, and immunology.

That list is by no means complete, and I shall make no attempt to cope with it.

As an organic chemist I propose to make some general remarks and to mention a few special themes, chosen because I happen to have been interested in them, and certainly not because of their intrinsic significance in the general picture. And first I want to emphasize that organic chemistry must still be developed for its own sake; it is very imperfect, and not yet a reliable handmaiden for other sciences. It is perfectly true that great success has attended the isolation of substances of physiological importance and that many of these have been ingeniously synthesized. As a result many medical scientists

have come to the conclusion that our technique is adequate for almost any task. But the truth is that we can quickly cover only such ground as the advance of knowledge makes accessible.

Our position is similar to that of the metaphysicians, who always manage to catch up to the wave of scientific progress, but never take a step in front of it. Or, to take a closer analogy, chemistry is to medicine as mathematics is to physics. The physicist, however, has usually enough mathematical equipment to make it possible for him to appreciate the limitations of the power of mathematicians to solve his problems. He knows that an increase of these powers will inevitably raise his own potential, and he therefore encourages the pure mathematician even in work that seems devoid of any possible application.

In the case of organic chemistry applied to biological research it is easy to see the direct results of relatively recent improvements in laboratory methods such as micro-analysis, chromatography, molecular distillation, use of tracer elements, x-ray analysis of crystals, and ultra-violet and infra-red spectrography. It is well understood that this and that advance in physiology, or other medical science, would have been impossible without these facilities, or at least would have been greatly delayed. But what is perhaps not so widely appreciated is the debt owed to pioneers of structural and synthetic chemistry, to the discoverers of general reactions, and to those who have disclosed the mechanism of reactions and the relations between properties and molecular constitution.

The system of organic chemistry is a wonderful achievement, but the noble edifice that has been reared is still unfinished. The reason for stressing the point is that there may be some danger of too great a diversion of scientific man-power into *ad hoc* work, even if that consists of the wholly admirable studies of biological problems. It is perfectly true that some of these will be found beyond our present capacity to solve and that such research will disclose the existence of gaps in knowledge and may lead to the exploration of a rich territory.

In the past the study of natural products has indeed afforded that kind of stimulus. Outstanding examples are the carbohydrates, the terpenes, the alkaloids, the steroids, and the vegetable and animal colouring matters. These substances were easily accessible in quantity, and they were examined mainly for their purely chemical interest. If I may be pardoned a personal reference, I have been asked why I am still interested in the study of strychnine. Except as a tonic and vermin-killer it is of no particular use, and its biological significance as a waste product of the economy of the plant is not apparent. The answer is that we are interested in the behaviour of a unique molecule which contains no fewer than seven interlocked rings, and that we have faith that the investigation will add stones to that edifice I have already mentioned, on which others will later be placed. And whether that is so or not, the challenges of Nature have to be accepted. It is not for us to presume to assess the importance of new knowledge to future generations.

When Wieland and Windaus attacked the steroids it was from this point of view alone, though we must admit that the steroid hormones were a kind of bonus not likely to be often bestowed in such generous measure.

* Address at Bicentenary Celebrations of the Middlesex Hospital, May 20, 1946.

Penicillin Synthesis

The chemistry of penicillin gives a good example of quick success in one direction by the use of established methods and of failure in another, due to the fact that a certain field of synthesis has not yet been cultivated. After the preparation of penicillin concentrates, it was a matter of routine to find the conditions of stability of the antibiotic and, though it proved a difficult task, to obtain the pure crystalline sodium salt.

The determination of molecular structure was also far from easy, but it followed normal lines of procedure. A final doubtful point was cleared up by x-ray analysis of the crystals. The substance is relatively simple. Everything seemed plain sailing for the synthesis, and yet very strong American and British teams have been unable to achieve it in a practicable manner. It is very probable that penicillin has actually been synthesized, but the yield is only about 0.1% of the theoretical, and the method has therefore no practical importance as it stands. The explanation is that we are faced with a new kind of difficulty presented by the great instability of the molecule, combined with a lack of methods suited for the construction of the characteristic β -lactam unit, under the conditions imposed by the properties of the substance. All the known methods are too brutal for that delicate system. So we have to find some new method, and that sequence of operations is not what we had hoped for, and has indeed seldom been necessary for the synthesis of natural products of comparable complexity. Somewhat analogous were the syntheses of indigo by Baeyer, Heumann, and Sandmeyer, because there was no precedent for the reactions that were eventually discovered after many years of intensive work. Ziegler's device for overcoming the reluctance with which large rings are formed was entirely novel, and something similar to it may well apply to the case of penicillin.

Our medical friends, who have seen a whole series of vitamins and hormones synthesized very soon after their characterization and structural analysis, are keenly disappointed in us. Dr. Vannevar Bush remarked, "They tell me that it is only a question of removing a molecule of water." Alas, that is all it is!

While on this topic I will add that though total chemical synthesis, or rather synthetical manufacture, is not in sight, biosynthesis, by appropriate feeding of the mould, has given us new penicillins. Moreover, one of the penicillins has been chemically modified, with the production of substances of increased activity. Thus we already have a range of penicillins which, as in the case of the sulphonamides, will doubtless be differentiated in regard to their suitability for the treatment of infections. It follows that one of the advantages anticipated from chemical synthesis has been partly secured in a different way. I do not want you to conclude that the prognosis for synthesis is unfavourable. On the contrary, the problem is well defined, and will be solved—when we have had time to learn some more organic chemistry.

A Gap in our Knowledge: Proteins

The most obvious gap in our exact knowledge of substances of biological importance is in relation to the proteins. Their molecular complexity, and variety in complexity, continue to defeat us, but, nevertheless, great progress has been made and the outlook is promising. At Harvard University Medical School, Prof. Cohn and his colleagues have built up a most impressive laboratory, devoted to the application of physico-chemical principles and methods to the separation and study of proteins. There is room in this country for a similar "Institute of Protein Chemistry." There is no more important subject, and none that offers greater rewards to the investigator.

It is a matter for congratulation that Prof. A. C. Chibnall has brought his great experimental skill and critical faculty to bear on the analysis of proteins and the interpretation of the results; similarly, that Prof. A. R. Todd is so well on the way to the synthesis of sections of the nucleo-protein molecule and, incidentally, of the coenzymes. It is also good to know that the urgency of the work is recognized here and that Prof. E. C. Dodds has embarked on a study of physiologically active proteins. By contrast with these I am reminded of the useful "dead" proteins—wool, silk, leather, and even pea-nut

protein. Much valuable work has already been carried out by the respective research associations—for example, Dr. Jordan Lloyd's leather team—and all that will come into the mill.

The indications are that the probing of the protein molecule will before long reveal the mode of organization of the units, but that is only the first step to a real understanding of their role in Nature. We are almost compelled to believe that the nucleo-proteins are keeping one of the secrets of life itself, and it is hard to resist speculations that connect the four great and peculiar branches of their molecules with a mechanism of biosynthesis of particular importance. To regard them as a kind of template, on which other molecules are moulded, is doubtless a crude conception, but the proliferation of viruses shows that in a suitable environment macro-proteins can reproduce themselves.

We know that the viruses and bacteriophages cannot be generalized and that they vary greatly in size, by a factor of at least 1,000, and in organization. It must also be admitted that the host may make an essential contribution to the reproductive process—for example, by the provision of raw material such as amino-acids. Nevertheless reproduction does occur, and some day we shall know how. That knowledge will be of the greatest consequence to the human race, and all the resources of physical and biological science should be brought to bear on the quest. The discovery of the intimate mechanisms of biosynthesis of proteins would clearly have repercussions in fields such as heredity and ageing, and it might show the way to the conquest of cancer and the viruses.

The study of living things necessarily starts with the family, then proceeds to the individual organism, then to its parts—morphology before physiology; it is a development from the outside inward. The physical sciences often adopt the same method; but the system of organic chemistry, like mathematics, proceeds from the simple to the more complex. It seems that the biologist and the chemist, using these different methods of approach, are nearing one another at the level of the proteins and viruses. Godspeed to their meeting.

I would now like to refer to a few matters of detail. As I have already said, the selection I have made is somewhat arbitrary and reflects my own recent interests.

Configuration of Antibiotics

The hydrolysis of penicillin—of all the penicillins so far as is known—affords a bis-homologue of cysteine called penicillamine. This is not the dimethyl derivative of natural *l*-cysteine, but of the optical antipode, *d*-cysteine. The configurations of the amino-acid units of proteins are related; they are all male screws or perhaps all female; we can't tell which. Thus penicillamine belongs to the "unnatural" family of amino-acids. Similarly gliotoxin is degraded to unnatural *d*-alanine, and the peptide group of antibiotics such as gramicidin seem also to be built up largely from unnatural amino-acids. It has just been reported that streptomycin can be degraded to *l*-glucosamine, whereas the natural glucosamine is the *d* form. These coincidences are significant.

Dr. J. W. Cornforth has suggested that the common factor may well be that the antibiotics are protected from destruction in the body by their antipodal configuration. This seems a reasonable view, and it leads to the conclusion that whereas optical activity is certainly not always an essential feature of a chemotherapeutic agent, yet, when the possibility exists, the *d* and *l* forms should always be tested separately.

Gause states that the *d*- and *l*-mepacrine are equally effective against malaria, but that the *d* variety is only half as toxic as the *l* variety. Hammick and Chambers, using the racemic compound, found that the *d* form is metabolized in the body, and that the drug excreted in human urine consists entirely of the *l* isomer. The collation of these results does not spring to the eye, but, as in other matters, anything is more welcome than indifference.

Toxic Fatty Acids

Dr. N. Polgar has been studying the fatty acids of tubercle bacilli, first examined by Anderson. They are of interest because of their toxicity and power to produce lesions in experimental animals. The saturated phthioic acid, $C_{24}H_{48}O_2$, is typical of a whole range of these constituents that can be isolated from the bacillary bodies. The available evidence

indicates that it is 3:13:19-trimethyltricosanoic acid—that is, it is a straight-chain C_{22} acid with three methyl notches. A synthetic acid of this structure which has been obtained is probably a stereo-isomeride of phthioic acid. This, and a related unsaturated acid, are markedly toxic, and examination of near relatives shows that the property is highly constitutive. Polgar suggests that the methyl groups may facilitate dehydrogenation in their vicinity and that the products may antagonize some essential unsaturated fatty acid. It is too early to discuss this tentative hypothesis, but we no longer regard this investigation from the point of view of a direct attack on the bacilli. The objective is now to find a means of alleviating the symptoms of the disease and thus perhaps to give it a more favourable course.

Action of Carcinogenic Agents

The mechanism of the action of carcinogenic agents and the relation of carcinogenicity to constitution have been the subject of much research and discussion, but no generalization has emerged. This is certainly partly due to the fact that the biological experimentation has not been standardized and to the doubtful nature of many of the findings. Dr I. Berenblum and I have surveyed the results and think that the weight of evidence indicates the possibility of reaction at an activated phenanthrene-type bridge in the great majority of cases, but there are apparent exceptions, and more than one mechanism may be involved. We do not intend to advance even a provisional hypothesis until more experimental evidence has been gathered.

One method of attack is to test substances derived from known carcinogens by replacement of a benzene ring by the isosteric thiophene nucleus. It has been found that such substances may be powerful carcinogens. In the case of 9-10-dimethyl-1:2-benzanthracene there are three benzene nuclei that might be so replaced. In two of the cases, that has been already carried out by Fieser, and the products are reported to be carcinogenic. B. Tilak has now made the third isomeride at Oxford. In this the phenanthrene bridge is replaced by sulphur, and the substance is not carcinogenic by subcutaneous injection. It is weakly carcinogenic in the painting technique, but the tumours show a tendency to regress. Many other examples must be studied, and the observations of Dodds, Lawson, and Williams that α -ethyl- β -sec-butylstilbene is carcinogenic can be brought into line with the phenanthrene-bridge idea only by assuming dehydrogenation of the agent *in vivo*.

There are many tantalizing indications of the possibility of a chemotherapy of cancer which is, however, never likely to prove so simple a process as the control of an infection by a sulphonamide or penicillin.

A considerable number of substances have been observed by Haddow and others to cause retrogression of tumours in experimental animals, but, so far as I am aware, none has found practical application. A different approach is mentioned by Prof. Gye in his recent report of the Imperial Cancer Research Fund. A delay in the appearance of mammary cancer in mice can be brought about by thiourea, which blocks thyroid activity and so lowers the basal metabolic rate.

That is, by way of digression, another fascinating story of the interaction of chemistry and medicine. It includes Harington's work on thyroxine, culminating in its synthesis, and the demonstration of its biosynthesis from the tyrosine bound in proteins; as well as the use of thiourea, then thiouracil or its alkyl derivatives, in cases of Graves's disease.

But the most dramatic indication that certain types of carcinoma may be amenable to chemical treatment arises directly from the work of Prof. E. C. Dodds, here at the Middlesex Hospital. It would certainly be carrying coals to Newcastle to describe the stages by which Dodds and his collaborators were led to the striking discovery of potent synthetic oestrogens, or to dilate on the proved value of these substances in medical and veterinary practice. I will only remark that as far back as 1933 Cook and Dodds noted that certain carcinogens exhibited oestrogenic properties, and the oestrogen-androgen relationships with various forms of cancer are now widely recognized and discussed. Arising from this, several American groups, and especially Huggins, were led to try stilboestrol, either as a substitute for or in conjunction with orchidectomy.

in cases of cancer of the prostate. The early results were highly encouraging, but later experience suggests caution.

Inquiries which I made when in America in August of 1945 elicited that about 80% of the patients experienced marked improvement with retrogression of the tumours and repair in many cases. However, the tumours reappeared at various intervals in the majority of the cases, but some 20% remained cured after two years. If that is a fair statement and my arithmetic is correct, it means that at least two men in every hundred over 50 years of age will have reason to be grateful for the discovery of stilboestrol.

Modern Chemotherapy

At the present time the development of chemotherapy is no longer a question of the blind preparation of a series of related compounds to be tested and reported on as good, bad, or indifferent. That system went far to justify the remark of a physiologist at a committee of which I was chairman, that he "thought they had now devised an excellent system for turning down the substances produced by the chemists." Thanks to the discoveries of Woods and Fildes and others, we try to find some rational basis for chemotherapy and, be it right or wrong, a working hypothesis is invaluable. For example, the discovery of paludrine by Curd and Rose followed stages suggested by analogies in constitution to known active substances, as well as by a hypothesis of the mode of action of anti-malarials. I commend their paper to your attention as an outstanding example of intelligently guided approach in this type of research. Incidentally, this is an opportunity to recognize with gratitude our debt to workers in the laboratories associated with chemical industry. Bayer 205, neosalvarsan, pamaquin, mepacrine, paludrine, prontosil, and sulphapyridine are a few examples of a long list of valuable agents which we owe to industry. Another modern development is the attention which is paid to the ease of absorption of the agents, their distribution in the body, the metabolic changes they undergo, and the side-effects they produce.

Hence successful medico-chemical research depends on effective co-operation, and this is most easily achieved when those trained in the different disciplines work under one roof.

For practical reasons, such as the dangers of amateur bacteriology and the upkeep of animal-houses, the chemist is normally the migratory component. But it is not enough to ensure that every medical research institute is equipped with a staff of chemists. The biologist is the first to encounter the problems, and even when they are clearly of a chemical nature there is often a serious lag before the appropriate chemist can make his contribution. In this respect we have compared rather unfavourably with some other countries.

Conclusion

Finally, I think that steps should be taken to improve the teaching of chemistry to medical students by drastic revision of the syllabus and by better laboratory facilities. In this way we may quicken the interest of medical men in general in developments which are sure to assume greater and greater importance. I venture to think, too, that a quicker route to medical scientific research should be open to a limited number of promising students, without the loss of the prestige of a medical qualification. That, I know, is a very thorny problem, and its solution would involve some break with tradition.

In some quarters faith in the eventual full success of the applications of chemistry to medicine is regarded as evidence of a materialistic outlook, and the defects of chemotherapy, as at present practised, are eagerly emphasized. Interference with physiological functions and the encouragement of resistant strains doubtless exist, but who can deny that mercury, salvarsan, sulphanilamide, sulphadiazine, and penicillin are milestones in a march of progress and that, without making extravagant claims to comprehend the whole field of medicine, the biologist and the chemist, hand in hand, can still do much more to alleviate the sufferings of humanity?

The Bureau of Current Affairs, 117, Piccadilly, London, W.1, has now produced the first numbers of its fortnightly publication, *Current Affairs*, which is available to civilian subscribers at 8s. 6d. per annum as well as to the Services; No. 3 comprises an article by Ritchie Calder entitled "Health of a Nation."

LUMBO-SACRAL ROOT PAIN

BY

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It is now possible in most cases of "sciatica" to make a reasonably accurate diagnosis of the lesion responsible for the pain. A turning-point was the paper of Mixter and Barr (1934), reporting a series of cases in which protrusion of the intervertebral disks had caused pressure on the lumbar nerve roots and describing the diagnosis of disk protrusion by means of myelography. The occurrence of disk protrusion had been reported previously, but had not been regarded as sufficiently important or frequent to have much bearing on such a common condition as "sciatica."

Primary or idiopathic sciatica was for a long time accepted as a distinct clinical entity, and it was perhaps natural that clinicians should expect to find a common pathological basis in the majority of cases. Thus Dejerine thought that sciatic neuralgia was due to an inflammation of the lumbo-sacral nerve roots, which he called "radiculitis," and Sicard and Forestier suggested the term "funiculitis" for an inflammation of that part of the nerve traversing the intervertebral canal between the root and the plexus. With the increase in the use of x rays, the frequent occurrence of abnormalities of the lower lumbar vertebrae was noticed. Goldthwait of Boston postulated, more especially, the various degrees of sacralization of the fifth lumbar vertebra as the commonest cause of sciatica. Later Putti regarded arthritis of the intervertebral joints as the most common cause. Others have considered the condition to be a manifestation of myofascial "rheumatism" or "fibrositis." Since the recognition of the importance of disk prolapse it has been said that, except for an occasional cauda equina tumour, all cases of primary sciatica are due to disk lesions (Dandy, 1943).

In spite of these opinions we think there are a variety of lesions and these affect different parts of the nerve. Within the spinal canal pressure on nerve roots is almost certainly the commonest cause of symptoms, while arthritis of the intervertebral joints may be the most frequent lesion affecting the nerve roots in their course through the intervertebral foramen. Fibrositis and allied myofascial conditions are probably responsible for involvement of the nerves after they have emerged from the vertebral column. There is little evidence that inflammation of the main trunk of the nerve is a cause of sciatica, and Symonds (1943) is probably correct in saying that the sight of an inflamed and swollen sciatic nerve "trunk" "has never yet been granted to human eyes."

There is a tendency for each of the three main levels of nerve involvement to show a different clinical picture, but nevertheless differential diagnosis is no easy matter. Lesions of the nerve beyond the vertebral column are associated with chronic lumbar pain, and pain along the course of the sciatic nerve is seldom severe or early. The finding of "trigger points" of tenderness in the lumbar muscles is frequent in myofascial lesions, and is of considerable diagnostic significance. Lumbar pain alone also occurs for long periods before the onset of sciatica in arthritis of the intervertebral joints. The sciatic pain in this condition is not usually severe, and is often brought on by exercise and readily relieved by rest. On the other hand, muscle-wasting in the leg may be marked, and loss of power in dorsiflexion of the ankle, and even foot-drop, are seen more often than in either of the other types, with the exception of tumours of the cauda equina.

Where there is involvement of the nerve roots within the spinal canal lumbar pain may also be the first symptom; but this is not usual, and the sciatic pain soon becomes the dominant symptom. More often the sciatica is present from the onset, and may be very severe. In nearly every case there is exacerbation of the pain on coughing, sneezing, or other

similar strain; this we regard as the most important single symptom pointing to a lesion involving the root within the spinal canal. Paraesthesiae in the dermatome supplied by the affected root are of great diagnostic value, but it is well known that all the symptoms may be intermittent, particularly in cases of disk prolapse. The neurological signs are also intermittent and variable. Their diagnostic value will be discussed later.

Classification of a Series of 50 Cases

Most of our present series of cases are those we considered to have some condition affecting a lower lumbar or first sacral nerve root within the spinal canal. We have included a few cases in which we decided to operate because of intractable or recurrent pain, although they did not fulfil all our diagnostic criteria. It is not surprising that our results in this latter group are unsatisfactory, but we were interested to find, on reviewing the cases, that, in all in which we had made a confident diagnosis of a lesion affecting the posterior roots, at least a considerable measure of relief followed operation—in spite of the fact that in some of them we had found no visible lesion.

TABLE I.—Types of Lesion found at Operation (50 cases)

	Cases
1. Ruptured intervertebral disk	27
2. Tumours of the cauda equina	3
3. Hypertrophy of ligamentum flavum following lumbar puncture	2
4. Ruptured ligamentum flavum	1
5. "Radiculitis"	5
6. Transverse defect in myelograms. "Disk projection"	2
7. No lesion found:	
With signs of root lesion	6
Without signs of root lesion	4

This classification of our cases is based upon the findings at operation, although we are well aware that a surgeon's findings may not be completely reliable, since he is likely to find only lesions which are obvious or with which he is familiar.

Of our cases 54% were lesions of the disk, comprising three main types. The commonest is one in which a portion of fibrocartilage is avulsed from the posterior margin of the disk and is often lying free in the spinal canal. It may, however, be in front of the posterior common ligament—if that is intact—and be found only after incising the ligament, although its presence is often obvious from the backward displacement of the latter. In other cases the disk appears to have undergone degeneration, forming a softened material which extrudes through an incision into the posterior common ligament. Extrusion of the nucleus pulposus is the third type, and this may be difficult to distinguish from the previous one because the extruded material is soft and gelatinous. Characteristically this follows injuries to the disk by lumbar puncture.

Hypertrophy of the ligamentum flavum was found in two of our cases, although it has been denied by Dandy (1943) that it is ever the cause of root pain. In both our patients the hypertrophy followed trauma by a lumbar-puncture needle. In the first, a young woman, lumbar puncture had been carried out for spinal analgesia; and in the second, a young man, 18 lumbar punctures had been done 10 years before for the treatment of cerebrospinal meningitis. Symptoms—mainly of low backache, but with some occasional posterior crural pain—had come on gradually until he was almost crippled. Lumbar puncture in the fourth space gave a "dry tap." Injection of iodized oil higher up, and myelography, showed a complete block at the level of the lower border of the third lumbar vertebra. The diagnosis of thickening of the ligamentum flavum was confirmed at operation, when the ligament was seen to be enormously thickened, forming an "hour-glass" constriction of the theca. Excision of the thickened ligament was followed by filling of the lower theca with cerebrospinal fluid. Subsequently his pain slowly subsided.

There were five cases of what we have called "*radiculitis*." We have previously reported three of these under the title "sciatic neuritis" (Holmes and Sworn, 1945). The lesions found were of two types. There were three cases with gross swelling of the affected root but without any discoverable mechanical cause. It is true that oedema and swelling of the root may be associated with a ruptured disk, but we have never seen them to anything like the same degree. In one of our patients—following the suggestion of Burns and Young (1945)—that in the lower lumbar region a nerve root may be affected by the disk above—we explored the fourth lumbar disk imme-

diately above. No lesion was found; but the contrast between the normal and the enlarged roots was considerable. In two patients the root was normal in size, but there were adhesions between it and surrounding structures, particularly anteriorly and nothing else abnormal was found. It seems possible that these two cases may represent a later stage on the first type. The pathology in this group of five cases is obscure. The gross oedema and adhesions suggest inflammation, but against this are the history of trauma in all but one case and no change in the cerebrospinal fluid suggestive of inflammation.

The occurrence of almost complete transverse filling defects in the myelogram, with no lesion discovered at operation, has previously been noted. Hyndman, Steindler, and Wolkin (1943) regard these as false defects, but say that "the results of operation have been as favourable as when a herniated disk has been found and removed." They also remark that from such cases "one might deduce that causes other than herniated disk may be responsible for root pain at the fourth and fifth lumbar vertebrae." We have had two such cases, both relieved by operation, one of which seems worth describing in detail.

A woman aged 50 was referred to us by Mr. D. Whitwright from the Orthopaedic Hospital, Stoke-on-Trent. She had suffered from low back pain for 25 years and intermittent left sciatica for the past five years. There was severe left-sided sciatic pain on coughing and sneezing. She had occasional "pins and needles" sensations on the outer border of the left foot. On examination Lasèque's sign was positive on the left side at 45°. There was no motor weakness or muscle-wasting. Slight impairment of sensation to pin-prick and light touch was present on the outer border of the left foot and external malleolus. The ankle- and knee-jerks were present and equal. Lumbar puncture revealed no subarachnoid block and a normal fluid with a protein content of 40 mg. per 100 ml. W.R. negative. Straight skiagrams of the lumbar spine showed no abnormality, but myelograms at intervals of two days revealed a constant transverse filling defect opposite the disk between L4 and S1. At operation the fourth and fifth lumbar laminae were removed. The fourth and fifth disks appeared normal and no definite protrusion could be seen or felt. The nerve roots also appeared normal. There was some relief from pain immediately after the operation, and then gradual improvement until three months later, when the patient said she was completely free from pain.

We believe that this type of case is due to "disk projection." Normally the disk projects a little further into the spinal canal than the vertebral body, and a slight exaggeration of this, especially in association with a rather short nerve root, might well account for the symptoms and also for the myelogram. Occasionally a similar myelogram is found with a wide herniation of a disk, and, although the filling defect is seldom so symmetrical, it may only be at operation that the two can be differentiated with certainty. We found no softening of the disks in these two cases. The important feature is that operation gives good results; though whether this is due to displacement of the root or to decompression is not clear.

Though in six cases with definite signs and symptoms of root irritation we found no lesion at operation, we are inclined to think that some lesion must have been present but overlooked. Two cases had what we thought was some thickening of the ligamentum flavum, but this may have been within normal limits.

Diagnosis

We are in agreement with Munro (1945), who sums up one of his articles by saying: "Clinical examinations lay the groundwork for suspecting the presence of a posterior herniation of a lumbar disk. Contrast myelography proves or disproves this suspicion, determines the level of the herniation, and leads to a minimal amount of surgery, should this be indicated." We might add to this that myelography is the only satisfactory procedure, except operation, for revealing the various causes of root compression. The need for it will of course depend upon the relative frequency of disk-rupture and other lesions, but since we have a high proportion of the latter in our series we regard myelography as of the first importance. We have used it in every case in which operation has been seriously considered, and we do not think that it has affected any of our patients adversely. In most cases the iodized oil (neohydriol, fluid) has been removed by needling at the end of operation, and in some patients who did not come to operation we have removed the oil by the method of Kubik and Hampton (1941), although it is not always easy to obtain complete removal.

Table II gives the frequency of the clinical signs and symptoms in our series of 50 cases and illustrates our finding that the signs and symptoms in cases of "sciatica" cannot be relied upon to determine the type or exact level of the lesion. Increase in pain in the back of the leg on coughing or sneezing is the most valuable symptom indicating that a nerve root is affected within the spinal canal, but is of course not conclusive. It is true that in many patients a diagnosis of disk protrusion may be made from the history and clinical signs alone. Definite neurological signs, such as sensory loss in the fifth lumbar or first sacral dermatome, loss of ankle-jerk, motor weakness, and muscular wasting, are extremely valuable when present, but are very variable in their incidence even in cases of long standing. We are of the opinion that much greater accuracy is obtained from myelography.

TABLE II—Clinical Data in Groups of Cases with Disk Protrusion, with Other Lesions, and with No Discoverable Lesion

Clinical Data	Disk Protrusion	Other Intraspinal Lesions	No Lesion Found
Males	24 (50%)	10 (77%)	7 (50%)
Females	3 (11%)	3 (23%)	3 (50%)
History of injury or trauma	14 (51%)	9 (69%)	5 (50%)
Posterior crural pain	27 (100%)	12 (92%)	8 (100%)
Sensory impairment in dermatome	15 (55%)	9 (69%)	3 (50%)
Abnormal reflexion of ankle-jerk	16 (59%)	5 (38%)	4 (40%)
Deep tenderness in back or thigh	3 (11%)	6 (46%)	2 (50%)
Symmetrical weakness	3 (11%)	4 (31%)	1 (50%)
Lasèque's sign	26 (96%)	12 (92%)	9 (100%)
Unilateral	23 (85%)	5 (38%)	9 (100%)
Bilateral	3 (11%)	7 (53%)	—
Intermittent posterior crural pain on coughing	26 (96%)	12 (92%)	6 (100%)
Sciatica	8 (30%)	7 (53%)	3 (50%)
Major sacral nerve roots	1 (4%)	4 (31%)	1 (100%)
Normal subarachnoid block	1 (4%)	4 (31%)	—
Positive myelogram	25 (92%)	12 (92%)	2 (50%)

Percentages are given to the nearest whole number.

Of the disk protrusions, 20 were of the disk between L5 and S1; 6 were of the disk between L4 and L5; and in one case there were three protrusions—at L3 to 4, L4 to 5, and L5 to S1, with spinal subarachnoid block.

Results of Myelography

In the following summary a "positive" myelogram means that a filling defect was present in the iodized-oil column. The abnormality of filling varied from small defects in the region of the "axillary pouches" of the nerve roots to large notched or transverse defects in the main column of oil.

1. *Disk Protrusions*.—Myelogram positive in 25 cases; doubtful in two cases.

2. *Tumours of the Cauda Equina*.—Myelogram positive in all three cases, but diagnosis had previously been made from the presence of subarachnoid block and increased protein content of the C.S.F. Myelograms defined the limits of the tumours.

3. *Hypertrophy of the Ligamentum Flavum following Lumbar Puncture*.—Myelogram positive in both cases. "Hour-glass" defects were present, with complete subarachnoid block in one case.

4. *Ruptured Ligamentum Flavum*.—A small notched defect was seen in the one case.

5. "*Radiculitis*"—Positive in four cases, negative in one.

6. "*Disk Protrusion*."—Transverse defects in both cases.

7. *No Lesion Found*.—(a) In the two cases of doubtful thickening of the ligamentum flavum one myelogram was positive. (b) In the other four cases with signs of root irritation one was positive, two doubtful, and one unsatisfactory owing to the patient being in severe pain and unable to be manipulated. (c) The four cases without signs of root irritation all had negative myelograms.

Treatment

There is no doubt that most cases of "sciatica" will clear up spontaneously, or can be cured or relieved by relatively simple measures without resort to surgery. Rest in bed, splinting, physiotherapy (particularly the application of heat), injection of "trigger points" with local analgesic, and epidural injections of saline or local analgesic, all give successful results. There is also no doubt that a small number of cases are unaffected by such measures or suffer from recurrence of pain at intervals. It is not always satisfactory to temporize and attempt simple treatment in every case. The condition may be progressive, as in spinal tumour. Even in cases of disk protrusion a sudden increase in the protrusion may sometimes cause an irreversible paraplegia. It is, moreover, important to most patients that

they should return to work and be free from disability as quickly as possible.

We have therefore made a complete clinical and radiological examination of all our patients with sciatica, including lumbar puncture with manometry and examination of the cerebrospinal fluid. If the presence of root irritation has been suggested, or if pain has been severe or of long duration, we have discussed the possibility of operation. If operation has seemed necessary, and has been agreed to by the patient, myelography with iodized oil has been carried out. If the myelography has been positive operation has been performed, but in a few cases we have operated, in spite of negative myelograms, because of severe and intractable pain.

Laminectomy may be necessary for extensive lesions, but in most cases of disk rupture we have used the interlaminar approach, usually combined with removal of the lower border of the upper lamina. This gives better access to the anterior part of the ligamentum flavum and to its lateral extension, the interpeduncular ligament. It is easy to remove the rest of the lamina if necessary, and this gives a good exposure of two roots. We find that our patients are little affected by this limited operation, and we usually allow them up after 12 days.

All of the 27 patients with disk protrusion were immediately relieved of pain. There has been one recurrence of protrusion 18 months after operation, and a second operation was done for this, with complete relief. Of the other conditions described, it is interesting to note that in all cases with a positive myelogram improvement followed operation. One case of spinal tumour showed signs of recurrence six months after operation. In the cases with negative myelograms no appreciable relief followed operation, but no patient was worse.

Summary

Fifty cases of lumbo-sacral root pain have been studied clinically, radiologically, and at operation, and the findings are described. In 54% of the cases the symptoms were due to protrusion of the fourth or fifth lumbar intervertebral disk, but we have described several other lesions which were found at operation.

Apart from operation, myelography is the only satisfactory diagnostic method for revealing and locating the lesion.

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MEDICAL RESEARCH IN EIRE

The Medical Research Council of Ireland has issued its report for the year 1945 from 85, Merrion Square, Dublin. The grant from the Hospitals Trust Board, guaranteed by the Minister for Local Government and Public Health for three years from January, 1944, was £5,000. As the period of this allocation of money will expire at the end of 1946 the Council has approached the Minister to make a substantial increase in the annual grant and to guarantee it for a much longer period. A big increase in applications for fellowships and studentships is anticipated now that more workers are becoming available to devote themselves to research, and it is hoped by the end of 1946 to have enough information to allow it to make definite proposals to the Public Health authorities for keeping this disease under control in the area. An investigation into the typhoid carrier condition was continued until the end of July, and the investigation into the chemotherapy of tuberculosis is progressing. By June of last year the Council had relinquished all control over the distribution and use of penicillin, the supply position to Eire having by that time become adequate for all requirements. The Committee appointed by the Council to advise the Minister for Local Government and Public Health on the establishment of dietary standards suitable to the Irish population held five meetings and submitted a detailed memorandum. Arrangements have been made for training field workers in methods necessary for carrying out the survey. During the year two studentships, five whole-time fellowships, and one part-time fellowship were awarded, and a number of grants-in-aid were authorized. The report concludes with a summary of work done by grant-holders during 1945.

TREATMENT OF SONNE III BACILLARY DYSENTERY AND BACILLARY DYSENTERY ("CLINICAL") WITH PHTHALYL SULPHATHIAZOLE

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In a previous publication (Jamieson, Brodie, and Stiven, 1944) the clinical and bacteriological results obtained in 200 confirmed cases of bacillary dysentery of mixed type in Dundee were given. Although sulphaguanidine was found to produce results slightly superior, both clinically and bacteriologically, to those obtained with aperients and chalk, 30% of the cases treated with this drug were still bacteriologically positive in convalescence.

The present paper gives the results obtained by the treatment of 48 cases of Sonne III bacillary dysentery and 40 cases of "clinical" bacillary dysentery (i.e., cases showing blood and mucus in stools but from which no pathogenic organism was isolated) with phthalyl sulphathiazole. A note is also included on the possible prophylactic effect of the drug in a case which was cross-infected with Sonne III dysentery while convalescing from paratyphoid B fever.

Selection of Cases.—A specimen of faeces from each case admitted to King's Cross Hospital, Dundee, during the period August, 1944, to June, 1945, with a diagnosis of bacillary dysentery was examined bacteriologically on each of three successive days. Four days after cessation of treatment with phthalyl sulphathiazole, and provided clinical cure (see below) had been established, specimens of faeces were examined bi-weekly until three successive negative results were obtained. Cases yielding one or more positive results for the Sonne III bacillus either initially or during convalescence were placed in the bacteriologically confirmed group of cases: those yielding consistently negative results were placed in the clinical group.

Clinical Features.—Thirty-two of the 48 Sonne III cases and 28 of the 40 clinical cases were under 10 years of age. As in the previously reported cases, pyrexia was not a feature of the illness. Eight of the 48 Sonne III cases and one of the 40 clinical cases had a temperature greater than 100° F. (37.8° C.). In the Sonne III cases the stools showed blood and mucus in 30 and mucus in 18. Blood and mucus were present in the faeces of each case in the clinical group.

Method of Treatment.—Tablets of phthalyl sulphathiazole were crushed and given 4 times daily in water. Abundant fluids were administered by mouth, and a light diet was given during the first few days. The dosage used (see Table I) was one-half that employed for sulphaguanidine, on account of the lower solubility of phthalyl sulphathiazole. No toxic effects were observed in the 88 cases treated.

TABLE I.—Dosage of Phthalyl Sulphathiazole

Age in Years	Grammes per Day					Total in Grammes
	1st	2nd	3rd	4th	5th	
0-2	3	1	1	1	1	7
2-5	5	2	2	2	2	13
5-12	10	3	3	3	3	22
Over 12	15	4	4	4	4	31

Clinical Results of Treatment

Clinical cure was accepted as established on the disappearance of mucus and/or blood from the stool and return to normal consistence, maintained for a minimum period of 72 hours. The average periods required for clinical cure, after

the beginning of treatment, were: Sonne III cases, 8.73 days; clinical cases, 9.83 days. The least and greatest periods were respectively: Sonne III cases, 2 and 35 days; clinical cases, 3 and 21 days. Ten (20.8%) of the 48 Sonne III cases yielded a positive bacteriological result in convalescence (i.e., after the establishment of "clinical cure"). Relapse, which was regarded as the reappearance of mucus and/or blood in the stool after initial disappearance following treatment, occurred in 25 of the 48 Sonne III cases and 20 of the 40 clinical cases.

We were afforded the opportunity of testing the possible prophylactic effect of phthalyl sulphathiazole on the following patient, who was cross-infected with Sonne III bacillary dysentery.

A male child, aged 2½ years, who was convalescing from an attack of paratyphoid B fever and whose urine and faeces were positive for *B. paratyphosus* B, was given a total of 14 g. of the drug during 5 days (first day, 6 g.; next 4 days 2 g. daily). On the first day of treatment, and before any drug effect could have occurred, faeces and urine were reported negative for the first time. During the course of treatment, and for 7 days after cessation, daily specimens of urine and faeces were examined bacteriologically and negative results were obtained for *B. paratyphosus* B. Four days after the beginning of treatment the child developed diarrhoea, with blood and mucus in the faeces, and a culture of Sonne III bacillus was obtained. The drug did not appear to modify the course of the Sonne III infection. The stools were loose and contained blood and mucus for 10 days. Thereafter convalescence was normal and the faeces and urine yielded negative results for both the Sonne III bacillus and *B. paratyphosus* B.

Estimation of Phthalyl Sulphathiazole in Blood, Urine, and Faeces

On account of its low solubility considerable difficulty was experienced in estimating phthalyl sulphathiazole in body fluids and excretions. It should be emphasized that the values given are to be regarded as minimal. Whatever the shortcomings of the methods, the results from the faeces show clearly that the amount of phthalyl sulphathiazole as estimated is more than sufficient to saturate the water contained in the faeces, and hence the gut, with it, and the blood and urine analyses indicate that a small but definite absorption of the drug occurs.

To illustrate the difficulties a short account of the methods is given. The actual method of estimation employed was colorimetric, and was based on that of Bratton and Marshall (1939). The values given are for free phthalyl sulphathiazole; no estimations were made for the conjugated compound.

TABLE II.—Concentration of Phthalyl Sulphathiazole (PST) in Faeces, Urine, and Blood

Day After Starting Treatment	PST Content mg./100 g. Faeces	Type of Stool	Other Fluids Estimated
Case 1: G.W., aged 6. Non-specific Enteritis			
1	100	Fluid; mixed with urine	Urine: 1.33 mg./100 ml
2	100	" "	" 1.06 "
3	Nil	Small specimens containing mucus	" 5 "
4	185	Small; formed	Blood: trace only
5	205	Formed	" "
6	200	"	" "
Case 2: I.B., aged 32. Clinical Bacillary Dysentery			
1	Nil	Formed	" "
2	333	"	" "
3	Nil	Mucus only	Blood: nil
4	850	Mainly formed	" "
5	1,000	Formed	" "
6	1,430	Mucus present	Blood: nil
7	Nil	"	" "
Case 3: Mrs. M.S. <i>B. paratyphosus</i> B Carrier; Diabetic			
1	Nil	Formed	Urine: 0.16 mg./100 ml.
2	"	No specimen	" 0.52 "
3	690	Formed	" 0.29 "
4	1,620	"	" 0.22 "
5	685	Mucus present	" 0.32 "
6	132	Fluid	" 0.16 "
9	Nil	Formed	" trace only "

Standard Solutions.—The solubility of phthalyl sulphathiazole at neutrality is less than 200 mg. per litre—i.e., less than 0.02 g. per 100 ml. A stock solution was, however, made by dissolving 200 mg. in 1–2 ml. N/10 alkali and making up the volume to 1 litre. Standards were made from this stock solution, which was kept at 2°C., by diluting 1, 2, and 4 ml.

to 100 ml. after the addition of 20 ml. of 10% trichloroacetic acid: 10 ml. of these dilutions contain respectively 0.02, 0.04, and 0.08 mg. phthalyl sulphathiazole. This range of standards was used throughout.

Blood.—The phthalyl sulphathiazole was determined on the trichloroacetic acid filtrate.

Urine.—A known amount was diluted to 100 ml. after the addition of 20 ml. of trichloroacetic acid, and a 10-ml. aliquot was removed for estimation.

Faeces.—On account of the low solubility of phthalyl sulphathiazole a small amount of faeces to a large volume of extracting water had to be used. Two grammes of faeces were suspended in 1,000 ml. of water and the whole mass digested at 60°C. for 2 hours. At the end of this time 1–2 ml. of N/10 sodium hydroxide was added and the contents well shaken. Aliquots of 5, 10, and 20 ml. were then withdrawn and each separate aliquot made up to 100 ml. after the addition of 20 ml. of 10% trichloroacetic acid. The acid mixtures were filtered and a 10-ml. aliquot was withdrawn in each case for estimation.

In Vitro Experiments with Phthalyl Sulphathiazole

A variety of micro-organisms were exposed to the action of phthalyl sulphathiazole at 37°C. for 24 hours. The media consisted of the C.C.Y. agar of Gladstone and Fildes (1940), semi-solid C.C.Y. agar, and Douglas broth, all having been saturated with phthalyl sulphathiazole before inoculation. Control tubes without phthalyl sulphathiazole were also employed. The micro-organisms used were: two strains each of *B. typhosus*, *B. paratyphosus* B (one of which had been isolated from Case 3—see Table II), *B. coli* (one strain each from a urine and a water-supply), and *B. dysenteriae* Flexner; and one strain each of Sonne III bacillus, *B. dysenteriae* var. Newcastle, and *B. proteus* X 19. Appreciable growths of all these bacteria were obtained on the C.C.Y. agar, especially *B. typhosus*, *B. coli*, and *B. paratyphosus* B, but in no instance was the growth as heavy as on the control tubes. It was noted that, whereas *B. proteus* swarmed well on the surface of the control tube, no swarming occurred when the agar contained phthalyl sulphathiazole.

When the semi-solid C.C.Y. agar and Douglas broth tests were examined it was noted that the bacteriostatic influence of the drug was more pronounced. Indeed, some of the bacteria failed to grow. Those which failed to grow by either cultural method were one of the Flexner strains, the Sonne III bacillus, and the *B. coli* from the urine.

During the *in vitro* experiments it was noted that phthalyl sulphathiazole was more soluble in Douglas broth than in water. Indeed, when enough phthalyl sulphathiazole was added to yield a 0.5% content, examination of the filtered fluid showed the presence of 0.4% of the drug.

TABLE III.—Comparison of Treatments for Bacillary Dysentery

Treatment	No. of Cases		Av. Time in Days Required for "Clinical Cure"		Cases Positive Bacteriologically in Convalescence			
					Sonne III		Total	
					No.	%	No.	%
Apocynins	11	50	6-3	6-5	4	36.4	25	50
Chalk	18	50	7-6	6-0	11	61.1	26	52
Sulphaguanidine	10	100	4-7	5-0	4	40.0	30	30
Phthalyl sulphathiazole	43	—	8-73	—	10	20.8	—	—

Discussion

The paper by Jamieson, Brodie, and Stiven (1944) dealt with 200 cases of bacteriologically confirmed bacillary dysentery of mixed type, of which 39 were Sonne III infections. In Table III we have contrasted the effects of various treatments in their cases with the effect of treatment with phthalyl sulphathiazole. The results indicate that phthalyl sulphathiazole is the least effective agent in producing clinical recovery, although the number of cases positive bacteriologically in convalescence is less than those recorded by the other methods. Our findings may also be compared with those of Swyer (1943), who treated 57 cases of Sonne dysentery, 48 of which patients were aged 10 years and less, with sulphapyridine; 35 cases—25 of them

aged 10 years and less—were used as controls. Swyer states that there was little or no toxæmia or dehydration in either group. In the treated cases only 4 of the 57 had pyrexia ranging from 100 to 102° F. (37.8–38.9° C.) and lasting 1 to 3 days, while in the control group similar pyrexia occurred in 13 of the 35 cases. As regards both age and clinical features these cases offer a fairly satisfactory group for a broad comparison with our cases. The stools remained clinically abnormal in the treated group for an average period of 9 days, which is in agreement with our findings, compared with 20 days for the control group. Owing to the different standards used, it is not possible to compare our bacteriological results with those of Swyer, who found that in the chemotherapy group the time required to obtain bacteriological clearance was 5 days, compared with 21 days for the control group.

The high incidence of relapse (25 of 48 Sonne III cases, 20 of 40 clinical cases) is considerably greater than that noted by Jamieson, Brodie, and Stiven (1944), who found that relapse was fairly constant in their three groups of cases, the figures being as follows: 10 of 100 cases treated with sulphaguanidine; 5 of 50 cases treated with aperients; and 4 of 50 cases treated with chalk. In the present investigation the criterion adopted for relapse was a very rigid one: any patient showing an amount of mucus other than a mere trace was designated a clinically relapsed case. Of 25 cases which relapsed 7 (28%) yielded a positive bacteriological result in convalescence, compared with 3 (13%) of the 23 cases which did not relapse.

Owing to the mild nature of the majority of cases of bacillary dysentery the effect of different methods of treatment is difficult to evaluate—a fact to which Scadding (1945) has drawn particular attention. Brewer (1944) refers to 16 clinically recovered cases of Sonne dysentery, 9 of which had already received sulphaguanidine and 7 symptomatic treatment. So far as clinical cure was concerned, sulphaguanidine had not appeared to influence the course of the disease. He found that subsequent treatment with 44 g. of succinyl sulphathiazole (sulphasuxidine) over 5 days was effective in producing a negative stool in each of the 16 cases except one which needed two such courses. Hardy, Burns, and De Capito (cited by Poth and Ross, 1944) found that succinyl sulphathiazole was effective in preventing the development of bacillary dysentery carriers. Scadding (1945) cites the report by Roberts and Daniells in which 89 mild Flexner cases treated with succinyl sulphathiazole showed no significant difference compared with 136 similar control cases, except that there was a reduction in the convalescent carrier rate of the treated cases. Scadding's (1945) observation that succinyl sulphathiazole and sulphadiazine did not give results significantly superior to sulphaguanidine led to the institution of an investigation which showed that there was no statistical difference between sulphaguanidine-treated cases and untreated control cases so far as duration of diarrhoea and length of stay in hospital were concerned. Fairbrother (1944) states that although Sonne III dysentery is of mild type the carrier state after clinical recovery is common. He records the significant observation that approximately 60% of 76 Sonne cases which received no sulphonamide but only ordinary routine treatment became bacteriologically clear within three weeks. When employed in cases which had become carriers succinyl sulphathiazole and sulphaguanidine did not yield satisfactory results. Vollum and Wylie (1946), who claim that succinyl sulphathiazole is the best available drug for the control of Sonne dysentery, suggest that the unsatisfactory results obtained by Fairbrother were due not to persistence of Sonne infection but to reinfection; but, as Fairbrother (1946) points out in reply, the failures in his series were adults under Service conditions who were in hospital (isolated in side-rooms) during treatment. *In vitro* experiments by Fairbrother (1944) showed that Flexner and Sonne strains were inhibited by succinyl sulphathiazole, while sulphaguanidine was relatively ineffective. This confirmed the earlier work of Brewer (1944) so far as Sonne strains were concerned. Poth and Ross (1944) showed that phthalyl sulphathiazole possessed roughly twice the bacteriostatic effect of succinyl sulphathiazole in reducing coliform organisms in the intestinal tract of man. Poth (cited by Poth and Ross, 1944) found that phthalyl sulphathiazole was highly specific in the treatment of Flexner dysentery. It was further shown by Poth and Ross (1944) that patients suffering from diarrhoea, but in whom *Shigella para-*

dysenteriae organisms could not be identified, frequently responded to phthalyl sulphathiazole. Only rarely were positive stools found in follow-up cultures.

Since the criterion used by Fairbrother (1944) for bacteriological cure (12 successive daily negative cultures) is a more stringent one than that used in this investigation our results are not comparable with his. They may be compared, however, with the earlier findings of Jamieson, Brodie, and Stiven (1944). As shown in Table III, the number of cases bacteriologically positive in convalescence, in the cases treated with phthalyl sulphathiazole, is considerably lower than those recorded both for their 39 Sonne III cases and for their 200 mixed cases.

Summary

The results of treatment of 48 cases of Sonne III dysentery and 40 cases of bacillary dysentery ("clinical") with phthalyl sulphathiazole are given. The average periods required for the establishment of clinical cure were 8.73 days for the Sonne III cases and 9.83 days for the "clinical" cases. The results obtained in the former group were inferior when compared with those obtained by Jamieson, Brodie, and Stiven (1944), who treated 200 mixed cases of bacillary dysentery, of which 39 were Sonne III infections, with sulphaguanidine, aperients, and chalk, the corresponding figures for clinical cure being 5.0 days, 6.5 days, and 6.0 days respectively for the total group, and 4.7 days, 6.3 days, and 7.6 days for the Sonne III cases. On the other hand, our results are in agreement with those obtained by Swyer (1943), who found that the stools of 57 Sonne III cases treated with sulphapyridine remained abnormal for 9 days, compared with 20 days for a control group of 35 cases.

The incidence of clinical relapse was high in the cases treated with phthalyl sulphathiazole, being found in 25 of 48 Sonne III cases and 20 of 40 clinical cases. Seven (28%) of the 25 cases which relapsed yielded a positive bacteriological result in convalescence, compared with 3 (13%) of 23 cases which did not relapse.

Ten (20.8%) of the 48 Sonne III cases treated with phthalyl sulphathiazole gave a positive bacteriological result in convalescence, which is considerably lower than the figures quoted by Jamieson, Brodie, and Stiven (1944). For their 200 mixed cases the figures were: sulphaguanidine cases, 30%; aperient cases, 50%; chalk cases, 52%. For their 39 Sonne III cases the corresponding figures were: 40.0%, 36.4%, and 61.1%.

Reference is made in the discussion to the fact that the mild nature of cases of bacillary dysentery renders evaluation of the effects of different therapeutic agents difficult. The observations of Fairbrother (1944) and of Scadding (1945) are especially apposite in this connexion.

The dosage of phthalyl sulphathiazole shown in Table I was based on age; and the results of analyses of faeces, urine, and blood showed that: (a) saturation of the gut contents was achieved; (b) small but definite absorption of the drug occurs. No toxic effects were observed in the 88 cases treated.

In vitro experiments showed that phthalyl sulphathiazole exerts a bacteriostatic effect against a number of intestinal organisms. A Flexner strain, a Sonne III organism, and a strain of *B. coli* were completely inhibited in semi-solid and fluid media containing the drug.

The results of the present investigation indicate that, while phthalyl sulphathiazole did not appreciably influence the clinical course of Sonne III dysentery, it reduced considerably the number of cases bacteriologically positive in convalescence.

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A message from Washington states that to advance an expanding physical restoration programme the Office of Vocational Rehabilitation, Federal Security Agency, has acquired the services of five new medical officers and contemplates filling additional full-time posts in the fields of ophthalmology, hospital administration, tuberculosis, and psychiatric social work. Dr. Victor H. Vogel of Denver, surgeon in the U.S. Public Health Service, has been named chief medical officer of the Office of Vocational Rehabilitation.

BACTERIOLOGY OF STOMACH AND DUODENUM IN CASES OF PEPTIC ULCER AND GASTRIC CARCINOMA

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Unexplained sepsis, which occasionally occurs after apparently straightforward cases of partial gastrectomy, may lead to the development of a subdiaphragmatic abscess or, more rarely, to general peritonitis and death. It has been noted that the tissues surrounding a chronic peptic ulcer are often oedematous, the neighbouring lymph-nodes may be enlarged, and in short the clinical picture may be one of inflammation. The present investigation was undertaken to determine whether any pathogenic bacteria were present in the stomach and duodenum at the time of operation.

The normal bacterial flora of the alimentary tract has been the subject of much work and even more discussion. Billroth (1874) demonstrated that the meconium of newborn infants was sterile and that bacteria appeared with the first yellow stools. Escherich (1885) confirmed this, and showed that the interval elapsing before the appearance of organisms was dependent on when the earliest feed was given. He also established the colon bacillus as the characteristic intestinal organism. Where these bacteria come from, and whether they enter via the mouth or the anus, were for some time subjects of conjecture. In 1900 Cushing and Livingood summed up the evidence then available and concluded that food was the most important source. More recently many studies have been made on the effect of diet on the intestinal flora. Cannon and McNease (1923) found that in rats on a high protein diet the pH of the contents of the caecum and colon was 7.0-7.1, and the bacterial flora consisted mainly of proteolytic types, whereas the addition of lactose lowered the pH of the intestinal contents and with an increasing acidity the proteolytic bacteria were replaced by aciduric organisms such as *B. acidophilus*. Sanborn (1931a, 1931b) studied the bacteria present in the faeces of adult patients in the Boston Psychopathic Hospital when on various diets. He stated that "a diet high in carbohydrate and one high in meat protein tend to simplify the aerobic flora, respectively, in the acidophilic and the colonic direction." He found, however, that the degree to which this transformation took place varied very much with different individuals, and he concluded that the normal intestinal flora was not simply dependent on age and diet, but was dependent also on the "metabolic characteristics" of the individual.

Action of Bacteria in the Alimentary Tract

Another aspect which has caused considerable controversy is the importance of bacteria in the alimentary tract. Levin (1899) says that Pasteur in 1880 posed the question whether bacteria are essential for digestion. Nuttall and Thierfelder (1895) succeeded in keeping alive and well for eight days a guinea-pig obtained by Caesarean section, confined in a sterile chamber, breathing sterilized air, and fed on sterilized milk. After eight days the animal was killed and the intestines were shown to be free from bacteria. Levin (1899) went to Spitsbergen to study the bacteriology of the Arctic regions. He investigated the intestinal contents of white bears, reindeer, and seals, and found them usually sterile. This he correlated with the great rarity of bacteria in the air and water of the Arctic. The latter contained less than one organism in 11 ml., as opposed to 600,000 per ml. in the Seine. Cohendy (1912) finally proved that animals normally having bacteria in their intestines can survive without them. He reared chicks under sterile conditions for from 12 to 40 days, and found that they developed as well as control chicks, although the food of the former was rather less well digested. For some time after this it was thought that bacteria in the intestinal canal served no useful purpose and were possibly even harmful. In the last few years, however, a new function has been assigned to them—

namely, synthesis of vitamins. The ability of many intestinal bacteria to synthesize members of the vitamin B complex *in vitro* is beyond doubt (see Burkholder and McVeigh, 1942). Evidence is now accumulating to show that the biosynthesis of vitamins in the human intestine is by no means negligible. Adolescent males kept on carefully controlled diets deficient in thiamine (Najjar and Holt, 1943) and riboflavin (Najjar *et al.*, 1944) continued in many cases to excrete these substances in normal quantities in the faeces. Ellinger *et al.* (1945) found there was a gross discrepancy between the intake and output of nicotinamide in healthy adults, and that the urinary secretion was reduced by 60%, if the subjects were given succinyl sulphathiazole (sulphasuxidine). From these experiments it cannot be concluded that the intestinal bacteria are necessarily beneficial, as under certain conditions *in vitro* many intestinal bacteria destroy vitamin C (Young, 1942; Young and James, 1942; Young and Rettger, 1943), and organisms of the *Pseudomonas* group will decompose nicotinic acid if that is the only organic compound in the medium (Koser and Baird, 1944). Benesch (1945) obtained a sample of mixed caecal flora from a patient with a caecostomy. He found that under aerobic conditions nicotinic acid was synthesized, and under anaerobic conditions two-thirds of the nicotinic acid present in the original medium was destroyed. Clearly the possible activities of bacteria in the intestines under different conditions are legion and remain a matter for speculation.

Antiseptic Properties of Gastric Juice

In contrast to the prolific flora of the large intestine, the stomach and early duodenum in the healthy adult are usually sterile, except just after a meal. Spallanzani (1783) was the first to draw attention to the antiseptic properties of gastric juice. He demonstrated that "les chairs enfermées avec le suc gastrique ne sont point sujettes à la pourriture." Cushing and Livingood (1900) reviewed a series of cases of gunshot wounds of the abdomen perforating the gut, and found that only those patients survived in whom the lesion was near the pylorus—lesions lower in the alimentary tract leading to peritonitis. This they attributed to the antiseptic action of the gastric juice. Hewetson (1904) gave himself cultures of *Staph. aureus* and *Ps. pyocyanea* via a stomach-tube and then examined samples of gastric juice every 15 minutes. The cocci were found to be killed in 30 to 45 minutes, and the bacilli in 60 to 90 minutes. He noticed no ill effects, and subsequently planted similar cultures in the stomachs of several patients with gastrotomies, obtaining similar results. Knott (1923) correlated the efficiency of gastric juice as a germicidal barrier with the concentration of free hydrochloric acid present, and determined the concentration of the latter necessary to kill various bacteria. He concluded that sporing bacilli and resistant coliforms would easily survive gastric juice; that the typhoid and dysentery group and staphylococci would survive only if the free hydrochloric acid content was low; that *Str. pyogenes*, *Str. viridans*, *C. diphtheriae*, and *M. catarrhalis* would pass through to the duodenum only in conditions approaching achlorhydria. Knott and Venables (1924) showed that in 90% of cases with normal gastric acidity the duodenal contents were sterile, whereas Knott (1927) found that 37 patients with pernicious anaemia and achlorhydria all had bacteria in the duodenum. Garrod (1939) showed that susceptibility to the bactericidal action of hydrochloric acid of any pathogenic bacteria entering the body via the alimentary tract varied considerably, and that gastric juice was more bactericidal than hydrochloric acid of equivalent strength.

In gastric disease it has repeatedly been shown that bacteria may actually multiply in the stomach. In 1842 Goodsir described a case "in which a fluid periodically ejected from the stomach contained vegetable organisms of an undescribed form." He described the bacterium in some detail, and suggested for it the name *Sarcina ventriculi*. Gillespie (1893) isolated 24 different organisms from the stomach by means of a stomach-tube. Hewetson (1904) seems to have been the first to study material taken direct from the stomach at operation. He took cultures from the stomach in 36 cases and from the jejunum in 29; 18 of the former and 16 of the latter were sterile. A variety of bacteria were isolated from the rest, but, owing to the fact that they caused no ill effects when injected into rodents, he concluded that they were harmless.

More recent work on the bacteriology of the stomach and duodenum has been carried out mainly to answer two questions: first, whether infection plays a part in the causation of peptic ulcers; and, secondly, whether post-operative sepsis is related to the bacteria present in the stomach at the time of operation. According to Bolton (1913), Böttcher in 1874 demonstrated bacteria in the edges and floor of gastric ulcers and suggested direct infection from the stomach cavity. That bacteria can produce stomach and duodenal ulcers in rodents has been shown by many workers. Some of the earliest results in this line are those of Lettulle (1888), with *Staph. aureus*; Chantemesse and Widal (1888), with a dysentery bacillus; and Charrin and Ruffer (1889), with a filtrate from *Ps. pyocyanea*. Rosenow and Sandford (1915) found streptococci (usually *viridans*) in a very high proportion of peptic ulcers, and Rosenow (1916, 1923) showed that a high percentage of these bacteria, and also cultures of *Str. viridans* isolated from dental infection in ulcer patients, had a "characteristic affinity" for the stomach and duodenum, leading to ulcers in these organs on injection into dogs, monkeys, rabbits, guinea-pigs, and mice, whereas streptococci isolated from other patients did so much less frequently. Similar results were obtained by Christophe (1922), Nakamura (1924), Haden and Bohan (1925), and Nickel and Hufford (1928).

Löhr (1924) was interested in the fact that the free fluid found in the abdomen after perforation of a peptic ulcer was frequently sterile. He studied the contents of the stomach and duodenum obtained at operation from 200 cases; the contents were sterile in 82% of 56 cases of gastric ulcer, in 92% of 40 cases of duodenal ulcer, and in only 78% of 46 cases of gastric carcinoma. Appelmans and Vassiliadis (1932) cultured portions of ulcer obtained at operation from 60 cases. Bacteria were isolated from 13 of 23 duodenal ulcers, 14 of 17 gastric ulcers, and all of 18 gastric carcinomas. The organisms isolated were, in order of frequency, staphylococci, streptococci, yeasts, coliform bacilli, *B. mesentericus*, and lactic acid bacilli. Seley and Colp (1941) investigated the bacteriology of the stomach and duodenum in a series of cases undergoing partial gastrectomy. Actual portions of mucous membrane of these organs were cultured with a view to determining whether post-operative sepsis could in some cases be attributed to bacteria present at the time of operation. Positive cultures were obtained in 7% of "gastric malignancies," 83.3% of gastric ulcers, 36.6% of duodenal ulcers, and 37.9% of secondary peptic ulcers. Bacteria regarded as pathogenic, including *Str. haemolyticus*, *Str. viridans*, non-haemolytic streptococci, *Cl. welchii*, and *Bact. li*, were isolated from 88% of the "malignancies" and 30% of the benign ulcers. The high percentage of pathogenic organisms in carcinoma cases was correlated with a low average gastric acidity, and the incidence of post-operative complications and mortality appeared higher in these cases. Priestley *et al.* (1944) examined the gastric contents taken at operation from 44 cases. The contents were sterile in 18 of 22 cases of duodenal ulcer, in 1 of 7 cases of gastric ulcer, and in none of 5 carcinomas. Test meals done before operation showed that bacteria were seldom isolated if the level of total gastric acidity was 40 units or higher. The organisms isolated were "green-producing streptococci," micrococci, and Gram-negative bacilli. In spite of this voluminous literature the number of studies where organisms were taken direct from the stomach and duodenum at operation and the bacteria isolated were fully identified is small.

Experimental Tests

In the present study swabs were taken from the mucosa of the stomach and duodenum at operation on a series of 50 patients undergoing partial gastrectomy. Each swab was inoculated on to two blood-agar plates, one of which was then inoculated aerobically and the other anaerobically. Bacteria appearing on these plates were isolated in pure culture and, where possible, identified. In most cases test meals were done before operation and a portion of ulcer was examined histologically.

Table I correlates the gastric condition with the number of positive bacteriological results; in 9 out of 10 cases of gastric carcinoma bacteria were isolated from the stomach alone or stomach and duodenum; the gastric ulcer cases show a lower proportion of positive results, and both swabs were sterile from all of 12 cases of duodenal ulcer.

Table II gives a list of the bacteria grown and the number of times each was isolated in cases of simple ulcer and carcinoma. The last column shows the highest concentration of

TABLE I

	Simple Ulcers			Gastric Carcinomas	Total
	Gastric Ulcers	Jejunal Ulcers	Duodenal Ulcers		
Stomach and duodenum sterile	12	0	12	1	25
Micro-organisms isolated from stomach; duodenum sterile	11	1	0	6	18
Micro-organisms isolated from stomach and duodenum	4	0	0	3	7
Total	27	1	12	10	50

TABLE II.—Micro-organisms isolated

Organism		Simple Ulcers	Gastric Carcinomas	Highest Conc. of Free HCl in Gastric Resting Juice
<i>M. albicans</i> ..	From stomach; 11 cases	9	2	61
<i>Str. viridans</i> ..	" stomach; 9 "	6	3	0
	" duodenum; 3 "	3	0	0
Non-haemolytic streptococci	" stomach; 7 "	2	5	42
	" duodenum; 2 "	0	2	84
Coliform bacilli ..	" stomach; 7 "	1	6	84
	" duodenum; 3 "	1	2	84
<i>Staph. albus</i> ..	" stomach; 4 "	3	1	5
	" duodenum; 1 case	1	0	0
<i>Neisseriae</i> ..	" stomach; 4 cases	3	1	0
	" duodenum; 1 case	1	0	0
<i>Str. pneumoniae</i> ..	" stomach; 4 cases	2	2	0
<i>Diphtheroid bacilli</i>	" stomach; 2 "	1	1	Not tested
	" duodenum; 1 case	1	0	0
<i>Staph. aureus</i> ..	" stomach; 2 cases	2	0	0
<i>Str. pyogenes</i> ..	" stomach; 1 case	0	1	0
(Lancefield Group A)	" duodenum; 1 "	0	1	0
Lactobacilli ..	" stomach; 1 "	0	1	0

free hydrochloric acid found in the resting juice, taken before operation, of any patient from whom that particular organism was cultivated. The non-haemolytic streptococci included typical *Str. faecalis* and other types. The coliform bacilli were mostly *Bact. coli*, but *Proteus* and *B. faecalis alcaligenes* were also isolated.

Discussion

M. albicans, non-haemolytic streptococci, and coliform bacilli were isolated from many patients who had a normal or high gastric acidity. All other bacteria were isolated only from cases where the test meal showed a condition approaching achlorhydria. In this series of 50 cases septic post-operative complications were no higher among the 25 cases with positive cultures than among the other 25. The isolation, however, of such organisms as *Str. pneumoniae*, *Staph. aureus*, and Lancefield A haemolytic streptococci makes it clear that bacteria in the stomach at the time of operation are a potential source of infection, and pre-operative medication might be advisable at least in those cases with low gastric acidity.

Summary

Swabs for bacteriological examination were taken direct from the mucosa of the stomach and duodenum at operation in 50 cases undergoing partial gastrectomy for peptic ulcer or gastric carcinoma. Bacteria were isolated from 16 of 40 cases of benign ulcer and 9 of 10 cases of carcinoma. Pyogenic cocci (*Str. pneumoniae*, *Staph. aureus*, and Lancefield A haemolytic streptococci) were isolated from 7 cases.

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TREATMENT OF BRANCHIAL CLEFT CYSTS BY ASPIRATION AND INJECTION OF PURE CARBOLIC ACID

BY O

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The occurrence of branchial cysts is relatively rare. The most common mistake in diagnosis is to confuse the condition with an abscess resulting from breaking-down tuberculous glands. In a study of 42 branchial cysts and 9 branchial fistulae, in which incorrect diagnosis was made in 42% of cases, Shedden (1931) reports that 12% were diagnosed as tuberculous glands in the neck. Hamilton Bailey (1928) reports 11 cases of branchial cyst in which this mistake was made, and one very interesting case in which tubercle bacilli were found both in the wall of a branchial cyst and in its fluid contents.

Diagnosis

According to Shedden (1931) branchial cysts occupy a constant anatomical position. They lie in relationship to the deep surface of the upper half of the sterno-mastoid, and nearly always protrude around the anterior border of this muscle. Most commonly the centre of the cyst is opposite the greater cornu of the hyoid bone. In the six cases reported here the swellings were hard and tense, giving an impression of induration rather than of being cystic and fluctuant. Bailey (1923) remarks that all branchial cysts which give rise to symptoms are lined with squamous epithelial cells, and that so-called "mucous branchial cysts" lined with columnar epithelium are in reality cystic hygromas. He states, further, that the presence of cholesterol crystals in aspirated fluid is diagnostic of a branchial cyst. Two other factors, noticed when aspiration is performed, appear to me to indicate a branchial cyst rather than a tuberculous abscess: (a) that the fluid content is very thin, and (b) that the cyst can almost always be completely emptied at the first aspiration.

The cases here reported were diagnosed as tuberculous cervical adenitis, and were referred to me for treatment of that condition. The diagnosis of branchial cyst was subsequently made in each case on the finding of squamous epithelial cells during examination of aspirated fluid at the Central Tuberculosis Laboratory, Cardiff.

Treatment

The treatment generally recognized as being the only satisfactory one is complete excision (Shedden, 1931; Bailey, 1923, 1928; Baumgartner, 1933). Cutler and Zollinger (1933) report several cases of cervical fistulae and pilonidal cysts treated by a modified Carnoy's solution containing absolute alcohol 6 ml.,

chloroform 3 ml., glacial acetic acid 1 ml., and ferric chloride 1 g. Robitshke (1933) records a case of branchial fistula successfully treated in this way. Five of the six cases reported below were treated by aspiration followed by the injection of from 0.5 to 1 ml. of pure carbolic acid. In one case the cyst disappeared after a single aspiration without the injection of any sclerosing fluid, but recurred 8 months after this aspiration. Aspiration was made with a moderately fine needle, which was held carefully in place to receive the Record syringe containing the carbolic acid. After aspiration, which in every case caused complete flattening of the cystic swelling, the acid was injected with maximum rapidity in order to obtain a spraying effect with the carbolic on the lining of the cyst wall. Firm pressure was then maintained on the site of the emptied cyst for five or ten minutes.

Case Reports

Case 1.—A man aged 31 was admitted with a very large hard mass in the left side of the neck deep to the upper third of the sterno-mastoid; on Feb. 13, 1943, 25 ml. of rather thin yellowish fluid was aspirated and the swelling completely flattened. On Feb. 27 the swelling reappeared, and 5 ml. of fluid was aspirated. The laboratory report (Dr. Ruth Milne) on the aspirated fluid stated: "No acid-fast bacilli found. The presence of many epithelial cells suggests that the pus may be from a simple branchial cyst. The character of the fluid is also suggestive but not absolutely typical of this." March 20: Swelling very large and hard again; 20 ml. of fluid aspirated, and swelling completely flattened again; 0.5 ml. of pure carbolic acid injected. March 27: Swelling now very small. April 10: Swelling hardly palpable. May 1: Swelling completely gone. Seen in January, 1945, and March, 1946, the patient stated that there had been no recurrence.

Case 2.—A woman aged 41 was admitted on April 2, 1943, with a hard tense swelling in the right side of the neck; 10 ml. of brownish fluid aspirated from the cyst and swelling completely flattened. Laboratory report (Dr. Milne): "No tubercle bacilli. Squamous epithelial cells present in large numbers. Findings typical of a branchial cyst." This case was kept as a control and no carbolic acid was injected. The cyst showed no signs of filling up until Dec. 6. The swelling recurred, and by Jan. 10, 1944, had reached the same size as when originally seen. It was aspirated and 12 ml. of brownish fluid withdrawn. This fluid was again reported on as being characteristic of a branchial cyst. This time, however, 1 ml. of pure carbolic acid was injected after aspiration. Three months later only a small firm swelling was present near the anterior border of the sterno-mastoid. Jan. 29, 1945: No palpable swelling present. March 1, 1946: No recurrence.

Case 3.—A man aged 26 was admitted on Aug. 18, 1943, with a large hard tense mass in the upper half of the right side of the neck, deep to the sterno-mastoid; 12 ml. of thin greenish-yellow fluid aspirated from the swelling. Laboratory report on the fluid (Dr. Milne): "No tubercle bacilli present. Large numbers of squamous epithelial cells. Findings typical of branchial cyst." Sept. 4: Swelling up again; 6 ml. of fluid aspirated; 0.5 ml. of pure carbolic injected. Sept. 18: Swelling much smaller, but up again; 4 ml. of fluid aspirated; 1 ml. of pure carbolic acid injected. Dec. 13: Now has a small firm swelling near the anterior border of the sterno-mastoid. Jan. 10, 1944: A tiny hard nodule only is palpable. Jan. 29, 1945: No mass or nodule palpable. April 20, 1945, and March 1, 1946: No recurrence.

Case 4.—A young woman aged 22 was admitted on March 3, 1944, with a tensely fluctuant swelling in the upper half of the left side of the neck; 16 ml. of brownish thin fluid aspirated. Laboratory report on fluid (Dr. Milne): "No tubercle bacilli present. Large numbers of squamous epithelial cells observed. Findings typical of branchial cyst." April 28: Swelling up again; 18 ml. of fluid aspirated and swelling completely flattened; 1 ml. of pure carbolic injected. May 12, 1944: Small hard mass palpable. July 21: Swelling completely gone; nothing to palpate. Jan. 22, 1945: No palpable swelling. April 23, 1945, and March 1, 1946: Follow-up; no recurrence.

Case 5.—A young woman aged 23 was admitted on March 3, 1944, with a large tensely fluctuant swelling in the left side of the neck; 15 ml. of thin yellowish fluid aspirated from the swelling. Laboratory report on the fluid (Dr. Milne): "No tubercle bacilli; large numbers of squamous epithelial cells. Findings typical of a branchial cyst." March 10: 5 ml. of fluid aspirated; 1 ml. of pure carbolic injected. April 28: Swelling completely gone. May 26: Swelling still absent; nothing at all abnormal to palpate. Jan. 29, 1945: Swelling reappeared a week ago. A very hard swelling the size of a walnut present. Aspiration attempted but no fluid obtained. Diagnosis doubtful. Feb. 10: Swelling has disappeared; may have been a lymphadenitis. April 30: No palpable swelling. March 3, 1946: No recurrence.

Case 6.—A girl aged 12 was admitted on Dec. 22, 1944, with a fairly tense cystic swelling in the left side of the neck, deep to the

upper half of the sterno-mastoid; 25 ml. of buff-coloured fluid aspirated and swelling completely flattened. Laboratory report: "Fluid contains large numbers of squamous epithelial cells and is typical of a branchial cyst." Jan. 5, 1945: Swelling has recurred, but is not so large as when first seen; 12 ml. of fluid aspirated and swelling again completely flattened; 1 ml. of pure carbolic acid injected. Jan. 19, 1945: Swelling again present, but now very small and indurated. Feb. 9: A small firm mass, the size of a hazel nut, is palpable deep to the upper third of the sterno-mastoid. March 22: Swelling completely gone. April 30, 1945, and March 1, 1946: No recurrence.

Discussion

No untoward reactions of any kind have been encountered after this treatment. Shedden (1931) reports that iodine, alcohol, caustic potash, trichloroacetic acid, and mercuric nitrate have all been injected into branchial fistulas in attempts to close them, sometimes with fatal results after passage of these substances along the fistula into the mouth. I cannot find any reference, however, in the literature to the use of sclerosing solutions in the treatment of branchial cysts. Trail, in a personal communication in 1944, reported the disappearance of a branchial cyst following its aspiration and the injection into it of lipiodol for purposes of radiological study. It would seem that branchial cysts have no fistulous connexion with the mouth (Bailey, 1923). Baumgartner (1933), however, describes a form of "incomplete internal" fistula with an internal but no external opening which could presumably become cystic and in which the injection of pure carbolic acid might carry some risk. This is, I believe, far more of a theoretical than an actual practical risk, and one which could be overcome by careful scrutiny of the mouth after the injection of methylene-blue solution into the cyst.

The follow-up in these cases is too short to be certain that recurrence will not take place but is long enough to make such a conclusion reasonable.

Summary

Six cases of branchial cyst are reported. They were treated by aspiration followed by the injection of from 0.5 to 1 ml. of pure carbolic acid. In every case the swellings disappeared and have not, so far, recurred. One of the cases was first treated by aspiration alone, but the cyst recurred after 8 months. It was subsequently treated as above, and has not recurred since.

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Medical Memoranda

Post-operative Mania treated by Continuous Intravenous Pentothal

Little has been written about the action and effects of sodium pentothal, even as a short-acting anaesthetic. By the following case it is hoped to illustrate the possibilities of prolonged narcosis produced and sustained by this drug. It would seem that modifications of the method as shown below may be used in the treatment of other disorders of a nervous nature.

CASE HISTORY

The patient, an ex-officer in the Merchant Navy aged 24, gave a history of peptic ulceration dating back to 1939. From September, 1943, to July, 1945, he had had four operations—two for perforations and one each for gastro-jejunostomy and laparotomy. After the last operation he was violent and confused, and had to be restrained, but this lasted for only 24 hours. He was left with no obvious mental trauma. After two months' hospital treatment a partial gastrectomy was performed in September, 1945.

Some facts involving the patient's psychological state are of interest. He underwent many hardships on the Murmansk convoys, and on one of these his ship was torpedoed. As a result he was very nearly drowned and lost the thumb and three fingers of his left hand. His wife had a baby four weeks before his present operation, and about the same time he lost the job which he had held since his discharge from the Service a year ago. He smokes 15 to 20 cigarettes daily, but takes no alcohol.

The patient is a well-built, healthy-looking man, introspective and rather "highly strung." He requires a lot of attention and is obviously "spoilt." His general physical condition is good. The handicap of his left hand does not worry him unduly, and he has

overcome it to a great extent. Examination of his C.N.S. revealed no abnormality. The day before his operation he was very well, and looking forward to the benefit which he was to receive from it. That night he slept well without sedation.

Sept. 7, 1945.—8.30 a.m.: Premedication—omnopon 1/3 gr. (22 mg.) and hyoscine 1/150 gr. (0.44 mg.). 10.10–11.30 a.m.: At operation the gastro-enterostomy was undone and a partial gastrectomy carried out. Anaesthesia was induced with intravenous pentothal 0.5 g., and thereafter he was given nitrous oxide, oxygen, and ether. Induction and anaesthesia were smooth and uneventful, and at no time was he cyanosed. 2.15 p.m.: Coming out of the anaesthetic; restless; omnopon 1/3 gr. 4 p.m.: Continuing restless; 4 dr. (14 ml.) rectal paraldehyde given without effect. 6 p.m.—2 a.m.: 14 gr. (0.1 g.) of morphine in 1/4-gr. (16-mg.) doses. Patient now very violent and having hallucinations of torpedoes and sensations of fear of drowning. A restraining sheet failed to control him.

Sept. 8.—3.15 a.m.: Omnopon 2/3 gr. (45 mg.) and hyoscine 1/75 gr. (0.87 mg.). Very little effect. Pulse rate rising, but colour remains good. 10.20 a.m.: As the patient's condition in some ways resembled delirium tremens 3 ampoules of vitamin B₁ were given intravenously. An hour later he was more violent than before. He was out of bed on several occasions, being almost uncontrollable. 12.40 p.m.: Slept for one hour after 33½ gr. (2.2 g.) sodium amylal intravenously. 2.50 p.m.: Slept for a further hour after 6 dr. (21 ml.) rectal paraldehyde, some of which was returned. 4.30 p.m.: Began to retch violently, then vomited some clotted blood. Was not obstreperous but quite uncooperative. Pulse and colour remained good. 6 p.m.: At this point it was agreed that he would have to be put to sleep or he would die from exhaustion. Since hypnotics were apparently useless, it was decided that sodium pentothal intravenously was the most effective and suitable narcotic. Consequently sleep was induced by the injection of 0.5 g. as for induction of anaesthesia. A glucose-saline drip was then set up, containing 1 g. of pentothal to 1 pint (568 ml.) of glucose-saline. The rate of drip was determined by the depth of the narcosis, 40 drops a minute being required on an average to keep him narcotized. 8.10 p.m.: A second pint, again containing 1 g. of pentothal, was begun. 10.45 p.m.: A third pint, containing 0.5 g. of pentothal, was begun.

Sept. 9.—1.30 a.m.: Drip discontinued; a total of 3 g. of pentothal had been given. He slept on for 3½ hours after the drip was stopped, remaining reasonably quiet until 8 a.m., when he again became violent; later he fell asleep for one and a half hours. 12.30 p.m.: The patient got out of bed, brushed all restraint aside, and ran into the corridor, where he collapsed exhausted. Sleep was again induced with 0.5 g. of pentothal, and the glucose-saline-pentothal drip reconstituted (1 g. to the pint as before). 3.20 p.m.: He was now kept under with 0.5 g. per pint, but this involved a faster rate of flow, and by 8 p.m., after having had 3 pints (1.7 litres) of fluid containing 2 g. of pentothal, signs associated with increased bronchial secretion became evident. Atropine 1/100 gr. (0.65 mg.) was administered. The concentration of the drip was then increased to 1.5 g. per pint, and a dripping-rate of 5 drops a minute sufficed to keep the patient narcotized.

Sept. 10.—By this time he had had 21 hours' continuous sleep (excluding the first occasion), with 4 g. of pentothal in 4 pints (2.3 litres) of glucose-saline. The drip was then discontinued. 12.15 p.m.: Beginning to waken. To prevent his regaining consciousness too quickly 6 dr. (21 ml.) of rectal paraldehyde was administered. 2.15 p.m.: Respirations becoming shallow and colour poor. Carbon dioxide and oxygen given in addition to strychnine 1/30 gr. (2 mg.). T. 103° F. (39.4° C.), P. 138, R. 32. 6–10 p.m.: Still unconscious. General condition very poor. One ampoule of nikethamide given hourly. T. 104.8° F. (40.45° C.), P. 150, R. 32. The patient was now beginning to be restless, but no effort at restraint was made.

Sept. 11.—4 a.m.: He was obviously beginning to regain consciousness. Those present in the room were his wife, a nurse, and the house-surgeon. He remained quiet and soon recognized these persons by their voices. He was apparently blind, but after three hours recovered sufficiently to recognize objects in the room. From this time he was very co-operative and began to take fluids by mouth. During the period of narcosis he was catheterized repeatedly, and he found some difficulty in passing urine during the next 12 hours. 10 a.m.: Complaining of severe abdominal pain. Morphine 1/2 gr. (32 mg.) and atropine 1/100 gr. were administered without effect. 12.15 p.m.: Pain continuing. Nephentle 10 m. (0.6 ml.) and tincture of belladonna 10 m. given by mouth. Some nausea but no vomiting. 2 p.m.: Tincture of belladonna 10 m.; pain easier. This was repeated at 5 p.m. 11 p.m.: Patient unable to sleep; abdominal pain very severe. Morphine 1/2 gr. given; repeated at 1 a.m.

Sept. 12.—3 a.m.: Again very violent and "light-headed." Sleep was induced as before with 0.5 g. of pentothal; he slept for 3½ hours after this. On wakening the patient felt much better. The pain had subsided and his eyesight had recovered. He was very weak, and fell into a deep sleep. From then onwards he continued to improve rapidly. There was no internal or external haemorrhage, and the abdominal wound held firm except for two skin sutures.

It is interesting to note that he remembers nothing from the time when he went into theatre on Sept. 7 until he regained consciousness on Sept. 11. He does remember vaguely the vomiting of blood on the afternoon of the 8th.

COMMENT

With a history of previous post-operative violence, and in view of the recent psychological history, it was feared that the patient might behave as he had done before. The much greater degree of mental disturbance on this occasion may be due either to the greater weight of worry and misfortune or to the longer time he was under the anaesthetic. The exact

exciting factor is still in doubt, since further prolonged narcosis seemed to cure the condition.

It would appear that very dilute intravenous sodium pentothal can be administered over long periods, by means of a saline-drip apparatus, without undesirable after-effects. It is a matter for debate whether the pentothal (7.5 g. at intervals during 31 days) was the cause of the apparent transient blindness, whether it was due to the cumulative effect of the drugs which were given, or whether it was of a hysterical nature.

I wish to express my thanks to Mr. Dalziel for permission to publish these notes; to Dr. Bakeron (the anaesthetist); and to the visitors and resident staff for much valuable advice and assistance in the conduct of this case.

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Proteus vulgaris Septicaemia treated with Penicillin

Proteus infections of the blood stream are of uncommon occurrence; the report of a case successfully treated with penicillin may therefore prove of interest.

CASE REPORT

The patient, a diabetic woman aged 57, was admitted to King's College Hospital under the care of Dr. R. D. Lawrence for the treatment of varicose veins. The left internal saphenous vein was ligatured by Mr. A. J. Heriot on Oct. 17, 1945, and three days later 3 ml. of sodium morrhuate was injected. A small abscess developed over the site of the injection. This later discharged, and a pure growth of *P. vulgaris* was obtained from the pus on Oct. 25. The leg remained painful and swollen, and for the next three weeks there was an irregular type of fever between 98 and 101° F. (36.7 and 38.3° C.). During this period the patient was treated with 40 g. of sulphathiazole for eight days and an 18-day course of penicillin by 3-hourly intramuscular injections of 20,000 units, but without any improvement.

On Nov. 18 the patient became considerably worse, with a swinging temperature reaching 104° F. (40° C.) and with rigors. The blood was cultured on the same day, and *P. vulgaris* was grown in each of the bottles of glucose broth employed. The penicillin sensitivity of the organism originally isolated from the wound was not investigated, but the strain grown from the blood was inhibited by 3 units of penicillin per ml. (tube-titration method). A daily dose of 640,000 units of penicillin in 3-hourly injections was then started. Unfortunately no estimation of the amount of penicillin in the blood was made at this time, but as no clinical improvement occurred after six days the dose was increased on Nov. 27 to 1.76 million units daily. This was given in 2-hourly injections of 160,000 units each, omitting one dose in the night. The patient's general condition at once started to improve and the leg also became less swollen and painful. Her temperature began to fall steadily, reaching normal after nine days, and there was also a progressive fall in the total leucocyte count. Blood cultures taken on Nov. 28 and Dec. 3 were sterile. The large dose of 1.76 million units daily was maintained for 12 days, and examinations of the blood during this time showed that the penicillin content did not fall below 3 units per ml. There was no relapse when treatment was discontinued, and the patient made an uninterrupted recovery.

COMMENT

Organisms of the *Proteus* group are not infrequently associated with pathogenic lesions. They occur most commonly as secondary invaders in wounds and in infections of the urinary tract and of the ear, but they rarely invade the blood stream. When they do so the mortality rate is high, particularly in non-urinary infections. In a review of the literature dealing with such cases McKee (1944) found that septicaemia was most often associated with otitis media and mastoiditis, with cerebral abscess, lateral sinus thrombosis, and meningitis as common complications. Out of 23 reported cases of *Proteus* septicaemia following non-urinary infections only 5 recovered. Mackenzie and Hawthorne (1933) collected 17 cases of septicaemia following *Proteus* infection of the urinary tract and added one of their own; 5 of them proved fatal. Many of the cases gave a previous history of instrumentation or operation (Wallace and Dudgeon, 1915).

In the present case infection presumably occurred when the vein was injected, though this was done in the operating theatre with proper aseptic precautions and a fresh ampoule of sodium morrhuate was used. The chief point of interest, however, lies in the success which resulted when the dosage of penicillin was correlated with the bacteriological findings. In conclusion, it should be stated that to persevere with such frequent injections over a period of 12 days required no small fortitude on the part of the patient.

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Reviews

RADIOGRAPHY OF GASTRO-INTESTINAL DISEASE

Roentgen Diagnosis of Diseases of the Gastro-intestinal Tract. By John T. Farrell, Jun., M.D. (Pp. 271; illustrated. \$5.50 or 30s.) Springfield: Charles C. Thomas; London: Baillière, Tindall and Cox. 1946.

This book is based on lecture notes used by the author and distributed to his students in radiology at the Graduate School of Medicine of the University of Pennsylvania. It consists of concise descriptions of the radiological appearances associated with diseases of the gastro-intestinal tract and of the radiographic technique used, with 190 illustrative photographs. The subject-matter is arranged rigidly in accordance with the Standard Nomenclature of Disease, but the results of this attempt at precision are unfortunate. Closely related conditions, which would normally be discussed together, are thereby artificially separated, with inevitable duplication of description; for example, Colitis, Chronic; Sigmoiditis; Chronic Colitis due to Poison; Mucous Colitis; Ulcerative Colitis, Left-sided or Universal; and Ulcerative Colitis, Right-sided or Regional, all appear under separate headings on different pages, and many similar examples could be given. Much space is taken up with long lists of uncommon pathological conditions, which are either grouped together in the subsequent text or are not discussed at all; and the eye of the reader is constantly confused by rapidly alternating changes in the printing type used.

The book contains much useful information, but it is difficult to imagine what kind of reader the author had in mind when he decided to have these notes published in book form. Graduate students of radiology, wishing to revise this branch of the subject before an examination, might well find this manual helpful; practising radiologists, however, would find little that is not already available in the larger standard textbooks; while physicians, surgeons, or general practitioners, who might be expected to welcome a book of this kind, would be continually irritated by the defects in arrangement of the text to which allusion has already been made; they might read it with profit, but scarcely with pleasure.

GENITO-URINARY DISEASES

Synopsis of Genito-urinary Diseases. By Austin I. Dodson, M.D. Fourth edition. (Pp. 311; illustrated. 16s.) London: Henry Kimpton.
Urological Diseases. By David M. Davis, M.D., Professor of Urology, Jefferson Medical College. Fourth edition. (Pp. 212; illustrated. 12s.) London and Philadelphia: W. B. Saunders Company.

In spite of the recent war genito-urinary surgery has advanced, and improvements in treatments have made necessary the appearance of a new edition of Dr. Dodson's well-known book. In it the uses and the limitations of the sulphonamides and of penicillin in the treatment of urinary infections are discussed. In Chapter XII attention is drawn to the value of castration and of oestrogen therapy in the palliative treatment of carcinoma of the prostate. The illustrations have been improved by substituting original pyelograms for the diagrams appearing in previous editions. As medicine advances, becomes more complicated, and divides itself into more and more special departments, synopses become of greater and greater value. Dr. Dodson's book will be of great service to those who because of the war have been unable to keep in touch with advances in urology and who now wish to revise their knowledge of this subject. It is perhaps unfortunate that the cost of such a useful handbook as this should be as high as it is.

The nursing of a genito-urinary case is of the utmost importance; it would be no exaggeration to say that the after-treatment of a case of prostatectomy is as important as the operation itself. This being so, a urological primer written for nurses should be of great value. The fourth edition of Dr. Davis's book has been carefully revised so as to include such advances in medicine as the use of the sulphonamides and penicillin and the new method of treating carcinoma of the prostate by oestrogens and castration. The subject-matter falls naturally into two parts: the nursing care of urological cases, and the maintenance and the sterilization of urological equipment. These matters are clearly and simply described and the descriptions are supplemented by excellent illustrations. Dr. Davis's book can be recommended to all nurses who wish to revise their knowledge of this branch of their profession.

SURGICAL TREATMENT OF OSTEOARTHRITIS OF THE HIP

Traitement Chirurgical de l'Arthrite Sèche de la Hanche. Suivi de Travaux de la Clinique Orthopédique de la Faculté de Lyon. By L. Tavernier and Ch. Godinot. (Pp. 360; 103 figures. 150 francs.) Paris: Masson et Cie. 1945.

This book comprises a series of papers of wide scope by Prof. Tavernier and his associates at Lyons. In the first and largest section, dealing with osteoarthritis of the hip, an analysis is given of 100 cases treated by operation. The earlier cases were treated by arthrodesis. Later on emphasis has been upon arthroplasty. More recently still, various forms of sensory denervation have been carried out, and this, the authors consider, should be a routine procedure for the more distressing forms of osteoarthritis, no matter what else is done. Intra-articular operations have certain special indications: arthrodesis for unilateral cases. Arthroplasty, which should be "ideal," nevertheless is of dubious value because the results so frequently fall short of what one hopes for. Prof. Tavernier, however, advises it in bilateral cases, for, though no operation gives uniformly successful results, one procedure does not exclude the other if the first fails. The grossness of the disability caused by the disease and the inadequacy of medical treatment fully justify the surgical approach, in view of the enormous benefit that so often can be derived. Most British orthopaedic surgeons would fully support this view.

The second part of the book deals with osteoarthritis of other joints, and the third part comprises 14 papers reflecting the wide interests of the Lyons orthopaedic school.

INDIVIDUAL GYMNASTICS

Individual Gymnastics. A Handbook of Corrective and Remedial Gymnastics. By Lillian Curtis Drew. Fifth edition, revised and edited by Hazel L. Kinzley. (Pp. 253; illustrated. 15s.) London: Henry Kimpton. 1945.

It is now nearly a quarter of a century since the late Miss Lillian C. Drew first produced her book on *Individual Gymnastics*, and the present review concerns the fifth edition, revised by Miss Hazel L. Kinzley. This means that there has been over all these years a steady demand for instruction in this sphere of rehabilitation. The time has, however, passed for loose unscientific statements in any subject connected with medicine to be tolerated with the patience of twenty-five years ago. This is an age of science and of a deep appreciation of physics and physical facts in our daily life. Again, there are parts of this book that seem strangely out of tune with the lessons learned in the last war of the value of class games and exercises, as practised at the various rehabilitation centres such as Loughborough for the R.A.F. and Kingston for the Army. In this country passive movements in the treatment of fractures have been condemned for many years, so strongly that for time physiotherapists were only allowed to handle orthopaedic cases provided passive movements were never employed, but on page 117 "passive movements to restore the normal range of movement . . . are of great assistance" in fractures.

About a quarter of the book is taken up with a number of exercises well illustrated and carefully defined. Each exercise is annotated under the subdivisions "starting position," "movement," "variation," "comment," and "value." It is unfortunate that in neither preface, foreword, nor the opening chapters is any indication given of the audience for whom the book is written. It would be far too elementary for the fully trained physical training instructor or qualified gymnast in this country; it would, equally, be of little real value to medical practitioners or student physiotherapists. Hence it is difficult to conceive the group which would find real value in a book that has had so much care and time spent on its revision.

Notes on Books

We wonder into whose pocket the second edition of *A Pocket Surgery*, by PHILIP H. MITCHNER and A. HEDLEY WHYTE, will find its way. The terse phrasing and direction as to the outstanding points in diagnosis and treatment may during the war years have been valuable to the general service medical officer, called to do duty on the surgical side of a hospital or elsewhere and whose tunic pocket the book probably filled. It may be supposed that it will now slip into the pocket of the pre-examination student, but woe betide him if he is not well versed in the surgical practice of his

hospital, because brevity has here reached dangerous lengths. For example, chronic appendicitis, he is told (p. 219), produces tiredness, weakness, indigestion, and epigastric pain chiefly, but in no way definitely related to meals . . . "all symptoms completely clear up when the appendix is removed." It is to be hoped that those who buy this little volume will not keep it too frequently in pockets from which absorption is slow, because there is in it much worthy of assimilation. The publishers are J. and A. Churchill, and the price is 8s. 6d.

Several recent incidents have focused public attention on the punishment of troublesome boys and young men in Borstal establishments and in civil and military prisons. In *Eliminating Punishment* (Psychological and Social Series, 10, Nottingham Place, London, W.1; 1s.) Mr. W. DAVID WILLS makes out a convincing case for doing away with punishment altogether in reformatory treatment of this class of citizen. He writes from long practical experience, especially at Hawkspur Camp and Barns House, two hostels started by the Society of Friends during the war which received lads and men of very varied and difficult types. He maintains that discipline as commonly understood has no value in the training of character, that the discipline that is necessary for the administration of a community can be achieved without punishment, and that punishment is unconditionally wrong because it defeats the aim of character training. How these difficult young males can be turned into useful and creative members of a community and of society by making them share the responsibility for its life, and how the search for ways to defy authority which obsesses so many of them can be diverted into a more useful channel, make a fascinating story, which is illustrated by extracts from many records.

Principles of Internal Medicine: A Course for Nurses, by Dr. D. M. BALTZAN (Toronto: The Ryerson Press), is available in London from Hatchards, Ltd., at 25s. This book illustrates a tendency which we frankly regard with apprehension; that is, that there shall be an approximation of a nurse's training to that of a medical student. Many syllabuses of the nurse's curriculum illustrate this tendency. The result is either a façade of unassimilated knowledge or a diversion of the nurse's attention from nursing. The author has produced an elaborate book, full of information; but in the first chapter he devotes a section to the principles of diagnosis, which, we submit, does not come into the nurse's province. Yet we have failed to find any information about what a nurse should observe and report to the doctor, or any guidance in, what is surely fundamental, the care and comfort of the patient. Dr. Baltzan has lectured at various training schools for nurses, so that it is possible he has been the victim of a bad system. In any case, it is high time that a protest was raised against a system which evokes such a misconception of the proper training of a nurse.

More Thoughts and Comments of a Doctor, II-VII, by Dr. F. PARKES WEBER, is published by H. K. Lewis at 2s. 6d. The breadth and depth of Dr. Parkes Weber's learning, both in medicine and in archaeology, continue to surprise even his oldest friends. In this little collection of papers he ranges from the Sturge-Weber panathenaic amphora to contemporary forgeries of money. His own interest in these somewhat obscure topics carries the reader with him.

Preparations and Appliances

R.A.F. FLYING OVERALL

The R.A.F. "flying overall," which saved the lives of many men suddenly precipitated into the cold sea, is described by Squadron Leader E. A. Pask, M.B., in the May number of the *Maker-up* (the trade journal for clothing manufacturers, published from 110, Fleet Street, E.C.4). The overall, which is put on before flying, can be worn for any length of time because, although it is waterproof, perspiration escapes through the fabric. Its invention is the outcome of the combined efforts of the scientists of the R.A.F. Institute of Aviation Medicine and the Cotton Research Association, with the help of British spinners, weavers, and cloth processors. It is made of a special "Oxford weave" cloth with "tropical" interlining. A five-ounce (142 g.) interlining supports a 12-stone (76-kilo) man in water and retains its buoyancy almost indefinitely. It insulates the body against heat and cold, and so protected our bomber crews against extreme cold. Paradoxically it kept fighter pilots cool in the heat of the cockpit. The materials from which the R.A.F. flying overall is made will be available for civilian clothes and may revolutionize the manufacture of waterproof and other garments.

In order to cope with post-war difficulties in the production of surgical instruments and aseptic hospital furniture, Down Bros. and Mayer & Phelps have amalgamated. The personal managements remain as heretofore.

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CHEMISTRY AND MEDICINE

The relationship of chemistry to medicine has been discussed often and from many standpoints. Historically, the association of these two branches of knowledge has passed through great vicissitudes. At the one extreme we have the school of the iatro-chemists of Leyden in the seventeenth century, who founded their whole philosophy of medicine upon chemistry; at the other, we have the attitude of scepticism and even resentment of chemists, which seems to have grown up on the part of physicians in parallel with the great advances of clinical medicine during the nineteenth century. Now we have reached a stage at which sympathy and co-operation between chemists and medical men have again become closer, and at which few of the latter would belittle the debt their profession owes to chemical science. There can be no question that the continuance and increase in the activity of the interaction between chemistry and medicine will be to the benefit of both: if this is to be achieved, however, it is necessary that more than lip service should be paid to the principle by the members of both professions. The chemist must look upon medical problems as offering a field for the fullest possible development of his own science, and the medical man must learn to see in chemistry more than a source of new drugs and new laboratory techniques. How far can we say that these requirements are now being fulfilled?

It is probable that the neglectful attitude of medicine to chemistry during the last century was first altered by the discovery of the internal secretions, rapidly followed by that of the vitamins. When we add to these achievements of physiology and chemistry the accession of strength to therapeutics which has come with the evolution of chemotherapy there would seem to be little fear that the capacity of chemistry to help medicine would ever again be doubted. Moreover, it must be remembered that these achievements not only were services to medicine but represented advances in chemistry itself; they could not have been made but for the previous accumulation of chemical knowledge, and to the further increase of such knowledge they themselves contributed. An excellent example of this interplay of forces is afforded by the story of the chemistry of penicillin, referred to by the President of the Royal Society in the address on the occasion of the bicentenary celebrations of the Middlesex Hospital, which is printed elsewhere in this issue. The isolation in the pure form of a natural product having the peculiar properties and chemical instability characteristic of penicillin and the later massive industrial production of this substance are triumphs of the application of the principles of chemistry and the technique of chemical engineering to a microbiological problem. In the successful unravelling of the chemical

constitution of penicillin we see the methods of classical organic chemistry at work, with essential support from physics in the form of x-ray crystallography. On the other hand, the failure up to date to achieve a practicable synthesis of penicillin, in spite of the resources of chemical talent which have been brought to bear on the problem, reveals the incompleteness of organic chemical knowledge which Sir Robert Robinson is at pains to point out. It is not to be supposed that the attack on the problem of the synthesis of penicillin will be abandoned, and it is more than likely that success, when it comes, will bring in its train important new accessions to the science of organic chemistry. Here, then, is a case where chemistry has been able to help medicine by bringing a microbiological discovery into the practical service of therapeutics, and where the very failure of the chemists to solve the complete problem will stimulate them to make further efforts to develop their own science.

There are, however, less obvious ways than the synthesis of a new therapeutic agent or even the elucidation of the chemistry of a hormone or vitamin in which chemistry may help the development of medicine, and to these Sir Robert Robinson rightly calls attention. These ways are less obvious because they concern the fundamental chemistry of proteins and of the cell—questions which may seem as remote from practical medicine as did the researches of the nuclear physicists from the reality of Hiroshima. With the recent history of atomic research in mind, he would be a bold man who would question the practical potentialities of the most academic biochemical research; the exploration of the structural chemistry of proteins in general and the particular study of nucleoproteins are growing points in chemical investigation from which may be expected advances having not only a profound effect on biological thought but practical results in medicine itself.

The account which Sir Robert Robinson has given of the past contributions of organic chemistry to medicine is sufficient to show that there is no unwillingness on the part of the chemist to choose the field offered by medical problems for the pursuit of his own branch of science. A chemist who makes this choice can, by diligence in study and by cultivating scientific contacts with biologists and medical men, go some way towards achieving a real understanding of the biological aspects of the problem he is studying. If he is to play his part to the best effect, however, he must be met by genuine collaboration from the medical side, and this can be given only if the medical man will make a corresponding effort to understand the background and mode of thought of the chemist sufficiently to appreciate both the ways in which he can help and his limitations. Appreciation of the potential usefulness of chemistry to medicine is not enough; nor is it enough for the medical man to pose problems to the chemist and to trust to the technique of the latter to do the rest. Rather is there needed sympathetic and understanding discussion in which problems not only are posed but are so far analysed that the chemist is placed in the best position to plan a feasible attack on the essential points. It is clear that fruitful discussion of this sort cannot take place unless the medical man has a real and

understanding appreciation of the past achievements and the potentialities of chemistry in its application to biology. Such appreciation can come only from the instruction in chemistry and biochemistry which is given to medical students, and Sir Robert Robinson has done a useful service in calling attention once more to the great need for improvements in this respect. So long as the medical student, as is now often the case, can complete his course with little appreciation of chemistry as a science, and having acquired perhaps an active distaste for it as a technique, he will be quite unable later on to collaborate with a chemist to the mutual advancement of chemistry and medicine. He may, as a doctor, value the practical results of the chemist's work and he may even admire his scientific ability, but he will be incapable of joining with him in intellectual effort directed to a common end. If the ultimate solution of this educational problem is far from clear, it is certain that a considerable advance would be made if more medical men were able to find a vocation in research and teaching in the chemical aspects of their subject. At present such men are all too rare. An increase in their number would do much to bridge the remaining gap between chemists and biologists, not only by virtue of their own work, but through the influence they would exercise on the medical students who passed through their hands.

"MALIGNANT MALNUTRITION"

During the years between the two world wars the science of nutrition developed rapidly. A wealth of new knowledge was gathered, and it seemed probable that the main facts concerning the food principles necessary for sound nutrition, and the ill effects of their omission, had already been elucidated. Thus scurvy resulted from deficiency of vitamin C, xerophthalmia and night blindness from deficiency of vitamin A, hunger oedema from deficiency of protein, and so on. To some workers it appeared that the days of important new discoveries were over, and that future developments would lie in the application of existing knowledge to practical medicine and dietetics.

Theoretical progress has certainly been impressive; no one will deny the urgent need for its full practical application. But in the Tropics and in war-stricken European countries field workers have demonstrated repeatedly that the clinical picture shown by malnourished or starved populations may often differ widely from textbook descriptions. As Stannus¹ has pointed out, unknown or ill-defined deficiency diseases probably far outnumber those whose characteristics are already plainly established. The condition of "malignant malnutrition" recently studied in Uganda by Trowell and Muwazi² presents problems which expose the limitations of existing knowledge. The first adequate description of this disease was given in 1933 by Cicely Williams,³ who used to describe it by the native name of "kwashiorkor," meaning a red boy or man. Although a reddish pallor of the skin and a softening and browning of the hair are frequently seen in affected native

children, the change of colour in adults may be much less noticeable. Other features of the syndrome are loss of weight or failure to grow, oedema, an abnormal albumin-globulin ratio, crazy-pavement dermatosis, macrocytic anaemia, slight mental and neurological changes, and a deficiency bowel pattern, as indicated in the x-ray film. Although food passes through the intestines at a normal rate much undigested material is present in the faeces. The stools are loose, and in children there is steatorrhea. The complete picture, however, is not always shown. The bowels may not be loose, and in children there may be no crazy-pavement dermatosis. In adults there is sometimes moderate osteoporosis. In specimens of liver taken by biopsy Gillman and Gillman⁴ in 1944 found fatty degeneration, which was sometimes preceded by pigment cirrhosis.

An examination of native diets indicated that very poor labourers subsist on inadequate amounts of cassava, which is deficient in most nutrients except vitamin C. Other labourers, who come from Belgian mandated territory to seek work in Uganda, live mainly on sweet potatoes, with a very little meat and green vegetables. Ganda peasants and their children have a slightly more varied diet, with plantains, potatoes, green vegetables, ground nuts, sugar, and a little meat. Even this diet, however, was calculated to be deficient to some extent in protein, calcium, and nicotinic acid, and to a less extent in aneurin, riboflavin, and vitamin A. To complicate the appraisal of the effects of malnutrition many of the natives suffered from malaria, hookworm disease, syphilis, and various protozoal infections. "Malignant malnutrition" is often fatal, and the response to dietary treatment slow and uncertain. The presence of dermatitis might suggest that a form of pellagra is involved, but while treatment with nicotinic acid amide caused a peeling of the dermatosis a glazed and reticulated surface remained which showed no further improvement. Similarly, treatment with aneurin improved the appetite and increased the sense of well-being, but had no effect on the oedema. Liver concentrates and ferrous sulphate were beneficial to those suffering from macrocytic anaemia. Satisfactory cure of the syndrome as a whole, however, was effected only by the combined action of an improved basal diet and supplements of liver, milk, aneurin, and nicotinic acid.

Further research may reveal the lack of some single factor which is mainly responsible for "malignant malnutrition." In view of the high incidence of macrocytic anaemia, the recent work of Spies⁵ suggests that folic acid therapy is at least worth a trial. On the whole, however, it seems most probable that several deficiencies are involved, and that pathological changes are caused in the tissues which are not easily corrected even when the missing nutrients are restored. We are therefore faced with the possibility that a nutritional deficiency disease, with fairly well defined lesions, may be due not to a single dietary defect but to multiple deficiencies. If this is so the ingenuity of the clinician will be taxed in applying the lessons learnt in the experimental study of nutrition to his work in the field.

¹ *British Medical Journal*, 1946, 1, 620.

² *Trans. roy. Soc. trop. Med. Hyg.*, 1945, 39, 229.

³ *Arch. Dis. Childh.*, 1933, 8, 423.

⁴ *Nature*, 1944, 154, 210.

⁵ *Lancet*, 1946, 1, 225.

intention occurred; on the other hand, if the build-up curve was below normal healing would probably not occur and more radical surgery was necessary. Counts were also taken in these cases at other positions, such as the calf, popliteal region, and the thigh, and comparisons were made between counts made at the same level in the two legs, so that the extent of the disease process might be established. These counts proved particularly useful in determining the site of amputation at which healing might be expected, and often confirmed the present clinical tendency of thinking that in many cases of gangrene needing amputation the knee-joint can be saved.

RACIAL DIFFERENCES IN MORTALITY

The mortality experience of a country is a fair index of its economic and hygienic conditions. Perhaps the best-known specific cause of death that can be correlated with social conditions is tuberculosis. International comparisons show that tuberculosis decreases in importance with increasing industrialization, but within any country industrial areas have a larger death rate than rural districts. It has often been suggested that differences in death rates between countries may be due partly to some racial trait. Widely varying living conditions make it almost impossible to separate environmental and racial causes of differences in mortality. But the large groups of alien origin sharing much the same environment in the United States of America supply data for the study of this problem.

Dublin and Baker,¹ analysing the records of New York and Pennsylvania for 1910, showed that the death rates for the foreign-born population were higher than those for the natives. This classic study was based on 20-year age groups. A similar study covering New York State and New York City has been made recently by Calabresi.² The data used were the deaths for the five years 1928-32 and the census of 1930; the rates were standardized in five-year age groups by the indirect method employed by the Registrar-General of England and Wales. Standardized death rates for New York State over the period studied were 11.8 for native-born males and 10.2 for females, as against 12.9 and 11.4 for foreign-born males and females. Italians had the lowest rates—10.4 for males and 10.7 for females. For people born in England, Scotland, and Wales the corresponding figures were 11.5 and 10.7. Germans (12.6 and 11.0) and Canadians (12.9 and 11.7) had a mortality in excess of the native-born. Russians and Poles had a high mortality, but the Irish had the worst experience with rates of 16.5 and 15.0, which was 40% above that of the native-born population. An examination of the specific causes of death showed that Italians had a high rate for pneumonia; Germans had a low rate for tuberculosis and pneumonia; Canadians had a low rate for tuberculosis. There were also some interesting contrasts between the sexes. Heart diseases and diabetes were more frequent among Italian females than males; British females had an unusually high incidence of cancer; nephritis and diabetes were relatively higher in the native-born females than among males.

The large alien-born element in America must have an important influence on the size of the American death rate. The proportion of the population of Irish origin (Irish Free State) was estimated to be 11.2 of the total population in 1920. The unfavourable death rates of the foreign-born may be due to the persistence of old habits and traditions, which may greatly influence personal hygiene and the general standard of living. However, it does not seem likely that this is an important factor because the Canadians had an adverse experience. Though mainly

of British stock, they had a mortality considerably above the extremely favourable rate shown by the British. A comparison of the mortality of the foreign-born American with that of the country of his origin is not likely to show whether mortality is improved or not by residence in the United States, since the immigrants cannot be taken as representative of their native country. A further study, based on the mortality of the descendants of the foreign-born population, would be necessary before any conclusion could be reached on the vitality of the different races.

MEDICAL PHOTOGRAPHY

A Medical Photographers' Group has now been constituted within the Royal Photographic Society. At its inaugural meeting Surg. Rear-Admiral C. P. G. Wakeley remarked that the medical profession has hitherto had to rely largely for its records upon free-hand artists, and some excellent work has been done, but such service is often not available, and increasing resort has to be made to photography, alike in the operation theatre, the ward, the out-patient department, and the post-mortem room. Given the right technique, no more accurate method exists. Admiral Wakeley spoke of the value of records made before and after treatment, operative or other, and insisted on the need for such pairs of photographs to be on the same scale and to be made so far as possible according to the same procedure. A number of speakers, including photographers attached to large hospitals and free-lance medical photographers, gave an account of their experiences, which suggested that photography now has an importance in many departments which calls for a highly trained expert. Dr. Richardson Billings described a method he has worked out for photography in the operating theatre. A usual method is to have a long-focus lens in the camera and lights fixed above the table, well out of the field of surgical activity. Dr. Billings has employed a different method. From his heavy-based tripod rises a perpendicular standard supporting a baseboard so arranged as to give universal movement and to carry the camera and lamps. The illumination comes from photoflood apparatus mounted in chosen positions around a form of lens hood, with a central incandescent lamp for focusing. The novel feature, however, is a mirror—or it may be a prism—set at an angle of 45° to the optical axis of the camera, the principle being the same as that of the laryngoscope and giving a "surgeon's-eye view" of the field of operation. It is claimed that this eliminates the distortion and foreshortening inevitable with a camera at any other angle or distance. The arrangement also fulfils two necessary conditions: that the photographer and his apparatus must keep out of the way of the surgeon, and that the apparatus must need the bare minimum of preparation. Among experiences related by photographers was the obtaining of a rapid sequence of films to illustrate the delivery of twins by Caesarean section—a task requiring unexpected mobility on the part of the photographer and his apparatus.

THE HALF-YEARLY INDEXES

The half-yearly indexes to Vol. II of the *Journal* and the *Supplement* for 1945 have been printed. They will, however, not be issued with all copies of the *Journal* but only to those readers who ask for them. Any member or subscriber who wishes to have one or both of the indexes can obtain what he wants, post free, by sending a postcard notifying his desire to the Accountant, B.M.A. House, Tavistock Square, London, W.C.1. Those wishing to receive the indexes regularly as published should intimate this.

¹ *J. Amer. statist. Ass.*, 1920, 17, 13.

² *Human Biology*, 1945, 17, 340.

BIRTHDAY HONOURS

The names of the following members of the medical profession were included in a Birthday Honours List published in *Supplements to the London Gazette* on June 13

Barony

St AVROUSE, EDGAR WOODALL, M.D., M.S., F.R.C.S. Senior Surgeon, Manor House Hospital, Golders Green. For political and public services.

K.C.S.I.

Major-General (Jocel Lieutenant-General) GORDON WILSON, C.B., CBE, M.C., M.B., Ch.B., late R.A.M.C. Honorary Surgeon to the King. Director, Medical Services in India.

K.C.M.G.

PETER HENRY BUCK, D.S.O., M.D., D.Sc. Director of Bernice P. Bishop Museum, Honolulu, and Professor of Anthropology, Yale University. For services to science and literature.

K.B.E. (Military Division)

Major-General ALEXANDER GORDON BRIDGMAN, C.B., OBE, MD, F.R.C.P. late R.A.M.C. Honorary Physician to the King.
Brigadier (Local) HUGH WILLIAM BILL CAHNS, F.R.C.S., R.A.M.C. Acting Air Vice-Marshal JOHN JONAS COVATARI, M.C., M.D., F.R.C.P., R.A.F.V.R.

Air Marshal ANDREW GRANT, C.B., CBE, M.B., Ch.B., R.A.F. Temporary Surgeon Rear-Admiral CECIL FLEMING GRAY WATLEY, C.B., D.Sc., F.R.C.S., F.A.C.S., F.R.A.C.S.

K.B.E. (Civil Division)

HARRY CHAPMAN SINDERSON, C.M.G., M.V.O., OBE, MD, F.R.C.P.E. Dean of the Royal Faculty of Medicine, Baghdad.

Knighthood

Major-General GORDON COVILL, C.I.E., MD, I.M.S. Honorary Physician to the King. Director, Malaria Institute of India, Delhi.
ANDREW DAVIDSON, M.D.Glasg., F.R.C.S.Ed., DPH. Honorary Physician to the King. Chief Medical Officer, Department of Health for Scotland.

PHILIP NOEL PANTON, M.B., B.Ch. Consultant Adviser in Pathology, Ministry of Health.

LEONARD GREGORY PARSONS, M.D., F.R.C.P., F.R.CO.G. Professor of Diseases of Children, and Dean of the Faculty of Medicine, University of Birmingham.

C.B. (Military Division)

Major-General NEIL CANTLIE, M.C., M.B., Ch.B., F.R.C.S., late R.A.M.C. Honorary Physician to the King.
Surgeon Vice-Admiral HENRY ST CLAIR COLSON, CBE, M.B., B.S., DPH, R.N.

Major-General (Temp.) JOHN CECIL ALEXANDER DOWSE, C.B., M.C., M.B., B.Ch., late R.A.M.C.

Major-General DAVID VINCENT O'MALLEY, OBE, M.B., B.Ch., I.M.S. Honorary Surgeon to the Viceroy of India.
Air Vice-Marshal ARTHUR EDWARD PANTER, M.R.C.S., L.R.C.P., R.A.F. Honorary Surgeon to the King.

C.S.I.

Major-General JOHN PATRICK HUBAN, OBE, M.B., B.Ch., I.M.S. Honorary Surgeon to the King. Surgeon-General with the Government of Madras.

C.I.E.

Col. NORMAN BRIGGS, M.R.C.S., L.R.C.P., I.M.S. Inspector-General of Civil Hospitals, United Provinces.

Lieut.-Col. GURDIAL SINGH GILL, OBE, M.B., Ch.B., I.M.S. Inspector-General of Prisons, Madras.

Lieut.-Col. (Temporary Col.) DAYA RAM THAPAR, OBE, M.B., Ch.B., I.M.S./I.A.M.C. Commandant, I.A.M.C., Headquarters, Puna.

C.B.E. (Military Division)

Acting Air Commodore EDWARD DEMETRIUS DALZIEL DICKSON, M.B., Ch.B., F.R.C.S.Ed., R.A.F.

Surgeon Rear-Admiral CYRIL VERITY GRIFFITHS, C.B., D.S.O., M.R.C.S., L.R.C.P. Honorary Physician to the King.

Air Commodore PHILIP CLERMONT LIVINGSTON, OBE, A.F.C., F.R.C.S., R.A.F.

Brigadier (Local) JOHN RAWLINGS REES, M.D., F.R.C.P., R.A.M.C. Col. OSWALD LYALL SHEARER, L.R.C.P.&S.Ed., S.A.M.C.

C.B.E. (Civil Division)

LEONARD WYNNE EVANS, M.R.C.S., L.R.C.P., Colonial Medical Service. Chief Medical Officer, Penang, Malaya. For services prior to and during the Japanese occupation.

JAMES FERGUSON, M.B., Ch.B., D.P.H. Lately County Medical Officer of Health, Surrey.

WILLIAM KESLEY FRY, M.C., M.R.C.S., L.R.C.P., I.D.S. Dental Surgeon, Guy's Hospital.

Lieut.-Col. HIRDA MARY LAZARUS, F.R.C.S.Ed. Chief Medical Officer, Women's Medical Service, and Assistant Director-General, I.M.S. (Women's Branch).

OSBORNE HENRY MAYOR, M.D., F.R.F.P.S. Playwright ("James Bridie"). Chairman, Scottish Committee of the Arts Council.

TOM LAKIN PAGET, M.R.C.S., L.R.C.P. Formerly Director of Maternal Welfare, Health Department, New Zealand.

HENRY RICHARD RISHWORTH, OBE, F.R.C.S. Principal Medical and Health Officer, Great Indian Peninsula Railway, Bombay.

DOUGLAS JAMES VALENTINE, M.C., M.B., B.S., Colonial Medical Service. Lately Deputy Director of Medical Services, Hong Kong. For services during internment.

OBE (Military Division)

Acting Wing Cmdr FENTON BRATHWAITE, F.R.C.S., R.A.F.V.R. Col (Temp.) GREGORY WILLIAM STANLEY FOSTER, M.R.C.S., L.R.C.P., R.A.M.C.

Lieut.-Col. HARRY KARL GROFF, V.D., M.D., R.C.A.M.C. Col. HAROLD PARRISH HAMILTON, M.D., R.C.A.M.C.

Lieut.-Col. (Temp.) CHARLES HENRY HOSKIN, M.B., B.Chir., R.A.M.C.

Lieut.-Col. (Temp.) NOWSHIR JUNGALWALLA, M.B., B.S., I.A.M.C. Acting Surg. Capt. GIORGIO MCCOTTELL, V.D., M.D., R.N.V.R.

Col. ROSS HOSMER MCGIBSON, R.C.A.M.C. Lieut.-Col. JAMES CHRISTIE PATTERSON, M.C.P.&S., R.C.A.M.C.

Surg. Cmdr. ARNOLD PERRY, V.D., F.R.C.S.Ed., R.N.Z.N.V.R. Acting Group Capt. PATRICK BRUNTON LEE POTTER, M.D., R.A.F.

Col (Temp.) RONALD WILLIAM RASTIN, F.R.C.S., R.A.M.C. Lieut.-Col. (Temp.) ARCHIBALD MAXWELL ROBERTSON, M.B., Ch.B., R.A.M.C.

Surg. Cmdr. EDWARD GWYNNE THOMAS, V.D., M.D., R.N.V.R. Temp. Acting Surg. Lieut.-Cmdr. DAVID ALEXANDER THOMSON, M.B., Ch.B., R.N.V.R.

Col. (Acting) LARSEN EDWIN VINE, M.B., B.S., F.R.C.S.Ed., R.A.M.C. Malayan Medical Service.

Surg. Cmdr. WILFRED KIRITH WELSH, M.C.P.&S., R.C.N.(R.).

OBE (Civil Division)

RAJNAM APARUDDI, I.M.S.S.A. For service as surgeon, Penang, during the Japanese occupation.

LOI PO CHEN, M.B., B.S. Lately Medical Officer, Medical Department, Hong Kong. For services during the Japanese occupation.

KENNETH HENRY DYKE, M.B., Ch.B. Director of Medical Services, Basutoland.

HAROLD FAIRBAIRN, M.D. Colonial Medical Service. Sleeping Sickness Officer, Tanganyika Territory.

TSE JEN HUI. Medical Officer, Medical Department, Hong Kong. For services during the Japanese occupation.

CAPT. ARTHUR DURNFORD LUFF, M.R.C.S., L.R.C.P., I.M.S. Agency Surgeon, South Waziristan, North-West Frontier Province.

Major MUHAMMAD JAFAR, M.B., B.S., I.M.S. Director of Public Health, Bengal.

BURJOR FRAMJI KHAMBATTA, M.B.E., M.B., B.S. Port Health Officer, Karachi.

MARJORIE JEAN LYON, M.B., B.S., F.R.C.S.Ed., Colonial Medical Service. Medical Officer, Malaya. For services during evacuation and internment.

GOPAL DAS MADHOK, L.R.C.P.&S.Ed., Cachar, Assam.

Major JAMES DUNCAN MURDOCH, M.B., Ch.B.N.Z., F.R.C.S.Ed., I.M.S. Professor of Obstetrics and Gynaecology, Prince of Wales Medical College, Patna, Bihar.

ISAAC LADINO OLUWOLE, M.B., Ch.B. Medical Officer of Health, Lagos Town Council, Nigeria.

Rao Bahadur KIZHAKKE COVILAGAM KUTTY ETTAN RAU, L.R.C.P.&S.Ed. Secretary, Health Survey and Development Committee, and lately Assistant Public Health Commissioner with the Government of India.

WALTER SNEDDON ROBERTSON, M.B., Ch.B. Orthopaedic Surgeon, Wellington Public Hospital, New Zealand.

JAMES PATRICK TAYLOR, M.B., Ch.M. Principal Medical Officer, British North Borneo (Chartered) Company. For services during the Japanese occupation.

ROBERT SCOTT TAYLOR, M.B., Ch.B. Medical Officer of Health, Zanzibar.

GAR HSI THOMAS, M.B.E., M.D. Medical Officer, Medical Department, Hong Kong. For services during enemy occupation.

Major GEORGEY BENION THOMAS, M.Sc., M.B., Ch.B.Shell, F.R.C.S.Ed., I.M.S. Superintendent, Government Hospital for Women and Children, and Professor of Midwifery, Madras Medical College.

ARTHUR STEWART WESTMORLAND, M.R.C.S., L.R.C.P., Colonial Medical Service. Senior Medical Officer, Kingston Public Hospital, Jamaica.

ALFRED ERNEST YOUNG, M.R.C.S., L.R.C.P. Medical Officer, Basutoland.

M.B.E. (Military Division)

Major (Temp.) IAN ALFRED ANDERSON, M.B., Ch.B., R.A.M.C.
Capt. RAFFAELLO WILLIAM BIAGI, M.B., Ch.B., R.A.M.C.
Temporary Surg. Lieut. ALASTAIR KINGSLEY BROWN, M.B., Ch.B., R.N.V.R.

Major (Temp.) DAVID LLOYD GRIFFITHS, M.B., Ch.B., F.R.C.S., R.A.M.C.

Capt. (Temp.) MOTI LAL, I.A.M.C.
Major GUY LATOUR, R.C.A.M.C.
Major (Temp.) DESMOND GRAHAM MCCONNELL, M.B., Ch.B., R.A.M.C.

Major ANGUS RUSSELL MCPHERSON, R.C.A.M.C.
Major WILLIAM HENDRICK MYBURGH, M.R.C.S., L.R.C.P., S.A.M.C.

Capt. CHERUKAT PADMANABHAM NAIR, I.A.M.C.
Major (Temp.) EDWARD HARVEY RATCLIFFE SMITHARD, M.D., R.A.M.C.

Captain HARI CHAND TUGNAIT, I.A.M.C.
Capt. RICHARD IVOR WILLIAMS, M.R.C.S., L.R.C.P., R.A.M.C.

M.B.E. (Civil Division)

RANGACHARI PADMANABHA CHARI, F.R.C.S.Ed. Civil Surgeon, Jubulpore, Central Provinces and Berar.

ALEXANDER FRANCIS RITCHIE CRAWFORD, M.B., Ch.B. A prominent medical practitioner of Invercargill, New Zealand.

Sardar Sahib RAJINDER SINGH GREWAL, F.R.F.P.S., Civil Surgeon, Burma.

Khan Bahadur ABDUL HAMID, M.B., B.S. Assistant Director of Public Health, United Provinces.

Major KUNDAN LAL JETLEY, I.M.S. Retired M.O. i/c the Sikh Regimental Centre.

Rai Bahadur JIRWAN LAL, M.D. Formerly professor, King Edward Medical College, Lahore.

AMRATRAL UJAMSEE SHETH, M.B., B.S. For public services in Kenya.

LADY TATA MEMORIAL TRUST

International Awards for Research in Blood Diseases

The trustees of the Lady Tata Memorial Fund announce that, on the recommendation of the Scientific Advisory Committee, they have agreed, if circumstances permit, to make the following awards for research in blood diseases, with special reference to leukaemia, in the academic year beginning on Oct. 1:

Grants for Expenses and Assistance.—Dr. Jørgen Bichel nmark, for work at Aarhus, Denmark, and in the U.S.A.; Pierre Cazal (France), for work at Montpellier; Dr. Peter Gorer (Great Britain), for work in London; Dr. Maurice uérin (France), for work in Paris; Dr. Werner Jacobson (Great Britain), for work at Cambridge; Dr. Edith Paterson (Great Britain), for work at Manchester; Prof. Edoardo Storti (Italy), for work at Pavia.

Scholarships (Whole-time or Part-time).—Dr. Jal J. Dubash (India, at present in U.S.A.), for work in New York; Dr. Pierre Dustin (Belgium, at present in Great Britain), for work in London and Brussels; Dr. Simon Iversen (Denmark), for work in Copenhagen; Dr. Joseph Japa (Poland, at present in Great Britain), for part-time work at Edinburgh; Dr. Hall Schartum-Hansen (Norway), for work probably at Manchester.

A Ministry of Health Circular (103/46) announces that it has been decided to discontinue the Government Lymph Establishment maintained by the Ministry at Colindale Avenue, N.W., and to arrange for lymph required for public vaccination against smallpox to be produced by the Lister Institute of Preventive Medicine and distributed through the 27 laboratories in England and Wales whose addresses are given in an appendix. The change will take effect from July 1. Before the new arrangements start public vaccinators will receive from the Government Lymph Establishment a supply of revised application forms, which alone should be used on and after that date. If the repeal of the Vaccination Act becomes law under the National Health Service Bill the office of public vaccinator will be abolished, but in that event the same general arrangements will continue for the supply of lymph to all doctors with whom local health authorities arrange to provide free vaccination as contemplated in the Bill.

Nova et Vetera

MYIASIS, "FILLAN," AND "THE MORGELLONS"

Two recent reports (Turner, 1945; McCarthy, 1945) have drawn attention to the occurrence in man of infestation by *Hypoderma* larvae, giving rise to creeping myiasis. Although Brumpt (1927) states that this condition, which he calls *myiase sous-cutanée à tumeurs ambulatoires*, is well known to the country folk in Norway, Ireland, Scotland, and Brittany, it may be of interest to quote the following account taken from *A Description of the Western Islands of Scotland*, by M. Martin, Gent., first published in 1703.

"Allan Macleod being about ten years of age, was taken ill of a pain which moved from one part of his body to another, and where it was felt the skin appeared blue; it came to his toe, thigh, testicles, arms, and head; when the boy was bathed in warm water he found most ease. The hinder part of his head, which was last affected, had a little swelling: and a woman endeavouring to squeeze the humour out of it, by bruising it on each side with her nails, she forced out at the same time a little animal near an inch in length, having a white head sharp pointed, the rest of its body of a red colour, and full of small feet on each side. Animals of this sort have been seen in the head and legs of several persons in the isles, and are distinguished by the name of Fillan."

This case occurred in the Isle of Skye. Elsewhere in the same book Martin gives a shorter description of a case in Harris. In the second instance "a little worm, about half an inch in length, and about the bigness of a goose-quill, having a pointed head, and many little feet on each side," was drawn out of the flesh of a man's cheek.

According to Macleod (1934) Martin Martin was born in Skye c. 1655-60, graduated M.A. at Edinburgh University in 1681, and between 1686 and 1692 acted as "governor" to young MacLeod of Dunvegan. In 1697 he contributed to the Royal Society the first of two papers which formed the groundwork of his volume of 1703. Martin entered the University of Leyden in 1710 and there graduated M.D.; he died in London in 1719.

About 30 years before Martin's account Sir Thomas Browne recorded a curious observation in "A Letter to a Friend":

"Hairs which have most amused me have not been in the face or head, but on the back, and not in Men but Children, as I long ago observed in that endemial Distemper of little Children in Languedock, called the Morgellons, wherein they critically break out with harsh Hairs on their Backs, which takes off the unquiet symptoms of the Disease, and delivers them from Coughs and Convulsions."

Kellett (1935) has reviewed this passage in considerable detail and concluded that the reference is to comedones. This explanation is based on a study of a series of descriptions published between 1544 and the present century. It does not, however, cover the deliverance from coughs, noted by Browne, nor the fact that the "worms" mentioned by certain of the earlier writers quoted by Kellett were "wont to infest the muscles of the arms, calves, and back in young children."

The starting-point for an alternative speculation on the nature of the "morgellons" may be found in the migration of *Hypoderma* larvae through skin to muscles, thence to the viscera, particularly of the thorax, and finally to the subcutaneous tissue of the back. It is accordingly suggested that the passage, "they critically break out with harsh Hairs, etc.," may refer to the subcutaneous localization of such parasites, with the subsidence of irritation of the respiratory tract. An intriguing pendant to this hypothesis is that, as Kellett has pointed out, the word "morgellons," though unique, is almost certainly derived via Provençal forms from *muscula*, a little fly.

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A. H. EMSLIE-SMITH, M.B.

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Reports of Societies

PENICILLIN PRODUCTION

The annual meeting of the Manchester Medical Society was held on May 1, and Prof. D. DOUGAL was elected president for the coming year.

Dr. J. B. M. CORROCK, in an address on "The Story of Penicillin," referred briefly to the British discovery and preparation of penicillin from the mould *Penicillium notatum*, and described the commercial methods of producing penicillin by surface culture. This involved preparing the sterile medium and filling it into 70,000 quart (1.1 litre) bottles daily, with subsequent sterilization. After this the bottles were cooled and spray-inoculated under sterile precautions, each bottle receiving $1\frac{1}{2}$ to $2\frac{1}{2}$ million spores. After incubation at constant temperature and humidity, which were controlled by an air-conditioning plant, the contents of the bottles were separated from the mycelial felt, which was burnt. The culture fluid was clarified and then extracted by suitable solvents at an acid pH or by charcoal adsorption and subsequent elution with aqueous solvents and the extracts concentrated, and the dry sterile calcium or sodium salt of penicillin was freeze-dried after sterile filtration.

The solid penicillin salt thus isolated had a potency value of from 300 to 800 units per mg. It was examined analytically and tested for potency, sterility, toxicity, and the absence of pyrogens. If satisfactory it was issued for use either in ampoules or as sterile tablets for preparing solutions for injection, or else as a dusting powder, often diluted with sulphathiazole, for topical application to wounds. The sterile powder might also be compounded with sterile creams, prepared in the form of tablets for use in oral infections, or suspended in arachis oil or beeswax mixture for intramuscular injection. More recently administration by mouth had shown some promise, the vehicles examined including inorganic buffers, egg white, oily suspensions, and aluminium hydroxide gels. Unhardened gelatin capsules had also been used with success in an attempt to overcome the possible inactivation of penicillin by the acid in the stomach. Rectal administration could not be seriously considered until a method was found of protecting penicillin from the action of the destructive enzyme, penicillinase, produced by the bacteria in the lower bowel.

OPHTHALMOLOGICAL CONGRESS

The annual Congress of the Ophthalmological Society of the United Kingdom was held on May 30 and 31, and June 1, in London at the Royal Society of Medicine. There was a large attendance of members, with a number of distinguished visitors from Europe and the Americas.

The president, Mr. CHARLES GOULDEN, opened the congress and chose for the subject of his presidential address "Johannes Evangelista Purkinje."

Air Commodore P. C. LIVINGSTON and Mr. HAROLD RIDLEY opened a discussion on "Ocular Disturbances Associated with Malnutrition," in which Dr. DEAN SMITH, Dr. B. MARIEN-STRAUSS, and Messrs. T. KEITH LYLE, C. DEE SHAPLAND, R. LINDSEY REA, A. SEYMOUR PHILIPS, W. J. W. FERGUSON, A. H. LOWTHER, A. G. CROSS, J. D. FRASER, and several other members took part. It emerged from the discussion that the malnutrition experienced in the prison camps, more especially of the Far East, had caused definite eye symptoms, of which central or paracentral scotomata were the most important. The factors involved were by no means certain, but the lesions appeared to be due to vitamin imbalance rather than to absolute vitamin deficiency. The influence of tobacco was mentioned only to be discounted in the final consensus of opinion. It was felt that ophthalmology had an important part to play in the study of deficiency diseases, and that knowledge had been much increased by the unfortunate experiences of prisoners in this war.

The Bowman Lecturer of the year was Dr. ARNOLD KNAPP of New York, who read a paper on "Intracapsular Extraction."

In a comprehensive survey of this subject Dr. Knapp disclosed his preference for the intracapsular operation. His description of the advantages and disadvantages of this more difficult type of cataract operation was fair, and he showed that in his hands it held no extra risks.

Annual Dinner

The annual dinner of the Society was held at the Royal College of Surgeons on the invitation of the President and Council of the College. Among the guests were Lord Moran, Mr. Eardley Holland, Sir Wilson Jameson, Mr. P. H. Adams, Mr. H. S. Souttar, and Mr. Hugh F. Powell. Guests from abroad included Prof. H. J. M. Weve (Utrecht), Dr. E. C. Gravenmeyer (Amsterdam), Dr. Mériot de Treigny (Paris), Dr. Léon Coppez (Brussels), Dr. Leon Bauwens and Madame Van Boven (Antwerp), Dr. Jules François (Charleroi), Dr. A. Franceschetti (Geneva), Dr. B. Semadeni (Davos), Madame Noëlle Chome (Lausanne), Dr. W. H. Melanowski (Warsaw), Dr. Miguel Millan (Chile), Dr. H. Gjessing (Drammen, Norway), Dr. Gunnar Von Bahr (Uppsala, Sweden), Sir John Herbert Parsons proposed the health of the guests, and Dr. Arnold Knapp and Air Marshal Andrew Grant replied.

The annual general meeting was held next day and the officers for the ensuing year were elected. The remaining two days were devoted to the reading of clinical papers by members as follows:

Dr. I. C. MICHAELSON: "Traversing Intra-ocular Foreign Bodies with Retinal Detachment." Dr. A. LOWENSTEIN, Dr. I. C. MICHAELSON, and Dr. J. HILL: "Perivasculitis Retinae of the Young (Eales's Disease)." Dr. A. J. BALLANTYNE: "Nerve-fibre Pattern of the Human Retina." Mr. EUGENE WOLFF: "Mucocutaneous Junction of the Lid Margin, and the Distribution of the Tear Fluid." Mr. E. F. FINCHAM: "Recent Developments in Artificial Eyes." Dr. MARY CRIPPS: "Treatment of Traumatic and Inflammatory Lesions by X Rays and Short-wave Diathermy Combined." Mr. V. D. GILL: "Technique of Intracapsular Extraction of Cataract with Retention of Conjunctival Bridge." Dr. C. L. SCHEPERS: "Is Malnutrition the Cause of Tobacco Amblyopia?" Mr. T. W. LETCHWORTH: "Stereoscopic Vision in Monocular Aphakia." Dr. MELANOWSKI (Warsaw): "Pages in the History of Ophthalmology in Poland." Dr. A. SEYMOUR PHILIPS: "Retinal Venous Changes in Diabetes."

The Association for Scientific Photography amalgamated with the Royal Photographic Society on March 1, 1946. The work of the Medical Group of the A.S.P. is to be continued, since no time was lost in forming a similar group after the amalgamation. A Medical Photography Group, to deal with all photographic processes connected with medical science, was formed on April 1, and Surgeon Rear-Admiral Cecil P. G. Wakeley was elected its chairman. Those interested who are already members of the R.P.S. should apply to Mr. E. J. Andrews, hon. secretary, Medical Group; while those who do not belong to the R.P.S. should apply to the hon. secretary, Royal Photographic Society, 16 Princes Gate, London, S.W.7. The entrance fee to the R.P.S. is one guinea, and the annual subscription two guineas; the Medical Group subscription is 5s. per annum.

CHEMICAL RESEARCH EXHIBITION

An exhibition, organized by Imperial Chemical Industries, is open until the end of June at 22, Lower Regent Street, London, to demonstrate some of the recent advances in British chemical research. The exhibition has been mounted most attractively, bringing home to the public in pictures and models and in the fewest possible words the significance of each achievement. In this it has been helped by one of the discoveries—namely, the plastic known as "perspex," which is being used not only for prisms and lenses and for surgical and dental equipment, but also for effective display purposes, lending itself as the medium for artistic designs. One section of the exhibition is devoted to the new insecticide "gammexane." This is adorned by a portrait of Michael Faraday, for the origin of this recent introduction was Faraday's preparation of benzene hexachloride more than 120 years ago. It has been long known that this substance had insecticidal properties, but the particular constituent which gave it its destructive nature has only lately been determined. In the form of a smoke pellet it produces a cloud which settles on walls and other surfaces, which are thereupon made lethal to insects alighting upon them, but are not injurious to or animals. It is also effective against the migratory locust on the request of U.N.R.R.A. ten tons have recently been sent to Sardinia, where crops were threatened by a locust invasion. The exhibition includes sections illustrating the amide drugs as well as penicillin and paludrine.

Correspondence

National Research into Tuberculosis

SIR,—I wish to associate myself whole-heartedly with the plea of Drs. S. M. Hilton and George Luntz (June 1, p. 850) for national research into tuberculosis. May I also add a plea for a nation-wide effort to provide facilities for treatment? The number of cases diagnosed is increasing, but every-day facilities for treatment, never adequate, grow less and less as beds close for lack of nursing and domestic staff. By the time many cases reach a chest hospital or sanatorium the favourable opportunity for treatment has often passed and in all probability the seed of new cases been sown. Cannot something be devised to make the staffing of such institutions attractive, and so form some organization to utilize the service of ex-patients in this way? The present position is tragic.—I am, etc.,

Cranham, Gloucester.

M. A. KIRKMAN.

SIR,—It would appear that before there can be national research into tuberculosis we of the medical profession must first examine our consciences. Surely there must first be set in motion a world-wide campaign against ignorance, prejudice, and the appalling apathy which still undoubtedly exists in regard to the disease. This apathy towards the greatest medico-social problem known is the more startling when one reflects that it exists equally within, as without, the medical profession. Dr. F. Heaf (March 2, p. 327) writes: "One has only to attend a few meetings of the Tuberculosis Association to realize the keenness of its members, the interest which they take in new methods of treatment, and their readiness to assist sufferers from this disability in every possible way." If these words could be written of the medical profession at large there would still be no room for our present complacency. As it is the case are too greatly against the comparatively few enthusiasts have made the eradication of tuberculosis their ideal in That they have not long ago become discouraged is a te to their zeal and steadfastness of purpose.

he disinterested attitude of many doctors may be summed up with a few instances. Take the young practitioner who remarks: "How can one possibly be interested in such a dull and chronic disease?" Take the numbers of newly diagnosed cases of established pulmonary tuberculosis, seen by any T.O. anywhere, whose histories too often open on such lines as, "My doctor has been treating me for bronchitis for the past twelve months." Take the houseman who writes a sparse note to the T.O., saying, "So-and-so is riddled with T.B. and is a menace in any ward." This attitude is defeatism or, even worse, downright lack of interest in a highly important clinical entity. Neither are tuberculosis workers entirely blameless, as witness the numbers of patients one sees with contra-selective collapses and persistently yawning cavities, with continued positive sputum from artificial pneumothoraces which should never have been induced in the first instance but for the satisfaction of meddling physicians and over-anxious patients. Thus is brought into ill repute the best therapeutic measure yet revealed to us, the cure becoming worse than the disease.

The doctor who gives the matter any thought must ask himself why it is that the treatment of tuberculosis has stood still for so many years, while more abstract medicine progresses year by year. The explanation must be apathy towards tuberculosis. It cannot be anything else. Drs. S. M. Hilton and George Luntz (June 1, p. 850), in pointing out the obvious lack of interest in the present correspondence, write: "It is an unhappy reflection on the outlook of the medical profession that it is so ready to dilate on medical minutiae, whereas fundamental issues leave it entirely unmoved." Can it be that the problem of tuberculosis is so fundamental that we fail to see it in a true perspective? If this be so then a change of attitude, of outlook, of approach, a readjustment of our minds to the magnitude and importance of the problem, is half a century overdue. Until we rouse ourselves to wakefulness, shout the dangers of contagion in the public ear, make educational use of the cinema, the microphone, the hoarding, and practise the better those therapeutic measures we already possess, we can hardly expect to set benevolently inclined Governmental consciences on fire with a devouring enthusiasm for national research into tuberculosis.

That national research is an absolute necessity there is no doubt; that it will continue to be so is a certainty—unless and until the profession as a whole awakes from its present complacent lethargy and realizes, once and for all, that tuberculosis is not alone a subject for the tuberculosis officer and the sanatorium authorities but is in

fact a problem of such magnitude that it requires the fully conscious consideration, the sympathy, and the concerted attention of every medical man worthy of the name. When we have gained that unity of consciousness and awareness and have ceased to relegate the problem of tuberculosis to the realms of impossibilities, then international research into tuberculosis will long since have already begun.

The impressions that have prompted this letter have been collected throughout several years of work in chest hospitals, clinics, and sanatoria in various parts of England. Impressions collected in Ireland point to the fact that prevailing conditions there are no better. The general practitioner everywhere, on whom, more than any other, rests the responsibility for early diagnosis, is in fact too often the least interested member of the medical community. In younger practitioners this is hardly surprising when one recalls the medical school curricula that give the subject of tuberculosis an equal place with that of the common cold. Now is the time for a change of heart. Now is the time for interest, alertness, action—for research. Let us be in the correct state of grace and knowledge to receive the chemotherapeutic elixir and to use it intelligently when it arrives. If we don't, the accusing finger of the tuberculous population will for ever be upon us.

In conclusion, Sir, I would make a quotation from one William Lloyd Garrison:

"I am aware that many object to the severity of my language but is there not cause for severity? I will be as harsh as Truth and as uncompromising as Justice. On this subject I do not wish to think, or speak or write, with moderation. No! No! Tell a man whose house is on fire to give a moderate alarm; tell him to moderately rescue his wife from the hands of the ravisher; tell a mother to gradually extricate her babe from the fire into which he has fallen—but urge me not to use moderation in a cause like the present. I am in earnest—I will not equivocate—I will not excuse—I will not retreat a single inch—and I will be heard. The apathy of the people is enough to make every statue leap from its pedestal and hasten the resurrection of the dead."

—I am, etc.,

Dublin.

JOHN ST. P. COWELL.

Blindness in Nigeria

SIR,—It is to be deplored that F. E. Stock, in his article of April 6, 1946, on "Blindness in an Urban Centre in Nigeria," made reference neither to trachoma nor to onchocerciasis. Trachoma is by far the most common cause of blindness in West African Colonies, and onchocerciasis probably causes more blindness than (a) ophthalmia neonatorum, (b) keratomalacia and (c) smallpox put together.

(a) Ophthalmia neonatorum is surprisingly uncommon despite the prevalence of gonorrhoea and the paucity of treatment.

(b) Vitamin A deficiency in natives, exposed all day to the sun and whose diet is rich in red-palm oil, is a rarity.

(c) Corneal lesions are a well-known complication of smallpox occurring in 3% of cases (Monte), but more than 10% of Nigerian have trachoma and more than 50% are infested with onchocerciasis; of whom one-third have ocular lesions (J. G. S.).

—I am, etc.,

Johannesburg.

J. GRAHAM SCOTT.

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Migrainous, Ciliary, and Post-traumatic Headaches

SIR,—Dr. Wilfred Harris's paper on migrainous, ciliary, and post-traumatic headaches (May 18, p. 754) is very interesting, but open to severe criticism from at least one point of view.

He talks light-heartedly of the "loss of corneal reflex" after his injections, but surely he must be aware that the correct description would be "complete loss of corneal sensation," with its attendant loss of trophic nerve supply. I have seen so many cases with corneal ulceration, and more or less complete "invalidism," or even blindness, of the eye after interference with the Gasserian ganglion that I have grave doubts if the operation is justifiable. Most of these cases can be kept comfortable only by permanent closure of the lids by tarsorrhaphy.

Does Dr. Harris see his cases and inquire about their eyes six months or a couple of years later? And does he put it to the patient that the cure of his pain will almost certainly involve interference with the functions of the eye? I am all too well aware of the number of people who suffer from

intractable headaches, and of the amount of misery that they suffer—without a great deal of help from their physicians or ophthalmologists—to belittle any effort to find permanent relief, even if it is not really a cure.—I am, etc.,

Plymouth

Cecil B. F. Tivy.

Placement of the Disabled

SIR,—While welcoming the publicity given to the Disabled Persons Act by your leading article (May 25, p. 803) I must call attention to some of the inaccuracies it contained. This is the more important since the successful working of the Act largely depends on the co-operation of doctors, many of whom are still ignorant of the provisions of the Act, and in whose enlightenment the medical journals must play a leading part.

1.—The Ministry of Labour has no power to direct labour to a firm employing less than 2% of disabled persons. All it can do is to take advantage of the obligation which the Act imposes upon employers to find suitable employment for disabled persons. In other words, it is more concerned with finding work than with "directing labour."

2.—The statement that Ministry officials do not regard as disabled persons who are in employment is not true. Any such attitude would be contrary to the Act and quite untenable. The D.R.O.s and the District Advisory Committees have had this made clear to them, and it is to be hoped that doctors also will realize that a man who is able to do his present work successfully is not debarred from admission to the register. Some half a million people have been registered, and the vast majority are in employment; 95% of the applications have been accepted by the D.R.O.s direct, and of the 5% referred to committees, 2% have been accepted. These figures surely disprove the statement that D.R.O.s have little responsibility. What is true is that they have no power to compel the disabled person to come to them or to act on their advice, and surely no one would wish them to have this power.

3.—While the figures given as to the distribution of disabilities found in disabled persons may or may not be true, it is, however, known (*Ministry of Labour Gazette*, April, 1946) that the distribution of the disabilities of disabled persons who have registered is as follows: surgical 50%; medical 30%; psychiatric 5%; others (blind, deaf, etc.) 15%.

4.—It has always been obvious that the D.R.O.s would need informed medical help, and steps have been taken to see that this is forthcoming. Moreover, in order that this medical guidance may improve in quality, a follow-up of placed persons has been arranged. It must be remembered, however, that the final word concerning employment rests with the employer, whose co-operation is vital to the success of the Act.

The suggestion that the Ministry of Labour does not exchange information with hospitals and doctors is not true. This is done after obtaining the applicant's consent. It is, however, noteworthy that the British Medical Association, by refusing the use of the medical report D.P.1, which is needed for successful placing, is hindering the very object which the article purports to seek.—I am, etc.,

RONALD E. LANE.

Member of the National Advisory Council
on the Disabled Persons (Employment) Act.

Manchester.

** The B.M.A. has never advised individual doctors or hospitals to refuse to use D.P.1, though it does not approve this form of report. It does not consider that this complicated form can provide the "informed medical help" referred to in 4 and has consistently urged that medical boards should be set up to report on disabled persons in hospital and to advise D.R.O.s on the medical issues involved.—ED., *B.M.J.*

Paralysis Agitans and Cervical Sympathectomy

SIR. The reply in "Any Questions?" on the treatment of paralysis agitans (May 18, p. 784) and also the letters about Parkinson's disease stimulate me to report the result of treatment of these patients by cervical sympathectomy.

I have operated on seven patients (three men and four women) with paralysis agitans or post-encephalitic Parkinsonian tremor; three were diagnosed as cases of post-encephalitic tremor and four as Parkinson's disease. All the patients operated on had been diagnosed and treated at one or several of the hospitals for nervous diseases in London. They were unrelieved and had found their way to that backwater of medicine, the massage department, where my orthopaedic colleague, Mr. Phillip Cutner, suggested the procedure of cervical sympathectomy. The patient in the first case was much better and was able to start

work again. Consequently the operation was offered to other sufferers.

The procedure consisted in the removal of the stellate and first and second dorsal sympathetic ganglia, on the opposite side to the limb most affected by the tremor. When both limbs were affected, then a bilateral cervical sympathectomy was performed at separate sessions on three occasions. The rationale of the operation is to increase the blood supply of the brain.

The results are as follows: There have been no deaths. Four patients are much better (two men and two women); three are unchanged. Those who are improved were aged 33, 35, 36, and 45; those who are unchanged were aged 38, 45, and 68. No patient is worse for the operation. Three of the procedures were performed in 1942, one in 1943, one in 1944, one in 1945, and one in February, 1946. In those improved the tremor is lessened and controlled by medicine, whereas formerly it was uncontrollable. In one woman the tremor was so violent that when she folded her arms during the consultation to try and steady them the body and chair on which she sat shook freely. Resumption of some work has been possible. One woman volunteered that she could write again; another that she could sweep up and dust, previously impossible. The patients are brighter in personality and the mask face and eyes are improved; also the headaches. They still require medicine, but before operation they were unhelped by it.

This short series suggests that the operation of cervical sympathectomy is useful to patients under 45 with paralysis agitans or post-encephalitic Parkinsonian tremor. I report them in the hope that the remedy may be offered to others who are often otherwise derelicts.—I am, etc.,

London, W.1.

HAROLD DODD.

Penicillin and Venereal Diseases

SIR,—Dr. H. W. Neville Mascal's letter (May 25, p. 813) was a timely warning against the indiscriminate use of penicillin, its possible influence on the diagnosis of syphilis, and the production of "fastness," but I would like to add my comments on another aspect of the problem which affords me little cause for complacency on the occasion of the general release of penicillin.

Several years ago I wrote about the abuse of the sulphonamide compounds in the treatment of gonorrhoea. The practice then of patients being referred to clinics with the history of having been treated for a genital discharge with sulphonamides, often in inadequate dosage, without any efforts having been made to ascertain the site or aetiology of the discharge, is still unfortunately quite common. The apparent simplicity and rapidity of penicillin treatment have made a wide appeal, and I fear that it may lead to an increased scope of activity of this unscientific procedure to include suspected syphilitic sores, without preliminary recourse to diagnostic measures.

May I therefore express the hope that practitioners who encounter patients suspect of being affected with venereal disease will either (a) refer them direct to a clinic, or (b) establish a definite diagnosis and ascertain the best therapeutic methods and methods of testing for cure prior to the institution of any "shot in the dark" technique. Failure to do so can only result in an increase in the numbers of undiagnosed, misdiagnosed, and uncured cases, and there are already plenty of these without further contributions.

Much has been learned about the treatment of venereal diseases with penicillin, but still a great deal remains unknown, and it is no secret to state that specialists are still undecided about the exact place of penicillin in the management of syphilis, and opinions are also divided in regard to the best method of administration in the treatment of gonorrhoea.—I am, etc.,

County Hospital, Durham.

W. GILLIES, ANNAN.

Rectal Cancer in Sisters

SIR,—The magisterial rebuke administered by Mr. P. J. Hilton and Dr. S. M. Hilton (May 25, p. 814) to Dr. R. E. Rewell reminds me of Bacon's essay, "Of Seeming Wise." Perhaps that is why Dr. Rewell did not comment upon it. The probability that a random sample of order of magnitude 20 to 30 extracted from a "population" of 300,000 women between the ages of 25 to 35 would contain one or more pairs of sisters is, on any

reasonable hypothesis, extremely small. The magisterial critics are quite justified in saying that the probability of other events might be smaller still. I was told many years ago that a zoologist with a large family of daughters christened them with the generic names of Polychaeta, which are pleasant names—Nereis, Aphrodite, Eunice, etc. It is not likely to be a common practice, and the probability that the sample would contain two young women each named Nereis might very well be much smaller than the probability of including two sisters. But probabilities, like other measures, are great or small in relation to other probabilities. An addition to or subtraction from the annual income of, say, an emeritus professor, of £50 means much more to him than the same change in the national income means to Dr. Dalton. When an event occurs which on some hypothesis, say that of "chance," is very rare, any sensible person asks himself whether there is a reasonable alternative explanation. Dr. Rewell, like a sensible man, has entertained the alternative hypothesis—that the events were *not* independent, that there *might* be a genetic correlation. He did *not* say that correlation had been proved. If the rare event had been the appearance of two persons named Nereis, as the *a priori* probability that having a particular Christian name predisposes a person to die of cancer is extremely small, no sensible person would entertain the alternative. He would simply conclude that a very improbable event had happened—as improbable events do happen every day; in fact every time four people sit down to play a hand at bridge.—I am, etc.,

MAJOR GREENWOOD.

Animal Physiology

SIR,—Our attention has recently been drawn to a review of our book, *The Physiology of Farm Animals*, which appeared in your issue dated May 4. The reviewer calls attention to certain so-called "factual errors," 32 of which he claims to have listed, and later advises students desiring reliable information on the physiology of domestic animals to read the late Sir Frederick Smith's *Manual of Veterinary Physiology*. Of the so-called factual errors quoted by the reviewer, two—namely, that referring to the grazing horse and that referring to the cure of the swollen legs by moderate exercise—are included in the textbook to which he directs students' attention; and since he states that he is not aware "that horses whose legs become swollen or oedematous through much standing may often be cured by moderate exercise" we are left in considerable doubt as to whether the reviewer has carefully read the book he so warmly recommends. The description of the tuberculin test given in our book (p. 144) is correct and was not intended to be a description of the double intradermal test to which the reviewer is probably referring when making his criticism. In criticizing us for giving a range of temperature in the case of the hen, the reviewer is probably unaware that such a wide range exists; incidentally, the alleged correct temperature quoted—104.5° F.—is that of the body hen and not the non-sitting hen, whose average mean temperature is 106.7° F. Moreover, the other so-called errors cited express differences of opinion and cannot be characterized as actual errors.

Finally, we would call attention to the fact that the book recommended as an alternative to ours, excellent though it may have been at the time of publication, is now quite out of date, particularly in the sections relating to endocrinology, vitamins, and the physiology of reproduction.

We apologize for troubling you with this letter, but thought it only right to inform you that the review itself contains errors and is scarcely helpful.—We are, etc.,

F. H. A. MARSHALL.
E. T. HALNAN.

School of Agriculture, Cambridge.

Shock Treatment of Bronchial Asthma

SIR,—I am much interested in Dr. E. Brauer's letter (June 1, p. 849) on the "pyrifer" treatment of asthma. The method he advocates is certainly heroic when one considers how asthmatics have a nasty and unexpected way—at times—of reacting severely to any foreign protein, especially if injected intravenously.

I have practised for some years now the non-specific protein treatment (using Koch's old tuberculin, and more recently P.P.D.), and although my series of cases is as yet too small for definite conclusions to be drawn, the results so far obtained

seem to agree with those of Maxwell (*Journal*, 1930, 1, 854) and others. Complete disappearance of the attacks can be obtained in over 30% of the cases treated. My final doses (as much as 0.5 ml. of the old tuberculin) are generally higher than those recommended by Maxwell and others. In the more refractory cases possibly an optimum maintenance dose at one to three months' interval might be advisable. But if one could feel entirely satisfied that the method suggested by your correspondent was really free from the possibility of dangerous reactions, a real advance in the treatment of asthma will have been made.—I am, etc.,

KINGUSSIE.

FELIX SAVY.

Congenital Malaria

SIR,—Since the publication of the paper on this subject (March 23, p. 432) I have had a report from Prof. Eckstein of three more cases that he had seen in his clinic at Ankara during the month of January, 1946. At that time the mean temperature was below 0° C. Under such conditions in Turkey all surviving anopheles are hibernating and do not bite. The mother of one of these babies was for some time in hospital under treatment for osteomalacia. For years she had suffered from untreated malaria. Her labour started with an attack of fever and she was delivered by Caesarean section. After birth the baby developed pyrexia. Its blood was negative on the first examination but positive on the second.

Dr. R. F. Jarrett (April 27, p. 662) has himself seen cases of congenital malaria during his stay in Turkey. In his bibliography he refers to the case which occurred in London and was reported by Tanner and Hewlett (*Lancet*, 1935, 2, 369). Sir Philip Manson-Bahr was called in consultation to this. They suggested that in the absence of a known placental trauma or infarct, premature placental separation was the most probable cause of the transmission of the infection.

Since my return from abroad I have had access to further literature. K. T. Chen *et al.* (*Chinese Medical Journal*, 1944, 62, 190) have collected 39 cases of congenital malaria from the world literature. In some of these the infant's blood was positive on the first day after birth. The case they reported was that of a baby born in mid-winter in Chungking. Wickramasuriya (*J. Obstet. Gynaec. Brit. Emp.*, 1935, 42, 816) has had an extensive experience in Ceylon and has made a comprehensive study of malaria in pregnancy. He is of the opinion that transplacental foetal infection with malaria occurs more often than is supposed. In his paper he records 6 cases of babies in whom transplacental foetal infection was proved. The infecting parasite was *P. falciparum*. He has demonstrated infecting parasites in fresh foetal brain squash under the microscope without any staining. In these cases he has easily seen living and dead parasites in the cerebral capillaries.

Placental transmission is a subject worthy of further research. The wonder is that the disease is not transmitted to more of the offspring of the millions of pregnant women suffering from malaria.—I am, etc.,

London.

W. C. W. NIXON.

** This correspondence is now closed.—ED., B.M.J.

Infantile Paralysis Fellowship

SIR,—May I draw the attention of the medical profession to the Infantile Paralysis Fellowship? Founded in January, 1939, the I.P.F. now has a membership of some seven hundred. We are affiliated to the Central Council for the Care of Cripples, and out of our executive committee of ten, eight are disabled persons. It is one of the few organizations for the disabled run by disabled. With the recent increase of fresh cases—both civilian and Service—many a lonely sufferer from anterior poliomyelitis may be happy to associate with fellow-sufferers who have faced and largely overcome the problems of this terrible scourge, and we appeal to members of the medical profession to bring our existence to the notice of any polios they may be treating. Briefly, our objects are:

1. To associate sufferers from infantile paralysis in fellowship for the encouragement and development of their interests and abilities.
2. To find means of training its members and, where necessary, of re-educating them, for occupations in which they can support themselves and make their contribution to the economic and social life of the community.

Jittery Legs and Burning Feet

SIR,—The condition described by Dr. C. A. Jackson under the heading "Jittery Legs and Happy Feet" (March 30, p. 505) appears to be identical with the "burning feet" syndrome already fully described by C. Gopalan (*Ind. med. Gaz.*, 1946, 81, 22). This author also refers to previous reports by Paraita and Stannus (the latter reference being *British Medical Journal*, 1944, 2, 140). It is not clear whether Stannus used the term "burning feet," but that term was certainly used by Ackroyd of South India in a private communication to the then hon. secretary of the Assam Branch of the B.M.A. in either 1943 or 1944.

The condition is found, chiefly, in S. India, under conditions rather similar to those encountered by Dr. Jackson—i.e., in people living on diets poor in riboflavin but containing par-boiled rice and, therefore, sufficient aneurin to prevent the development of beriberi. That the condition is not due to lack of riboflavin itself was shown by Gopalan by the fact that riboflavin was not curative. The syndrome, together with the associated ariboflavinosis, was cleared up by autolysed yeast, and the syndrome itself was found to be curable by pantothenic acid, which had no effect on the associated ariboflavinosis.

While stressing that credit should be given to Gopalan for his full description and careful assessment of the therapy of this condition, one must congratulate Dr. Jackson on his very careful observation of the cases he saw among his fellow P.O.W.s.—I am, etc.,

Hoogrijan, Assam

KEMPTON P. HARE,
Medical Officer, Tingri Medical Association.

Socialism and the Pay-bed

SIR,—The resolution of the association representative of medical officers employed whole-time by the Middlesex County Council (Dr. Davies's letter, June 1, p. 847) prompts me to rebut the view expressed that "the pay-bed system in hospitals should terminate altogether; patients should receive extra privacy, etc., solely on medical grounds." These people appear to have lost their sense of values. Have they lived in this community without the infinite disparity of individuality and quality making any impact on their consciousness, or are they incapable of appreciating the vast diversity in different individuals as regards intellectual endowments? Has a man whose whole life represents strenuous effort at perfection in the art of living, using this term in its highest sense, and who has acquired a fine level of intellectuality and sensibility, to be thrown, when sickness occurs, without any attempt at selection or segregation, into a mixed company, necessarily containing, among others, the scourgings of the community, such as have led self-indulgent, rude, vulgar, and perhaps even criminal lives, whose background is utterly foreign, antipathetic, and incompatible? Has it occurred to the signatories of this resolution that their proposal would add severe mental suffering to already existing physical sickness and would impede recovery, and that this mental suffering would be most acute amongst the highest types, those to whom the community, if it only knew it, owes most and in whom, as progenitors, the hopes of future generations lie? Many of these would rightly and understandably refuse general hospitalization.

This kind of irresponsible thoughtlessness is unworthy of our learned profession. It panders to the Socialist desire for a levelling out, which resolves itself so often into a levelling down. Numerous similar acts of folly, aimed undoubtedly at wealth as such, forget or ignore the fact that there is a real aristocracy of natural intellectual endowment, character, rectitude, social desirability, and service (not the class usually referred to as aristocrats, who may or may not be desirable eugenic types). That these superiors may be found at many financial levels in the community goes without saying, but they are ruthlessly dragged down and obliterated in the vortex of Socialist revenge.

The stamping out of desirables goes on apace, and it cannot too often be emphasized that once lost these cannot be replaced. It is this dysgenic effect of Socialism which is its principal menace and condemnation. Socialism, so called, is in fact anti-social in many of its aspects. It takes no account of genes, and will eventually and inevitably drag down the quality of the whole nation. Medical men, trained as they are in biology and in a position to understand genetics, should see the implications of this and many like moves. Good hygiene and prolonged

education will not replace desirable genes, which, once lost, are gone for ever. On our profession largely rests the responsibility of holding a correct balance between Nature and nurture and of instructing the community in biological affairs. They should show independence of thought and refuse the kind of subservience of which this document is suspect.—I am, etc.,

Grasmere.

JAS. B. MACALPINE.

In the Words of Eliza Doolittle

SIR,—Dr. A. S. Barr's letter (June 8, p. 891) calls for some comment. On what grounds did he put his totally hypothetical question to his "local Spens Committee"? There were never any grounds for believing that the official committee would suggest a maximum of £1,500 per year for a practice as large as Dr. Barr's must be. Naturally enough the members of his committee replied with the words indicated; there are hundreds of other underpaid occupations which they would have found equally unattractive. It would have been more interesting to have been told their replies to the original question as to what remuneration they would have expected for the work indicated and to have compared these with the amounts proposed in the official Spens report.

There is one other interesting aspect of Dr. Barr's letter. He is obviously trying to attract sympathy for the "poor overworked doctor." It is possible that Dr. Barr did have to work as hard as he indicates during the war, when medical manpower was stretched to the limit. It is more than probable that his remuneration was considerably in excess of £1,500 a year and that he was looking after far more patients than any man can or should care for under the rather easier circumstances now existing. Perhaps he will now take unto himself an assistant, or, better still, will give a share in his overworked practice, free of premium, to some young man who has spent five or six years in the Forces, and will be only too happy to ensure that Dr. Barr can have most evenings, his half-day, and most Sundays free from the ties that he deprecates. Incidentally, what would happen if Dr. Barr refused to sign certificates during his meal hours?—I am, etc.,

Margate

M. CURWEN.

GENERAL MEDICAL COUNCIL

ELECTION OF DIRECT REPRESENTATIVES

The result of the voting in the recent elections of five direct representatives for England, one for Scotland, and one for Ireland, was as follows:

IN ENGLAND		
Harry Guy Dain, M.D., F.R.C.S.	..	12,208
Sir Ernest Kaye Le Fleming, M.D., B.Chir.	..	11,477
Noel Everard Waterfield, M.B., F.R.C.S.	..	10,081
John Wardle Bone, M.B., B.Sc.(P.H.)	..	9,822
Edward Andrew Gregg, L.R.C.P.&S.I.	..	9,776
Leslie William Hefferman, M.D., F.R.C.S.	..	4,556
James Edgar Outhwaite, M.B.	..	4,459
William Walters Sargent, M.B., M.R.C.P.	..	4,103
William Fraser, M.B.	..	3,738
William Macleod, M.B.	..	3,412
Albert James Clarke, M.B., M.R.C.S.	..	3,378
Gordon Reginald Ward, M.R.C.S.	..	3,202
Louis Francis Beccle, M.B., M.R.C.S.	..	2,950
IN SCOTLAND		
Robert William Craig, O.B.E., M.D.	..	2,490
James Burnet, M.D., F.R.C.P.	..	1,107
IN IRELAND		
Frank Kane, M.D., D.P.H.	..	1,334
Alfred Charles Seymour, M.B.	..	535

The following medical practitioners have accordingly been elected members of the General Council of Medical Education and Registration of the United Kingdom for a period of five years from June 30, 1946:

Dr. H. Guy Dain, Sir Kaye Le Fleming, Dr. N. E. Waterfield, Dr. J. W. Bone, and Dr. E. A. Gregg, representing the registered medical practitioners resident in England.

Dr. R. W. Craig, representing the registered medical practitioners resident in Scotland.

Dr. Frank Kane, representing the registered medical practitioners resident in Ireland.

Obituary

A. G. NICHOLLS, D.Sc., F.R.S.C. (C.P.C.)

We much regret to announce the death of Dr. A. G. Nicholls, who retired on grounds of health from the post of Editor of the *Canadian Medical Association Journal* in 1942, his friendship was valued by many colleagues in the country and he upheld the tradition of cordial good will between the B.M.A. and the Medical Association.

Albert George Nicholls was born in 1876 at St. John's, New Brunswick, and went to Canada as a boy, growing up at the Montreal High School with the Davidson gold medal and the Lansdowne silver medal. He entered McGill University after obtaining his B.A. with a gold medal in classics began his studies in the medical faculty, where he graduated in 1894 with the final prize, and received the D.Sc. degree on his return to postgraduate study in Germany and Austria. He was a member of the teaching staff at McGill for seventeen years and became professor of pathology at Dalhousie University and provincial pathologist for Nova Scotia. During the war, 1914-18 he was D.A.D.M.S. to a Military Division at Halifax with the rank of major, and returned to Montreal in 1921. He became widely known as an accomplished writer on medical subjects, and was co-author with the late Prof. J. G. Adams of *The Principles of Pathology*. A man of wide interests and culture, Dr. Nicholls wrote some fifty monographs and other medical and historical publications, and succeeded the veteran Dr. A. D. Blackader as Editor of the *C.M.A.J.* in 1929. In the words of an editorial tribute in our contemporary: "No teacher was too great for him in the editing of material, and if at times he seemed to be over-scrupulous he usually had something to show for it. He himself was possessed of an unusually lucid and easy style which had been acquired over many years of writing but was partly also a reflection of his clear and orderly mind. To this he added a temperament which was never ruffled and a dignified tenacity of purpose. His pleasant, easy manner was greatly missed when he retired from his editorial work, to which he was so attached and which he did so well." To this we would like to add a line of gratitude and appreciation on behalf of British visitors to Canada, who enjoyed the hospitality of Dr. and Mrs. Nicholls and owe them thanks for many acts of kindness.

JAMES TAYLOR, C.B.E., M.D., F.R.C.P.

Dr. James Taylor, who died in London on June 6 aged 87, had long outlived his fellow-members of the famous group of neurologists who worked at the National Hospital, Queen's Square, during the close of the nineteenth century, which included John Hughlings Jackson, William Gowers, David Ferrier, and Victor Horsley. He was joint editor with Sir William Gowers of the *Manual of Diseases of the Nervous System*, which went into a third edition in 1899, and published *Paralysis and other Diseases of the Nervous System in Childhood and Early Life* in 1905. He edited the *Neurological Fragments* of Hughlings Jackson, with a biographical memoir, in 1925, and was responsible for the two volumes of Jackson's *Selected Writings* six years later.

Born on March 17, 1859, at Forbes, Moray-shire, son of Peter Taylor, he was educated at Forbes Academy and the University of Edinburgh, where he graduated M.A. with honours in natural science in 1883, M.B. in 1886, and M.D. in 1890. After working in Edinburgh as resident physician at the Royal Hospital for Sick Children and the Royal Infirmary he visited neurological and eye clinics in Germany and then became house-physician, and afterwards pathologist, at the National Hospital for Nervous Diseases, in Queen's Square, London; later he was elected to the honorary staff there, and to the Moorfields Eye Hospital as physician; also to the Queen's Hospital for Children in Bethnal Green. He became a Fellow of the Royal College of Physicians of London in 1897. He had been medical referee to the Pensions Commutation Board and a member of the consultant staff of the Convalescent Home for Officers at Osborne; he was also for a long time honorary physician to the Royal Scottish Corporation, and chief physician to the Guardian Assurance Company, and deputy medical referee to the Treasury. He was created C.B.E. in 1920.

At the Royal College of Physicians James Taylor had been a member of the Council for three years and examiner in 1920-4. His long service on the staff at Moorfields and the appreciation of his ophthalmic colleagues were marked by his election as president not only of the Neurological but also of the Ophthalmological Section of the Royal Society of Medicine, and for a time he acted as secretary of the Ophthalmological Society of the United Kingdom; he had also been president of the Harveian Society of London. He joined the B.M.A. in 1894 and in the following year was secretary of the Section of Psychology at the Annual Meeting in London; in 1913 he held office as president of the Section of Neurology and Psychological Medicine at the Brighton Meeting. His last published writing was a note on herpes zoster and chicken-pox which appeared on Sept. 22, 1945 in these columns; it was a postscript to earlier contributions of his on that subject in 1920.

Dr. GORDON HOLMES, F.R.S., writes:

The death of Dr. James Taylor has removed another from the survivors of a generation that inaugurated a new era in medicine and particularly in neurology. For several years he was closely associated with Hughlings Jackson and Gowers in both their private lives and their hospital practices, and after their retirement he carried on the tradition of careful clinical investigation and scientific analysis of symptoms that distinguished their work in the wards of the National Hospital. He collaborated with Gowers in the revision of the first volume of his *Selected Writings*, and by republishing many of Jackson's more important papers in *Neurological Fragments* and *The Writings of Hughlings Jackson* brought to more general notice the work of one who has had an exceptionally influential role in the development of modern neurology.

Taylor was on the whole reserved, but those privileged to enjoy his friendship found in it warmth, sincerity, and unassuming sympathy and readiness to help and advise. Outstanding features of his character were tolerance and practical common sense. That the latter distinguished his professional work was shown by the frequency with which he was consulted by fellow practitioners in search of advice in their own illnesses and those of their relatives.

A. F. VOELCKER, M.D., F.R.C.P.

Dr. Arthur Francis Voelcker, consulting physician to the Middlesex Hospital and to the Hospital for Sick Children, Great Ormond Street, died at his home in Cornwall on June 9, aged 84.

He was born at Cirencester in 1861, the fourth son of Prof. Augustus Voelcker, F.R.S., the agricultural chemist. Educated at University College School and Hospital he qualified in 1884, took the M.B. and B.S. (Lond.) degrees with honours in 1886, and proceeded M.D. two years later, after postgraduate study in Berlin, Vienna, and Paris. He was for twenty years a member of the visiting staff of the Hospital for Sick Children, and after his retirement from active work at the Middlesex he was elected consulting physician to that hospital and emeritus lecturer on medicine in the medical school; he was also for a long time honorary physician to St. Luke's Hospital when it was in Old Street, and consulting physician to St. Columba's Hospital, St. Saviour's Hospital, the Surgical Aid Society, the London City Mission, and other charities. During the 1914-18 war he held a commission as major, R.A.M.C.(T.). He had been elected a Fellow of the Royal College of Physicians in 1897 and served on its Council in 1918-20.

Voelcker examined in medicine for the University of Aberdeen, the University of Birmingham, the English Conjoint Board, and the Society of Apothecaries; he had been president of the Section of Medicine of the Royal Society of Medicine, and honorary librarian, and in 1918 president of the Medical Society of London. He joined the B.M.A. in 1886 and held office as vice-president of the Section of Diseases of Children at the Brighton Meeting in 1913. He published a number of articles, mainly on paediatrics, in this and other journals, and contributed to the *Encyclopaedia Medica*, to Garrod and Batten's *Diseases of Children*, and to the *Index of Treatment*. After retirement from active medical work he went to live at Marhamchurch, near Bude in North Cornwall, where he enjoyed fishing, shooting, and gardening, and the company of old friends. While an undergraduate he had distinguished

himself in athletics as a member of the L.A.C., and twice in his middle years of life the London medical students elected him president of the United Hospitals Athletic Club.

H. G. EARLE, LL.D., M.B.

Dr. Herbert Gastineau Earle, who became director of the Henry Lester Institute of Medical Research and Preventive Medicine, Shanghai, in 1928, died suddenly on June 5 at sea after a short illness.

He was born at Acton, Middlesex, on Aug. 10, 1882, and from the City of London School entered Downing College, Cambridge, in 1901 with a foundation scholarship, and gained first-class honours in the Natural Sciences Tripos of 1903. After clinical study at the Westminster Hospital he took the M.A. and M.B. degrees at Cambridge in 1913, by which time he had been for some years demonstrator of physiology at the Middlesex Hospital Medical School and joint lecturer on biology. In 1915 Earle was appointed professor of physiology in the University of Hong Kong and was for some years Dean of the Faculty of Medicine; the University conferred on him the honorary degree of LL.D. when he resigned his chair in 1927 to become director of the Henry Lester Institute at Shanghai. He published a number of papers in this and other journals on the physiology and pathology of the pancreas and on basal metabolism, and took a keen interest in the assessment of physical fitness and physiological anthropometry. His observations on the basal metabolism of Chinese students were presented to the XIIth International Congress of Physiology, held at Stockholm in 1926.

Earle joined the B.M.A. in 1914 and was president of the Hong Kong and China Branch in 1919; he had also been chairman of the Research Council of the Chinese Medical Association for eight years and served on a number of other scientific councils and committees. He acted as delegate from China at the Congress of British Universities on three occasions—Oxford 1921, Cambridge 1926, and Edinburgh 1931.

Dr. JAMES L. MAXWELL, C.B.E., writes:

The death of Dr. H. G. Earle is a serious loss to scientific research in medicine in China. Some 18 years ago, when Earle already occupied an outstanding position as professor of physiology in the University of Hong Kong, he received a very pressing invitation to accept the appointment as director of the Henry Lester Institute of Medical Research in Shanghai. The institute was then in the process of development, and it was essential for its success that a director be chosen who was outstanding in his profession, a good organizer, and one who could hold the confidence alike of his British and Chinese staff. The choice fell unanimously on Earle, and his appointment proved a success in every way.

Dr. Earle suffered internment at the hands of the Japanese when Shanghai was seized, and the long confinement, under very adverse conditions, seriously undermined his health. Dr. Earle was regarded, alike for his personal and professional qualifications, with genuine affection by Chinese and foreign friends in Shanghai and throughout China, and was greatly esteemed for his outstanding Christian profession. His loss to the cause of scientific progress in medicine in China is a very serious one.

The death of Mrs. RENNIE MACINNES, M.B.Lond., means the loss of a friend to many, not only at home but in Palestine, where as wife of a former Anglican Bishop in Jerusalem she was for many years a prominent figure, noted for her practical interest in religious and social activities. Janet MacInnes spent her early married life in Cairo, where her husband was then a missionary. Before the end of the first world war she moved to Jerusalem and assisted Bishop MacInnes in the work of the Syria and Palestine Relief Fund. In addition to this work for the victims of war and famine, she engaged for many years in practical efforts for the amelioration of conditions for women and girls, assisting the Government welfare worker in combating the many social evils which were found in Palestine. In this her medical knowledge (she had qualified in 1899) proved an asset. In the early days of the Palestine mandate she helped to create a voluntary society of women of different races and creeds, which opened a rescue home and inaugurated other social services, later to be taken over by the Government. Mrs. MacInnes was an attractive speaker and much in demand as a chairman. After the Bishop's death in 1931 she became secretary of the Palestine Mission of the Church Missionary Society. People of all kinds turned to her in perplexity and gained benefit. In spite of multifarious activities she seemed to have a reserve of strength which made her serene and unhurried.

Dr. WILLIAM ROBERT JAMES GARSON, who died recently at the age of 87, was for many years one of the best-known practitioners in Wirral and had been a member of the B.M.A. since 1881. When he retired from the post of medical officer to the Wirral Joint Hospital Board tributes to his long and valuable service were paid and he was appointed honorary consultant. He studied medicine at the University of Edinburgh, graduating M.B., C.M. in 1880, and some of his undergraduate years at Edinburgh were spent while Lord Lister was there. He knew intimately and hero-worshipped Henry Drummond, who stayed with him for fishing holidays in the Orkneys when he was a boy, and he later met Drummond when he used to lecture to the students in Edinburgh and Glasgow. After recovering from typhus in an epidemic in Newcastle-upon-Tyne, where he worked in "The Dispensary," and at the Ear and Throat Hospital Dr. Garson settled in practice at Bebington, Cheshire, retiring in 1943 after 60 years in practice. He was medical officer to the Wirral Fever Hospital from the time when it began work. He leaves four sons and one daughter. Two sons are medical men—Mr. Philip Garson, F.R.C.S.Ed., of Liverpool, and Dr. H. L. Garson, who is a general practitioner at Bromborough and was a brigadier in the recent war. His daughter married the late Dr. H. B. Weir, the London pathologist who used to assist Sir Bernard Spilsbury.

Medical Notes in Parliament

HEALTH SERVICE BILL

Before the Standing Committee adjourned on June 6 four further clauses of the Health Service Bill were examined. Mr. PIRATIN, on Clause 22, moved that arrangements under the Clause should include the provision of day and residential nursery accommodation. Mr. SOMERVILLE HASTINGS supported the amendment. Mr. BEVAN said he intended, when asking local authorities to plan their schemes, to make provision for day nurseries, but it was not practicable to do this everywhere. The demand for these nurseries varied enormously, and in some the overhead charges were very heavy for looking after a small number of infants. The amendment was defeated by 32 to 1.

In the same Clause Capt. BAIRD moved to add that it should be the duty of every local health authority to arrange for the dental care of persons who had reached compulsory school age but had not attained the age of 18. Mr. BEVAN replied that this matter was already sufficiently covered. What was really limiting was the number of dental surgeons. It was no good providing under the Bill for more dental care when this would be limited by the number of dentists. The amendment was withdrawn.

Mr. BEVAN accepted an amendment allowing a local authority to make contributions to a voluntary association which cared for children under 4 years of age but did not concern itself with expectant mothers. Answering a question by Mr. Reid about the charges which, under subsection 2 of the Clause, local authorities could recover, Mr. BEVAN said the scale of such charges would be known and had to be approved by the Minister before it became the scale on which the local authorities could recover. The services could not be provided without the means of the people concerned being considered. There would have to be a means test. The Clause as amended was added to the Bill.

On Clause 23 Cmdr. GALBRAITH remarked that subsection 3 appeared to give power to local authorities to lay down the qualifications of medical practitioners. Mr. BEVAN replied that was not for the local authorities to decide. A definition of what was a specialist, or a person with special qualifications, would be decided before long on the advice of the profession. The Clause was ordered to stand part of the Bill.

Mr. MESSER, on Clause 24, said the National Association for the Prevention of Tuberculosis was concerned about what would happen to specially trained visitors under the Bill. Mr. BEVAN said it was proposed that the Regional Boards should employ the health visitors of the local authorities, and a link would thus be established between them. The Clause was ordered to stand part of the Bill.

"DISTRICT" NURSING

On Clause 25, which deals with home nursing, Mr. REID moved an amendment in order to raise the question whether the local health authority should set up its own organization of nurses employed by it, and also whether this type of nursing should be limited to nurses who had received a special course of training. He said home nursing differed in many ways from nursing in a hospital. He hoped Mr. Bevan would do nothing

to supersede the good organization which at present employed these nurses all over the country. Mr. BEVAN said it was in the interest of that excellent organization that the words of the Clause should be unaltered. They left the local authority free to employ a suitable voluntary organization or to employ nurses itself. Local authorities, in the plans submitted, would have to satisfy the Minister that they were making considerable use of the voluntary organizations available.

Mr. Reid withdrew his amendment and Clause 25 was added to the Bill.

The Committee adjourned till June 18.

The General Medical Council

On June 7, during the debate on the motion for the Whitsuntide adjournment, Dr. MORGAN intervened to draw attention to the judicial tribunal which governed the conduct of the medical profession. He said this body could make its own crimes and misdemeanours but could inflict only one sentence. That tribunal was the General Medical Council.

Mr. Keeling and Mr. Callaghan protested at Dr. Morgan interposing this subject.

Continuing, Dr. Morgan said the G.M.C. was an undemocratic body with only seven elected members out of 42. The procedure was unlike that of any other tribunal in this country. The G.M.C. made its own procedure. It decided what was evidence; it could decide to discard evidence or to insist on cross-examination on evidence which the tribunal had not heard orally. Members who heard the original complaint and decided that there should be a trial also sat in judgment on the accused. He was allowed to be represented by counsel. The G.M.C. had a legal assessor. That assessor had the right to cross-examine the accused person while, so far as was known, counsel for the accused person had no right to cross-examine other witnesses. This degraded form of topsy-turvy justice had existed for 100 years without a change. The G.M.C. was a prejudiced partisan body. Dr. Morgan said he had counsel's opinion showing that evidence given before the tribunal need not be sworn. It might be written and not declared in open court. There need not be cross-examination. Every possible obstacle to an accused's being able to state his case was put in front of him. Dr. Morgan then alluded to the recent case of Dr. Hennessy. He said he did not ask for legislation, but for an inquiry by a Royal Commission, a Select Committee, or other means. He asked that the procedure of the G.M.C. should be changed and reformed, but that this should not be done in private within the profession. Doctors had had 100 years to reform the G.M.C. and had not done so. Gentlemen who had the highest degrees in medicine and whose personal character was, as a rule, unassailable would perpetrate injustices of the most despicable kind against their colleagues even when the evidence could not be used to condemn the worst criminal. The legal assessor, when summing up for the council, did not advise in public but *in camera*. The legal assessor cross-examined the respondent but not the complainant. The respondent had no right of appeal to the High Court. The case could be reopened only by the G.M.C. The only sentence it could impose was one of erasure. It could indulge in the mental torture of postponed sentence for a year or for six months. The anaesthetist of Sir Herbert Barker was struck off the roll, but the G.M.C. did not say anything to specialists who attended a demonstration by Sir Herbert Barker in one of the teaching schools. Dr. Hennessy had to fight alone because, when erased, he lost his membership of the Medical Defence Union. Dr. Morgan challenged the Labour Government not to allow the medical profession to hold its own investigations.

Mr. KEY said Mr. Herbert Morrison had asked him to reply. It had, Mr. Key remarked, been definitely accepted that some reform of the Medical Acts was necessary and the Goodenough Interdepartmental Committee had made certain recommendations on the point. The G.M.C. itself had been considering the question for some 18 months, and was going forward with certain proposals. The Government intended, if time could be secured in the coming session, to put forward its own proposals, and that a medical Bill should be introduced.

The DEPUTY SPEAKER said Mr. Key was not entitled in the debate to deal with legislation.

Mr. Key said the Government regarded an inquiry as inappropriate because it had already settled that the matter should be dealt with adequately and properly. The Government wished to study the information which had been provided and to consult with the profession and the people interested. The points which Dr. Morgan had raised would be borne in mind. It would be unfortunate if the impression got about that it was a general thing that members of the medical profession could be struck off the Register arbitrarily for some slight

offence. The G.M.C. could work only within the powers conferred on it by Parliament. In general the council discharged its disciplinary functions ably and carefully and with a sense of grave responsibility. That there was no appeal against its decisions was not the responsibility of the G.M.C. Criticism had been made of the constitution of the G.M.C.; on that he could say nothing regarding the proposals of the Government. Due consideration would be given before the proposals were put before Parliament.

E.M.S. Hospitals

Mr. KEY told Dr. Segal on June 6 that most E.M.S. beds had been beds reserved in the country's ordinary hospitals, supplemented by additional accommodation. As E.M.S. reservations diminished, the beds were normally left available for ordinary use. Reservations were 47,344 on Dec. 31 last and 35,000 at May 31. They would go on diminishing. The Ministry of Health would take every step to prevent premature closing of hospital beds. The difficulty was not so much availability of beds as of staff.

Mr. BEVAN told Dr. Segal on June 6 that the Leatherhead Emergency Hospital would be closed before the end of this year. The residual cases would be pensioners for whom the Ministry of Pensions would accept responsibility.

Emergency Hospitals in Scotland

Mr. McKINLAY on June 4 asked for a statement regarding the future of the emergency hospitals built during the war and administered by the Department of Health for Scotland. Mr. WESTWOOD answered that these hospitals, although intended originally for air-raid casualties, had treated large numbers of patients who were in the Services or auxiliary organizations or who became the responsibility of the Ministry of Pensions. The numbers of patients in these classes were falling, but were still substantial and must be regarded as a first commitment. Certain classes of civilian patients had already been admitted. He proposed to extend the arrangements for the admission of such patients in order that the hospitals and the special facilities they provided might serve the people of Scotland as a whole. The extent to which they could do so depended primarily on the numbers of medical, nursing, and other staff available. He hoped the existing staffs, including members of the Civil Nursing Reserve, would continue on the new basis. The new arrangements would take some time to bring into full effect, but before the National Health Service came into operation these hospitals should have found their proper place in the permanent hospital system of Scotland.

Specialists in the R.A.M.C.

Major LLOYD asked on June 4 whether Mr. Lawson knew that at Aug. 31 specialists of the R.A.M.C. would be 15 groups behind other medical officers and two groups behind other ranks in release. Mr. LAWSON replied that specialists were generally older than other medical officers on entry into the Army, and there was, therefore, a far larger proportion of specialists in the early age-and-service groups. This made it inevitable that their release programme should fall behind that for general duty medical officers. Specialists were being released as rapidly as the requirements of the Army allowed, and about 70% of those serving in June, 1945, had already been released. In the interests of serving soldiers he could not allow any serious deterioration in specialist services. To assist in meeting the Army's requirements specialists would in future be accepted on an eighteen-months engagement. He hoped that this would increase the intake from civil life.

Sir E. GRAHAM-LITTLE on June 6 asked whether Mr. Lawson was aware that there was a waste of specialist surgical experience in the R.A.M.C. An example furnished to him in the India Command was of a London graduate holding the qualifications M.S., F.R.C.S. assigned to duties within the capabilities of a G.D.O. Mr. LAWSON said every effort was being made in India and elsewhere to economize in specialist establishments wherever possible, but difficulties were presented by the fact that units were scattered over large distances and might require specialist assistance at short notice. He was inquiring into the specific case of alleged waste of specialist skill of which Sir Ernest had sent particulars.

Free Hearing Aid

In the House of Lords on June 5 Lord WALKDEN announced that a new hearing aid would be manufactured as a Government monopoly and distributed free to all who needed it through the National Health Service. The Medical Research Council had evolved a hearing aid which was believed to be an improvement on anything known before. Free issue was

expected to begin in 1948. Until then it would be provided at cost price, about £10, through the hospitals. Free maintenance, servicing, and new batteries would be available except in cases of damage through the patient's own carelessness. The Electrical Acoustics Committee had also recommended approved equipment for testing the degree of deafness. This would be supplied to clinics free of charge.

Vaccination and Inoculation.—Mr. LAWSON told Mr. Braddock on June 4 that Army instructions issued on Feb. 20 stated that inoculation and vaccination were voluntary. Mr. Lawson believed this was well known throughout the Army. These instructions referred to Service personnel and their families. The question of the inoculation and vaccination of families proceeding over-seas was under discussion. Difficulties arose because it was laid down by some foreign countries that vaccination and inoculation certificates must be produced as a condition of entry into the country concerned. Present instructions therefore stated that certain types of vaccination and inoculation must be carried out before passage could be allowed.

Extra Food Allowances.—Mr. STRACHEY stated on June 5 that a list of the conditions for which extra foods were allowed had been circulated to all registered medical practitioners. He added that it would not be in the general interest to publish this information. The medical advisers of the Ministry of Food were strongly against publication, but he would look into the matter again. Hunger, Mr. Strachey remarked, was not a disease.

Notes in Brief

Patients suffering from infectious diseases such as measles and scarlet fever, when isolated at home, are entitled to an extra soap ration if confined entirely to bed for a period longer than one month.

In Tanganyika 5,372 cases of sleeping sickness were reported during the years 1936 to 1945 inclusive, of which 2,527 were fatal. Of 86 cases reported up to the end of April this year, 16 were fatal.

At May 13, 31,612 vacancies were notified to the Ministry of Labour for all grades of nurses and midwives.

The committee considering the future of the x-ray industry includes Mr. Warburton, lately Director of Medical Supplies, Ministry of Supply (chairman), Brig. McGrigor, consultant radiologist to the War Office, and Dr. Russell Reynolds, radiologist.

The Services

Dr. William Evans has been appointed consulting cardiologist to the Royal Navy.

The following appointments and mention in dispatches have been announced in recognition of gallant and distinguished services while prisoners of war:

C.B.E. (Military Division).—Col. (Acting) J. Taylor, O.B.E., R.A.M.C.

O.B.E. (Military Division).—Col. C. O. Shackleton, late R.A.M.C.; Lieut.-Cols. D. C. Bowic and L. R. S. MacFarlane; Lieut.-Cols. (Temp.) J. C. Collins and C. W. Maisey, R.A.M.C.

M.B.E. (Military Division).—Majors G. F. Harrison, A. C. King, and R. Ramsay; Majors (Temp.) H. M. S. G. Beadnell, F. J. Murray, M. T. Read, M.C., and E. C. Vardy; Major (Acting) P. R. Graves; Capt. G. Blair, K. P. Brown, F. E. de W. Cayley, A. H. R. Coombes, R. L. Lancaster, J. Markowitz, K. C. Matheson, J. C. McNeilly, C. C. Petrovsky, T. S. Protheroe, A. Roy, P. G. Seed, H. E. De-Wardener, R. D. Taylor, and A. J. N. Warrack, R.A.M.C.

Mentioned in Dispatches.—Major (Temp.) J. D. Fraser, R.A.M.C. The following appointments and mentions have been announced in recognition of gallant and distinguished services in the field:

O.B.E. (Military Division).—Major F. P. H. E. Orban, R.A.M.C.

M.B.E. (Military Division).—Major (Temp.) S. N. Varian, R.A.M.C.

Mentioned in Dispatches.—Major (Temp.) D. D. A. Fraser and Capt. D. R. Macauley, R.A.M.C.

The following appointments, awards, and mention in dispatches have been announced in recognition of gallant and distinguished services in Burma:

C.B. (Military Division).—Major-Gen. (Acting) W. E. Tyndall, C.B.E., M.C., late R.A.M.C.

C.B.E. (Military Division).—Brigs. (Local) J. C. Hawksley, H. L. Marriott, and M. F. Nicholls; Brig. (Temp.) G. E. Macalevey, D.S.O., M.C.; Brig. (Acting) A. Swindale, O.B.E., T.D.; Col. (Temp.) J. J. O'Dwyer, R.A.M.C. Brig. (Local) M. K. Alfridi, O.B.E., I.M.S.

O.B.E. (Military Division).—Lieut.-Col. (Temp.) D. J. Lawless, W. C. Mitchell, C. E. Moorhead, H. G. Page, M.B.E., W. Serle, and W. G. Sutcliffe, R.A.M.C. Col. (Temp.) J. L. Mewton; Lieut.-Cols. (Temp.) S. M. Basu, A. S. Rao, F. W. Snedden, and B. P. Srivastava, I.M.S. Col. (Acting) A. L. Craddock, M.B.E., Army in Burma Reserve of Officers.

M.B.E. (Military Division).—Majors (Temp.) A. B. Cook, B. H. Ellis, N. S. Martin, W. Minns, J. McD. Simpson, W. T. Walker,

D. B. Watson, and J. D. Younghusband; Major (Acting) H. D. Thompson; Capt. H. Acton and M. F. Ronayne, R.A.M.C. Majors (Temp.) S. Prakash and S. D. Singh; Capt. Hafiz-ur-Rahman and S. B. H. Gardezi, I.M.S. Majors (Temp.) S. F. Thomas and C. J. Todd; Capt. B. Singh and B. M. R. Choudhury; Capt. (Acting) V. P. Batra; Subadar C. Mani, I.A.M.C.

M.C.—Major (Temp.) J. Jacobs; Capt. D. R. Evans and G. H. Pimblett, R.A.M.C. Capt. H. N. Roy and S. A. Wadud, I.M.S.

Mentioned in Dispatches.—Capt. B. Bernstein, R.C.A.M.C. The following appointments and mentions in dispatches have been announced for distinguished service during the war in the Far East:

M.B.E. (Military Division).—Temp. Surg. Lieuts. T. W. G. Kinnear, S.A.N.F.(V.) and I. F. K. Muir, R.N.V.R.

Mentioned in Dispatches.—Surg. Cmdr. D. F. Walsh and Surg. Lieut.-Cmdr. E. B. Bradbury, R.N., Acting Surg. Cmdr. R. D. Bradshaw, Surg. Lieut.-Cmdr. W. P. G. Dickson, Temp. Acting Surg. Lieut.-Cmdr. J. Watt, and Temp. Surg. Lieuts. R. D. Maclean, I. S. Bergius, R. R. H. Lovell, and B. J. Webb, R.N.V.R.

Medical News

The annual general meeting of the Paddington Medical Society will be held at St. Mary's Hospital, W., on Tuesday, June 25, at 8.45 p.m., when films on gas-air analgesia in midwifery and on the production and distribution of medical gases will be shown.

A meeting of the Medical Society of the L.C.C. will be held at County Hall, S.E., on Wednesday, June 26, at 4.30 p.m., when Mr. W. Ritchie Young will open a discussion on "Dental Disease in its Relation to Ill-health."

The annual general meeting of the British Empire Leprosy Relief Association will be held at the India Office, Whitehall, at 3 p.m., on Wednesday, June 26, when addresses will be given by Sir Bernard Bourdillon, chairman of the executive committee, and Dr. T. E. Davey, medical superintendent of the Uzuakoli Leper Settlement in S.E. Nigeria.

A meeting of the Medico-Legal Society will be held at 26, Portland Place, W., on Thursday, June 27, at 8.15 p.m., when a paper will be read by Mr. T. Paterson Owens on "Approved Schools and Remand Homes."

The annual meeting of the Royal Society of Medicine will be held on Tuesday, July 2, at 1.30 p.m., when diplomas of Honorary Fellowship will be presented to Group Capt. Antoni Fiumel, late D.G.M.S., Polish Forces, and Col. Carel Frederick Koch, late D.G.M.S., Netherlands Forces, and the officers and council of the society for 1946-7 will be elected.

A final programme has now been issued for the National Conference on Maternity and Child Welfare to be held at Friends House, Euston Road, N.W., on Thursday and Friday, June 27 and 28. There are three main subjects for discussion: (1) planning a home, making a home, running a home; (2) incidence of dental disease and the care of the teeth of expectant and nursing mothers and children under 5 years; (3) care and treatment of the handicapped child. There will also be a show of films dealing with the care of the teeth. Dr. Jane H. Turnbull, chairman of the National Association of Maternity and Child Welfare Centres and for the Prevention of Infant Mortality, will open the conference at 10.30 a.m. on June 27. Mr. Aneurin Bevan, Minister of Health, will give his presidential address on June 28 at 10.30 a.m. Tickets (10s. 6d. each for two days, 6s. each for one day, or one session) may be had from the secretary, Miss M. R. Lovelock, 117, Piccadilly, W.1.

A Swiss doctor is offering free board and lodging to an English male student for three months beginning July 1. The student should be studying medicine or natural science, 22 years of age or older. If possible he should be a research worker or studying for a higher degree. For full details apply to the Secretary, British Medical Students Association, B.M.A. House, Tavistock Square, London, W.C.1.

A new and revised list of the names and addresses of all members of the British Institute of Radiology is very shortly to be published. Members are asked to take immediate steps to let the Institute know their present permanent address should this differ from that published in the yearbook for the session 1943-4. They should write to 32, Welbeck Street, London, W.1.

A notice was published in the *London and Edinburgh Gazettes* dated June 14, 1946, of the Secretary of State's intention to make Rules amending the Poisons Rules, 1935, and an Order amending the Poisons List. Copies of the proposed amending Rules and Order may be obtained from H.M. Stationery Office or through any bookseller, price 2d. and 1d. respectively.

Dr. Cyril Burt, professor of psychology at University College, London, received a Knighthood in the Birthday Honours List.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a Congregation held on June 3 the following medical degrees were conferred:

MD—J. N. Mills (by incorporation), J. Metcalf, R. L. Lancaster, S. C. Trelove.

MChir—A. G. Leacock (by proxy).

MB, BChir—J. G. Bentside, F. J. Conway.

UNIVERSITY OF LONDON

Sir Edward Peacock will present the prizes at the London Hospital Medical College in the Library on Thursday, June 27, at 3 p.m.

The Senate has decided to confer the honorary degree of D.Sc. on Prof. E. D. Adrian, O.M., M.D., F.R.S., F.R.C.P., and Sir Henry Dale, O.M., G.B.E., M.D., F.R.S., F.R.C.P., at a ceremony in November next, in connexion with the celebration of Foundation Day.

UNIVERSITY OF SHEFFIELD

At a meeting of the University Council, held on June 14; M. F. A. Woodruff, M.D., M.S., was appointed full-time tutor in surgery. The Council received the resignation of Dr. C. E. Davies of the post of part-time assistant tutor in medicine, and thanked him for his services.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The President and members of the Council entertained to dinner at the College on June 11 various overseas delegates to the Imperial Press Conference.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales there were 644 more cases of measles than in the preceding week. The only other changes were decreases in diphtheria 67, and dysentery 37.

The largest variations in the returns for whooping-cough were increases in Carmarthenshire 31 and Essex 25, and a decrease in Staffordshire 43. Only 304 cases of diphtheria were notified—the smallest ever recorded; the largest decreases were Yorkshire West Riding 22, Durham 18, and Lancashire 11. In contrast to the general trend of diphtheria an increase of 17 was recorded in London.

The rise in measles was mainly confined to the counties surrounding London, though the incidence in London decreased by 67. The largest increases were Middlesex 144, Lancashire 131, Essex 90, Kent 54, Surrey 52, and Hertfordshire 43. Anglesey had 66 more cases in an outbreak which began last week with 101 cases.

The only new outbreak of dysentery was in Kent (Malling R.D. 17 and Cranbrook R.D. 11). Other large returns were Lancashire 28, London 15, and Warwickshire 11.

In Scotland rises occurred in the notifications of scarlet fever 33, whooping-cough 23, and diphtheria 12. The increase in scarlet fever was mainly contributed by Glasgow, where the notifications rose from 47 to 68. The largest rises in diphtheria were Glasgow 7 and Edinburgh 6.

In Eire the only changes were increases in measles 54, and scarlet fever 13. The rise in scarlet fever was general, while the rise in measles was mainly due to an outbreak in Wicklow, Rathdrum R.D. 40.

Quarterly Returns for Scotland

During the March quarter the births were equivalent to a rate of 18.1 per 1,000, which was 0.5 above the average of the five preceding first quarters. Infant mortality was 69 per 1,000 registered live births and was 15 below the five-years average. The general death rate was 16.3 per 1,000, being 0.1 below the average for the five preceding March quarters. The death rate from all forms of tuberculosis was 82 per 100,000, and from respiratory tuberculosis 66; these rates were 8 and 3, respectively, below the five-years average. Deaths from epidemic diseases included diphtheria 40, cerebrospinal fever 32, whooping-cough 24, and measles 19.

Week Ending June 8

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 987, whooping-cough 1,749, diphtheria 304, measles 3,896, acute pneumonia 546, cerebrospinal fever 47, dysentery 149, poliomyelitis 9, paratyphoid 2, typhoid 4, smallpox 3.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 1.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	54	8	33	—	—	44	9	22	2	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Diphtheria ..	304	43	86	38	8	436	20	106	105	18
Deaths ..	2	—	—	1	—	11	—	3	1	—
Dysentery ..	163	15	46	—	—	458	37	135	1	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute ..	2	—	—	—	1	2	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Erysipelas ..	—	—	40	10	3	—	—	42	8	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years ..	35	1	11	27	3	50	8	11	35	2
Deaths ..	—	—	—	—	—	—	—	—	—	—
Measles* ..	3,931	967	640	78	5	10,455	508	410	64	3
Deaths ..	4	2	1	—	—	2	—	—	—	—
Ophthalmia neonatorum ..	64	4	23	—	—	72	7	20	1	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever ..	—	—	—	—	—	8	19(B)	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza ..	596	43	3	5	3	486	21	4	10	2
Deaths (from influenza)* ..	13	3	2	—	3	5	—	—	—	—
Pneumonia, primary ..	—	32	228	32	—	—	23	184	19	7
Deaths ..	—	—	—	6	7	—	—	—	—	—
Poliio-encephalitis, acute ..	1	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute ..	9	1	1	5	—	3	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Puerperal fever ..	—	1	20	—	—	—	2	6	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia ‡ ..	135	8	10	3	—	104	5	8	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever ..	1,070	88	176	31	30	1,233	45	237	21	32
Deaths ..	1	—	1	—	—	2	—	—	—	—
Smallpox ..	2	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever ..	5	—	4	4	2	8	2	—	3	—
Deaths ..	—	—	—	—	—	—	—	—	—	1
Typhus fever ..	—	—	—	—	—	3	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* ..	2,059	193	92	30	16	982	45	129	24	16
Deaths ..	10	2	1	—	—	4	—	1	—	—
Deaths (0-1 year) ..	321	46	63	25	12	329	48	47	42	21
Infant mortality rate (per 1,000 live births) ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) ..	4,336	678	615	194	126	4,019	566	526	211	128
Annual death rate (per 1,000 persons living) ..	—	—	13.5	12.4	—	—	—	11.9	13.6	—
Live births ..	8,435	1273	1009	444	233	7,043	727	925	451	260
Annual rate per 1,000 persons living ..	—	—	20.3	23.4	—	—	—	18.5	29.1	—
Stillbirths ..	264	33	29	—	—	253	31	29	—	—
Rate per 1,000 total births (including stillborn) ..	—	—	28	—	—	—	—	30	—	—

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

Letters, Notes, and Answers

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ANY QUESTIONS?

Sycosis Barbae

Q.—How does one prepare an autogenous vaccine for sycosis barbae? How long does this take and how much would it cost?

A.—The stages in the preparation of an autogenous vaccine are the making of a primary culture, thence of a pure culture if necessary, the suspension of the growth in 0.5% phenol saline and its sterilization by heat, a test for sterility, and dispensing in ampoules or bottles. The whole process need not occupy more than three or four days unless the organism is of exceptionally slow growth, and this would not be so in the present case, since sycosis barbae is due to one of the most freely growing of common bacteria—*Staphylococcus aureus*. The preparation of such vaccines is undertaken by all practising clinical pathologists and laboratories who engage in work for fees; charges vary widely, but a reasonable fee would be between two and a half and five guineas.

The treatment of sycosis barbae with an autogenous vaccine alone is not usually successful. Penicillin in the form of a cream or spray has given excellent results in some cases, although relapse may follow. A test of the sensitivity of the staphylococcus to penicillin is advisable before this treatment is begun.

Artificial Pneumoperitoneum

Q.—Please describe the technique, results, and dangers of artificial pneumoperitoneum.

A.—This question is difficult to answer briefly. Artificial pneumoperitoneum has been used in the treatment of certain cases of mainly unilateral pulmonary tuberculosis in which artificial pneumothorax is either impossible because of adhesions or regarded as dangerous because of the acuteness of the disease and the consequent liability to pleural effusion or empyema. It is customarily combined with temporary or permanent phrenic nerve interruption, and its effect is to reinforce the rise of the diaphragm produced by this procedure. The puncture is usually made through the anterior abdominal wall, a little below the costal margin and just lateral to the rectus abdominis muscle. After the pneumoperitoneum has become established, refills may be more conveniently given through one of the lowest intercostal spaces in the flank. At the induction, and sometimes at the refills, no reading of pressure is obtained before the air is introduced, and the finding of the space is therefore a matter of skill and experience. The quantities of air usually introduced are much higher than in artificial pneumothorax, and average about 800 to 1,000 ml. When the pneumoperitoneum is established this quantity may be required at intervals of a week to a fortnight. The dangers of the procedure include air embolism, which does not appear to be more frequent than with artificial pneumothorax, and peritoneal effusion and tuberculous peritonitis, which are very much less common than the corresponding affections of the pleura in artificial pneumothorax. In addition, less serious complications, such as discomfort and dyspepsia from abdominal distension, and the production of inguinal and other hernias which may contain air, have been recorded.

So far as the results are concerned, the procedure is a relatively recently introduced one about which no agreed opinion has been reached. Some authorities have gone so far as to

claim that the results obtained have been so favourable, and the complications so few, that they recommend pneumoperitoneum even in cases which are suitable for artificial pneumothorax. Others feel that the procedure has certain limited indications—for instance, for the treatment of cavitating lesions situated in the lower lobe, especially in its dorsal segment, or in the treatment of acute pneumonic tuberculosis. In these latter cases a combination of phrenic nerve interruption and artificial pneumoperitoneum may tide the patient over the acute stage of the disease and enable an artificial pneumothorax, which would be dangerous at the onset on account of the risk of pleural complications, to be induced safely later on. Others are more sceptical still and regard pneumoperitoneum merely as a means of reinforcing the effect of, and having the same rather limited indications as, phrenic nerve interruption.

Remissions in Peptic Ulcer

Q.—What is the explanation of remissions in peptic ulcer? Why are these remissions usually so regular in their periodicity in any one case?

A.—In the present state of knowledge it is not possible to express dogmatically the reasons for remissions in cases of peptic ulcer. It must always be remembered that peptic ulcer may be present without symptoms. A huge ulcer becomes symptomless after treatment for a few days and, similarly, many patients adopt treatment only when pain recurs. In many cases, if not in all, "remissions" are merely the result of treatment, which the patient half-consciously adopts when pain returns.

Brow Presentation

Q.—Is Caesarean section the best treatment for brow presentations?

A.—The treatment of brow presentation naturally varies with its cause and other circumstances of the case. Thus, if the cause is a pelvic deformity there is little question that Caesarean section is the best treatment. The same is usually true when the patient is a primigravida. Sometimes, however, in multiparous patients there is a place for other lines of treatment, such as internal version. It is impossible to lay down a general rule, but there is no doubt that there has been an increased use of Caesarean section in these cases during recent years. This is largely on account of the adoption of the lower-segment technique, which can be carried out with reasonable safety for the mother, even when labour has been prolonged, and which offers the best chance to the child.

Benzyl Benzoate in Pregnancy

Q.—Is there any evidence for the statement that benzyl benzoate causes abortion in scabetic expectant mothers?

A.—There is no evidence that benzyl benzoate treatment for scabies has any effect on expectant mothers. The correct treatment is to give one application, which is left for twenty-four hours and then washed off in a bath. If necessary, and only if necessary, a second application is made one week later. Some doctors, however, do not realize that one application, or at most two, is sufficient treatment, and they give several applications, which causes dermatitis. This is certainly bad for anyone, including expectant mothers. Otherwise there is no connexion whatever between the treatment and the uterus.

Disorders of Calcium and Phosphorus Metabolism

Q.—What are the modern views regarding the relationship of blood calcium levels, blood phosphorus levels, and the calcium-phosphorus ratio, to (a) the muscular twitchings of uraemia, (b) infantile spasmodophilia, (c) hypoparathyroidism, and (d) the clinical state of "alkalosis"?

A.—In uraemia the serum calcium falls to extremely low levels (5 mg. per 100 ml. and less), the phosphate at the same time rising greatly, and the increased muscular irritability may reasonably be attributed to this reduction in calcium. In alkalosis, on the other hand, whether due to hyperpnoea, vomiting, or overdosage with alkalis, the level of the serum calcium is normal; but it is believed that owing to the change in reaction towards increased alkalinity a reduction in ionized active calcium occurs. Tetany is seen especially in the hyperpnoeic type and is relatively rare in overdosage. In hypoparathyroidism

the serum calcium shows a gross reduction and there is a considerable rise in the serum phosphate, to a level of 6 or 7 mg. per 100 ml. (normal 3 to 4 mg.). The primary disturbance would seem to be a fall in the excretion of phosphate by the kidney. Tetany appears with the fall in calcium, and can be relieved by the administration of calcium orally or by the parenteral route, or by raising the serum calcium by injection of parathormone or by very large doses of vitamin D. In infantile spasmodophilia appearing in connexion with rickets the calcium is also reduced, owing to defective absorption. Though the primary blood change in human rickets is a fall in the phosphate, believed by some to be due to overaction by the parathyroids in an attempt to compensate for the reduction in absorbed calcium, later the serum calcium may also fall and spasmodophilic symptoms appear.

Mycosis Fungoides

Q.—An unmarried woman of 37 has been suffering for the last seven years from mycosis fungoides. Is any treatment likely to effect improvement at this stage?

A.—Mycosis fungoides, like the leukaemias and Hodgkin's disease, is one of the reticulo-endothelioses, and, though sometimes responsive to natural or artificial shock therapy, in the majority of cases it is controlled only by radiotherapy. Presuming that the blood picture and sternal puncture reveal no abnormality in white cells and that clinical and x-ray investigation show no infiltrations in lungs or viscera, x-ray therapy should be given in small dosage (150 r units, unfiltered, at about 90 kV) to the whole body, and should be repeated every three or four weeks until the condition is controlled, the treatment being resumed if there is a relapse. A watch must be kept for the possibility of damage to blood-forming organs. In most cases a point is ultimately reached where the condition becomes unresponsive, and then there is little more that can be done. Internal treatment and local applications are of no avail.

Dermatitis in Concrete Workers

Q.—Please discuss the cause, treatment, and prevention of dermatitis contracted in the concrete industry (wet and dry processes).

A.—Dermatitis in this industry may be caused (1) by contact with cement, sand, and lime, with or without friction, or (2) from oiling or cleaning moulds. Measures for prevention are in the lines generally advocated—viz., selection of workers and their protection at work; supervision and inspection to detect early cases of skin irritation and to ensure cleanliness. Amplification of the scope of these preventive measures is given in P. 330 issued by the Factory Department of the Ministry of Labour and National Service, obtainable from H.M. Stationery Office. Treatment of cases of dermatitis in the concrete industry differs in no way from that from other industrial causes.

References to literature include the following: H. P. Brinton and L. Schwartz (*Industr. Med.*, 1945, 14, 617); J. Derville and J. Carrière (*Méd. du Travail*, 1935, 7, 244); W. Burckhardt (*Schweiz. med. Wschr.*, 1938, 68, 783, and *Arch. f. Derm. u. Syph.*, 1938, 178, 1); J. G. Downing (*Arch. Derm. Syph.*, Chicago, 1939, 39, 12); L. Schwartz and L. Tulipan (*Occupational Diseases of the Skin*, 1939, p. 128, Philadelphia).

Subacute Combined Degeneration

Q.—A man of 51 has had pernicious anaemia for fifteen years, and for three years has received doses of liver extract. The symptoms of subacute combined degeneration have improved under treatment. His blood count is now 5 millions and his colour index 1.16. Is it wise to continue with 4 ml. of liver extract weekly?

A.—There is a good case for continuing with big doses of liver extract. Spinal degeneration responds only to unusually large amounts. There is some clinical support for the employment of vitamin preparations at the same time, and especially injections of B₁₂. One would be wise in also prescribing by mouth whole liver, liver extract, and desiccated hog's stomach. Polycythaemia is the most usual complication of excessive liver usage, and can be detected by periodic red cell counts. Sensitivity to liver extract is not likely to develop later in the course of treatment.

After-effects of Undulant Fever

Q.—Is there any useful treatment for the lassitude, arthralgia, myalgia, and fibrositis which still persist four years after undulant fever? Is it permissible to take amphetamine?

A.—No particular line of treatment for the pains described can be recommended with confidence. It would be worth while to make a meticulous search for one of the commoner sources of chronic infection which might be associated with chronic fibrositic pain, to investigate the possibility of some nutritional defect, or of degeneration or infection of the central or peripheral nervous system, and to exclude any abnormal vascular condition. The routine and prolonged use of amphetamine is not recommended, because of its occasional side-effects, the possibility of developing addiction, and its failure to remove the fundamental cause of lassitude. Chronic lassitude is usually infective or psychological in origin, and treatment should be directed at the cause.

INCOME TAX

Medical Officer: Car Expenses

J. M. bought a car on April 3, 1946, while seeking an assistantship. Shortly afterwards he accepted an engagement as medical officer to an industrial concern. The firm would supply the use of a car if J. M. didn't possess one. Can he claim a deduction for the use of his car?

A.—The rule is a rigid one: to be allowable an expense must be incurred wholly, exclusively, and necessarily in the performance of the duties of the office. If the facts are that J. M. can at any time call for the use of one of the firm's cars but in fact uses his own, the element of necessity seems to be eliminated and the claim would fail. If, on the other hand, a firm's car is not available in present circumstances but one would be made available if J. M. did not have one, there are some grounds for the claim. But in that case one would expect the firm to recognize the existing saving in their own transport service by making J. M. an allowance for using his own car.

Expenses: Domestic Servant; Car Replacements

"Q. Q." asks: (a) Is a practitioner entitled to treat as an allowable expense part of the cost of keeping a domestic servant, the servant having to take telephone messages, etc.; and if no servant is available may payment be made to a wife and charged as an expense? (b) A car was bought in 1940 for £50 and sold in 1941 for £75. In January, 1946, another car was bought for £294. "Q. Q." intends to buy a new car yearly and will probably expend about £400 on a new car in January, 1947. Can he claim as deductions the differences between what he receives and what he pays on each transaction?

A.—(a) Yes; but the claim must be reasonable having regard to the proportion of time spent on dealing with professional calls, and the amounts claimed must have been actually paid for the service in question. (b) The cost of renewal of a car can be claimed as an expense, but in so far as the payments made relate to improvement rather than to mere replacement they represent capital outlay and are not allowable. In the long run "Q. Q." will probably gain by claiming the initial and depreciation allowances now authorized for 1946-7 and future years.

Sale of Car: "Balancing Charge"

D. O. bought a car in 1939 for £140; wear-and-tear allowances have reduced the written-down value to £25. What will be the position if he now sells the car for £600?

A.—(It is assumed that D. O. will continue to practise after the sale of the car.) As the sale will take place after April 5, 1945, D. O. will be liable to a "balancing charge," but the maximum amount will be £140 - £25 = £115—i.e., the aggregate of the wear-and-tear allowances given in respect of the car.

Employment in 1943-4: Expenses

B. worked as a locum tenent from February, 1943, to January, 1944, in sole charge for an absent owner, and was required to live in the house formerly occupied by the latter. B. started practice on his own account in 1944. Can he claim: (a) some cancellation of the 1943-4 tax under the "P.A.Y.E." regulations; (b) "salary of wife and maid as allowed to the owner"; and (c) cost of running and maintaining car over and above an inadequate allowance?

A.—(a) As B. apparently was not "employed" after April 5, 1944, he did not in fact come under the "P.A.Y.E." system of tax deduction. He is accordingly not entitled to any cancellation of the tax assessed for 1943-4. (b) and (c) These expenses can be claimed in so far as it was necessary to incur them to fulfil the

conditions of service—and only if the payments were in fact made. The production of satisfactory evidence in support of the claim may, however, be a matter of some difficulty.

Non-resident Appointment: Travelling Expenses

"FUMUS" holds a full-time non-resident hospital appointment. He has to attend emergency cases at night and consequently some form of transport is necessary. Can he claim in respect of the cost of keeping a bicycle or car?

* We fear that the special circumstances would not be regarded as taking the case out of the general rule, which is that the expense of travelling between the residence and the place where the duties of an office are performed are not incurred in carrying out the duties and are therefore inadmissible.

Cash Basis or Earnings Basis

"DEMOBBED" restarted practice at May, 1945. Can he make his return for 1945-6 on the cash receipt basis?

* No; cash receipts during the early years of restarting a practice will not fully reflect the gross earnings or, consequently, the true profit earned. (It is assumed that tax was not paid by our correspondent on cash coming to hand from his former civil practice after he had ceased civilian work.)

Uniform Allowance: Territorial Army

E. W. was demobilized in 1945 but is on the active list as a major in the R.A.M.C. Territorial Army. Can he claim an allowance for upkeep of uniform, etc.?

* We understand that in such circumstances an allowance of £7 10s. is made from the pay issued in the course of each financial year.

LETTERS, NOTES, ETC.

Teaching of Surgery in Scotland

Dr. ARTHUR TURNBULL writes from Glasgow: Mr. Aneurin Bevan now states that the national health administration wants "the power to create new teaching hospitals." Does this mean the Ministry seeks a special brand of medical students to carry out the provisions of the Act? If the Minister has not enough doctors to run his show are the conditions of service such as to attract the best men? Army doctors are emigrating to the Colonies in batches. What is the trouble: poor pay or deprivation of freedom? Mr. Lloyd George set up treatment to the patient through the Government, the approved societies, and the doctors, and left the medical colleges to paddle their own canoes. He failed to correlate the training of the surgeon with the application of surgical technique to any one patient. He also failed to provide prompt benefits to the patient, and entirely failed to keep the Act up to date. The Ministry, simply moulder on, and the medical schools were left to provide curricula as best they might. To-day this process is to continue. What is the point in the process—a professor invited to describe surgical methods and technique to a student who is in effect debarred from carrying out an operation on his own patient after graduation?

Unless the Scottish universities move at once and provide a Scottish surgical service, the London Ministry will simply take over the training and so imperil and undermine the quality and status from the Scottish colleges. Replaced by drilled yes-men and routine quacks the Scottish degree will lose its value. Health will be commercialized, and many invaluable lives lost in practice. Therefore the principals of the four Scottish universities should draw up a scheme

Additional Qualifications of Dentists

In his address from the chair at the opening of the 49th session of the Dental Board Dr. E. W. Fish brought forward a minor problem, that of additional qualifications in the *Dentists Register*. Under the Dentists Act, 1878, it is laid down that medical qualifications granted in the United Kingdom or Ireland which are registrable in the *Medical Register* as primary or additional qualifications in medicine, surgery, or midwifery may be also placed in the *Dentists Register* as additional qualifications, and practitioners who are doubly qualified have been able for more than sixty years to register their medical qualifications as dental qualifications. But with the prospective amendment of the Dentists Acts on other grounds Dr. Fish suggested that some questions might arise as to the extension of additional qualifications which are registrable. At present the General Medical Council must be satisfied that (1) the additional qualification was granted after examination, (2) that the examination was held by one of the universities and corporations which choose members of the G.M.C., and (3) that the qualification was granted in respect of a higher degree of knowledge than is required to obtain a licence in dental surgery or dentistry. To take any of these requirements, would it be desirable in any amendment of the Acts to perpetuate the present exclusion of honorary

degrees from the *Register*? Further, should the "examination" requirement be waived, ought honorary degrees in subjects other than dentistry to be included? As to the second requirement, that the examination must have been held by one of the medical authorities in this kingdom, might not the right now be extended, so far as concerns additional qualifications, to diplomates of bodies of equivalent standing in imperial or even in foreign territories? Then there is the perplexing requirement that the qualification must have been granted in respect of "a higher degree of knowledge." What is a higher degree of knowledge? Is it sufficient to include general medicine and surgery, as has been done since the early 'eighties; or may the knowledge of which it is necessary to take account include the biological and physical sciences or, indeed, any other branch of learning? These seem to be minor matters, but they may have on occasion much importance. At present the whole question of the registration of additional qualifications is the business of the General Medical Council, which is bound by the conditions imposed on it by the Dentists Act of 1878, but it will become the business of the Dental Board or its successor if the unanimous recommendation of both bodies to the Interdepartmental Committee is translated into law, and in that event some re-interpretation of these old rules more in conformity with modern conditions may be expected.

Prevention of Baldness

Dr. E. GALLOP (London, S.W.1) writes: The aetiology of the rarer forms of baldness is not clear, but I do not think this applies wholly to the common form that embraces the great majority of cases—the bald vertex of the adult male. It is too familiar to need description. Yet there are certain points about it, obvious as they are, that deserve notice. It is confined to the crown of the head of the adult man. It does not occur in women or children. The body hair remains unaffected. In what way does the hair of the man's scalp receive treatment different from the rest of his body and from that of his sisters? The answer is so obvious that it attracts no attention. For countless years he has applied various substances to it. Our contemporary young man favours mucilage. His father preferred a scented grease, a brilliantine it was called; his great-grandfather a more frank oil, as his granny's antimacassars, protecting the furniture, indicated. The effect of these and others was the same. They smarmed down the hair, kept it in regulation order, but did not allow the individual hairs to breathe, and in due course they gave up the unequal struggle and fell out. Efforts were sometimes made to restore them. So-called stimulating hair lotions were employed. As well whip a dying horse. An irreversible change was in progress. It is all very curious. There is no intrinsic attractiveness in the well-pomaded head. Rather the reverse, in fact. The explanation, I think, lies far back—very far back, and is connected with the imperfectly understood objects and provenance of the custom of anointing the head for religious purposes. We are dealing, I believe, with a survival of a custom which has lost its functional meaning, but because of a deep innate conservatism, which makes us cling to the maintenance of old forms, remains now only for decorative purposes. One could give other examples of the same thing happening. But baldness is much to pay for the *status quo*, and occasionally unruly hair is better than none at all. To preserve it, perhaps all that is necessary is to refuse to be overrun by the minor tyrannies of fashion and to put *nothing* on it. This includes leaving the hair wet with water to keep it smoothly in place and, of course, it must be before the falling-out process has gone too far. Other factors are probably involved, but I believe that much the most important has been considered.

Treatment at Spas

Dr. G. D. KERSLEY (Bath) writes: Since publication of my letter (June 1, p. 848) it has been pointed out to me that, in addition to the three larger spa hospitals I mentioned in my original letter, there is a 30-bedded hospital for similar treatment at Woodhall Spa. I should like to apologize for this omission.

Varicella Herpetiformis

Dr. H. ANGELL LANE (Abbots Langley) writes: In the very interesting article by Drs. P. H. Peterson and S. A. B. Black (May 18, p. 762) it might be useful—as a prophylactic measure—to examine the blood for the presence of Türk cells. These are found (3 to 9%) in a great majority of cases of chicken-pox from the second until the sixth or eighth day of the rash. I have not found them in any of the cases of herpes that had no relation to chicken-pox.

Corrigendum

Mr. STANLEY WAY (Newcastle-upon-Tyne) writes: In a report of a paper on the lower-segment Caesarean section read by me to the North of England Obstetrical and Gynaecological Society (June 15, p. 926) the gross mortality for 500 cases is stated to be 3.4%. This figure is incorrect. There were seven deaths in the series and the gross mortality rate should therefore be 1.4%.

LONDON SATURDAY JUNE 29 1946

TYPHUS: EXPERIENCES IN THE CENTRAL MEDITERRANEAN FORCE

BY

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Colonel, Late R.A.M.C.; Late Senior Hygiene Officer, Allied Armies in Italy

PART I

It is well known that the presence of communicable diseases among the civilian population of an occupied country may seriously affect the health of an army in the field. This is particularly true in modern warfare, in which large-scale destruction of towns takes place, with disruption of water, lighting, and sewage systems, and general disorganization of the municipal services. There is considerable movement of refugee civilians from place to place. Shortages of food, fuel, and soap affecting large bodies of people, under no sanitary supervision, still further increase the risks of outbreaks of disease. The breakdown of civilian medical arrangements—general medical practice, public health services, and hospitals—is another factor of much importance. One of the first results of this is the cessation of notification of cases of infectious disease; small foci of infection are thus undetected and unchecked until they have swollen into epidemic form. The Army hygienists, in particular those whose sphere of control is in the forward areas, have considerable responsibilities with regard to civilian preventive medicine. How important these are, and how vital it is to realize their importance quickly, was well demonstrated during the campaign in the Mediterranean theatre. It was soon brought home to hygiene officers that their energies had often to be directed largely towards civilian hygiene matters, otherwise the health of the troops under their care inevitably suffered.

It is not possible to prevent a good deal of close association between troops and civilians. Large numbers of the latter are employed by the armies in docks, depots, and workshops, and also as cooks and mess-waiters. Very many troops are billeted in houses, some of which are still occupied by adults and children. Regulations prohibiting contact with the local populace can only be partially enforced; this is also the case with regard to the use of eating-houses and the purchase of food and drink. As a consequence of this inability to segregate the military and civil populations, outbreaks of infectious disease often threatened to spread to the Allied armies. The diseases that caused chief concern were smallpox, typhoid, dysentery, diphtheria, venereal disease, and typhus, all of which had an epidemic incidence among civilians. Malaria came into this category when large civilian reservoirs of infection added to the risk to the troops operating in the area.

A great deal of the work of tackling these problems fell on the shoulders of Field Hygiene Section officers and Deputy Assistant Directors of Hygiene, especially in the battle zones. In the rear area, too, these officers did excellent work in full co-operation with the medical branches of the Allied Military Government and the Allied Control Commission. The energetic way in which they set about the task, under the most difficult conditions, often with the scantiest of assistance, has perhaps not been fully appreciated. It was a factor of no small import in the successful conclusion of the campaign.

Typhus was extremely prevalent in North Africa, Italy, and Yugoslavia. The dangers of the disease spreading to the troops, and the occurrence of severe outbreaks among them, were well appreciated. The number of cases that actually occurred was, however, negligible. The factors influencing this escape are discussed in this paper. History is full of examples of how this grimly dramatic disease has devastated armies in the field; the lay officer is thus deeply impressed by its dangers. Fuller

co-operation can generally be looked for from him than is the case with less "spectacular" diseases such as malaria, typhoid, and dysentery. It is a matter for surmise whether, if equal collaboration had been forthcoming in the prevention of those other diseases, a similar degree of success would not have been achieved and an enormous loss of man-power avoided.

NORTH AFRICA

The projected Allied landing in North Africa in November, 1942, was a closely kept secret, which undoubtedly contributed to its initial success. Senior hygiene staff officers were not admitted to the preliminary discussions (although many junior "A" and "Q" officers were), and it was, to them, an unknown venture, both geographically and epidemiologically. This omission was unfortunate and unnecessary. It served to confirm the fact that the role of the Army hygiene organization as an essential factor in the success of a campaign had not yet been properly appreciated. Indeed, it was only the stark reality of heavy casualty rates from preventable sickness that, in the months and years to come, gradually brought the lesson home.

Anti-typhus measures in the British Force consisted in the provision of adequate quantities of anti-louse powder (A.L.63) and the inclusion of portable disinfectors as part of the equipment of regimental medical officers, field hygiene sections, and mobile bath units. The portable apparatus is capable of dealing with nearly 100,000 blankets or 13,000 sets of clothing per division each week. Inoculation with anti-typhus vaccine (Cox's) was confined to medical staff officers. Before embarkation, and particularly during the sea voyage after the destination had been made known, propaganda talks to officers and men were given as often as possible. Some at least of this and previous hygiene education fell on responsive ears, as was shown by the fact that some units had a much lower sick rate than others exposed to the same conditions.

As soon as possible after landing a visit was paid to the Chief Public Health Officer for Algeria. Dr. Grenouilleau was very helpful throughout. He placed at our disposal all available epidemiological data, giving advice on malaria control and other public health problems. Dr. Émile Sergeant and the other officers of the Pasteur Institute, Algiers, were also extremely co-operative. It was only occasionally that the political tension which was such an unfortunate feature of the Algerian venture affected the happy relations between British and French doctors. There were, however, a few instances in which doctors with strong Vichy sympathies failed to co-operate: their attitude of prevarication and indifference was in marked contrast to that of their colleagues.

Incidence of Civilian Typhus

It was at once evident that a large-scale typhus epidemic had swept through Algeria during the previous four years. There were indications that it would increase in intensity during the winter of 1942 and the spring of 1943. The statistics given by Dr. Grenouilleau were as follows:

Number of Typhus Cases, Algeria

Oct., 1939 to Sept., 1940	..	..	Arabs, 2,016; Europeans, 37
" 1940 " " 1941	..	..	" 9,767; " 509
" 1941 " " 1942	..	..	" 35,059; " 2,837

He was of the opinion that this did not represent the true incidence, and the actual numbers were at least six times the

recorded. The estimated numbers during the three previous years were: 1939-40, 11,000; 1940-1, 55,000; 1941-2, 300,000. Graphs showed that each year the number of cases rose rapidly until May/June. A sharp fall did not begin until July/August. The continuance of the epidemic during the hot Algerian summer seemed to be very significant.

The death rate was not easy to compute in the case of Arabs. Among cases in hospital it was 29% in Europeans of all ages and 22% in Arabs. During 1942, 700 Europeans and 40,000 Arabs died of typhus in Algeria. There was also information that typhus was present in Tunisia, but exact details as to the extent of this outbreak were not obtained until much later.

Control measures were not put into operation by the French authorities until late in the year 1941. These consisted of:

- (a) Systematic vaccination, using chiefly living vaccines.
- (b) Restriction of movement.
- (c) Rounding up of destitute and infested people, and delousing them.
- (d) Surveying affected communities and paying attention to the people in prisons and hospitals, the members of the Youth Movement (*Chantier de Jeunesse*), etc.

Of these measures vaccination was considered to be the most important. It is probable that measures *b* and *c* did not operate to any great extent. The Arab population had an extremely high infestation rate. The depredations of the Italian and German Armistice Commissions had resulted in a severe shortage of food; soap and fuel were almost unobtainable. The Arab population was literally in rags, and material for clothing was completely wanting. Disinfestation apparatus was very limited even in the port of Algiers. The cleansing of the infested Arab population must therefore have been a problem incapable of solution with the means at the disposal of the French authorities.

Vaccination against Typhus

This was begun at the end of 1941. The living vaccine of Blanc and Baltazard was used for the Arab population alone. Two million doses were distributed. Blanc vaccine consists of the dried faeces of fleas infected with murine typhus, dissolved at the time of inoculation in a bile-salt solution—1 mg. in 100 ml. It is given in a single dose of 1 ml. Inoculation must be completed in half an hour. After that time the vaccine increases in virulence appreciably. Those vaccinated first do not, therefore, receive the same type of dose as those injected at the end. It was stated that ill effects were rare, but that up to 5 or 6% got murine typhus (as compared with Blanc's figure of 1.5%). All the murine cases recovered. The vaccine was said to be an excellent collective prophylactic but not an ideal individual one. It was not contended that all persons receiving the "virus-vaccin" escaped typhus—many had unmodified attacks—but mass vaccination *did* "break the chain of infection," and it caused "local extinction of the epidemic." A large proportion of the people in a community must be inoculated; 60% of these acquire a "durable and solid immunity." The aged and those with cardiac, renal, or pulmonary disease were excluded. The value of a one-shot method of vaccinating an Arab population is obvious, and from the records shown by Dr. Grenouilleau the results were excellent.

Mass vaccination was always followed by a dramatic fall in typhus cases—particularly so in communities where cases were on the increase. The morbidity rate fell in April, whereas it persisted in control unvaccinated towns until the end of June. In Tebessa, for example, a widespread outbreak was extinguished after 95% of the Arab population had been vaccinated. Similar results were obtained in the native quarter of Algiers (the Kasbah) and many other places where the epidemic was spreading with alarming rapidity.

It was noticeable that during 1943 practically no cases of typhus occurred in towns where vaccination had been carried out during the previous two years. This was of importance to us, for troops stationed there ran no risk.

The killed vaccine of Durand and Giroud was also used, but only to a limited extent. Owing to shortage of materials, such as phials, ampoules, and packing, only 71,000 doses could be distributed between the end of 1941 and the time of the Allied occupation. When the necessary requirements were made available the Pasteur Institute at Algiers was able to produce this

vaccine in very large quantities. A large amount was obtained by us for use in Algeria, and also Italy and Yugoslavia. Prior to November, 1942, doctors and other exposed persons, such as policemen and railway and prison employees, were the only groups given this vaccine. It is of interest to record that the Algerian doctors did not regard this vaccine with enthusiasm; many were frankly sceptical. (This was also the case in Naples at a later date, when Cox's vaccine was made available to members of the Italian medical and nursing professions and the response in both groups was poor.) At that time 29 Algerian doctors contracted typhus. Eleven of these had been vaccinated; they all recovered. Of 18 who were unvaccinated 13 died. There were many cases of typhus among the 71,000 vaccinated, but I was informed that there were no deaths. These vaccines are prepared from mouse or rabbit lungs, and are formal-killed. Three doses are given at weekly intervals—0.5 ml., 1 ml., and 1.5 ml. A febrile reaction follows the first injection in about 40% of cases.

By the end of 1942 two millions out of a population of eight to nine millions had been inoculated, most of them with the living vaccine of Blanc. Since the vaccine gives immunity in only about 60% of cases this meant that 1,200,000 people were immunized. This was a magnificent achievement in view of the enormous difficulties to be overcome under wartime conditions.

Position of the Allied Armies

Mention has already been made of the preparedness of the British Army against a typhus risk. The American Forces were all inoculated, but for the first few months British troops were entirely unprotected. Conditions were favourable for the spreading of typhus to the armies: the weather on the Atlas plateau was cold, bathing and laundry arrangements were difficult, and soap and fuel were not plentiful; the war was mobile, and troops occupied or passed through overcrowded Arab villages; the natives thronged railway stations and staging points; Arabs were recruited for labour companies for employment in docks and railway stations; a good deal of casual labour was also engaged. Billeting in Arab houses, too, proved a great danger. One small unit had 90 cases of heavy louse infestation after a short period of billeting in some of these houses.

The first preventive action taken was the publication of routine orders pointing out the typhus danger and the risks attendant on close contact with Arabs. The regular use of A.L.63 powder, by hand-dusting, was ordered in the case of all troops in affected areas, and those, such as dock and railway workers, military and traffic police, who were exposed to special risks.

Propaganda was intensified. Roadside notices, painted by field hygiene sections, were affixed to the walls of houses in towns, and to telegraph poles along the main highways. Wood and paint were in theory unobtainable, but the signs appeared notwithstanding. The road from Algiers to the Tunisian frontier presented a strange sight: along its 500 miles of tortuous length were to be seen thousands of notices giving warning of the dangers of typhus, malaria, dysentery, and venereal disease. Some were crude and couched in terms that offended the fastidious, others were clever and well executed, but the propaganda value of all was undoubted. These signs played a leading part in the campaign against infection. The wooden signs were regularly torn down by the Arabs for use as firewood. They required constant replacement, and even when corrugated-iron squares superseded them these also disappeared. The Services newspaper, the *Union Jack*, which was started later, was always willing to give us some of its limited space for propaganda. This took the shape of leading articles, daily "health hints," and cartoons. Posters were produced by many formations, and some of the ideas were excellent. Until such time as we had facilities for printing, duplicating machines of the signal services were used. Many hundreds of coloured posters were produced in this way. Films on the louse were shown to base troops, but there were few projectors. The Royal Navy helped us in this. Civilian apparatus was also borrowed, and even the regimental depot of the Zouave regiment was able to lend us a projector. Lectures and talks by hygiene and regimental officers were given whenever possible, and courses of instruction were started

by the hygiene sections. Stress has been laid on the propaganda aspect of prevention because it is believed that this played a conspicuous part in the prevention of typhus and other diseases.

Orders were issued concerning personal cleanliness and bathing; regimental bath discipline was closely watched, and regular medical inspection of all troops insisted upon. A large number of shower-baths and Serbian barrel disinfestors were improvised and distributed by the hygiene sections. Although authority was given for the triplication of portable disinfestors, the supply position never permitted this to be carried out except to a limited extent.

Native Labour Companies

The decision to form these companies imposed heavy additional tasks on the overworked hygiene section staffs. All the recruits were heavily infested, and they were a dangerous potential source of typhus. All were bathed, disinfested, and examined before being drafted away. There were many practical and administrative difficulties, and the keenest supervision was necessary. For instance, the Arab is loath to part with his turban. But since the head louse was a possible source of danger, he could not be allowed to retain it unless it had passed through the disinfestor. These and many other problems were overcome. In view of the typhus danger, it was decided to inoculate all the recruits. The only vaccine procurable in any quantity was the living vaccine of Blanc and Baltazard. This was used in many thousands of doses with no serious sequelae; a number of febrile reactions occurred but no definite cases of typhus. There was regular medical inspection of these labourers, and A.L.63 powder was used by them periodically. Casual Arab labour was also a problem. These men lived in their own homes, and it was impossible to keep them free from infestation. Cases of typhus occurred in many of these workers. In one town occupied by a large number of troops the French authorities would not admit these cases to the local hospital. Since it was essential to isolate them, the A.D.M.S. took over a building in the town, which was staffed with the help of French Red Cross nurses. The cases were admitted there under the care of an Arab doctor. This doctor worked with a will throughout, and gave us all the assistance in his power. In this town the French health officer was not co-operative; attempts to get him replaced were unavailing.

French and Arab physicians suggested many different methods of treatment. The French favoured the administration of massive doses of NaCl. This was found to be ineffective when tried on British cases. The turpentine blister was strongly advocated by the Arabs, and remarkable successes were attributed to its use. I was assured by an Arab physician that out of 71 cases so treated 62 developed a fixation abscess and recovered. Nine did not develop abscesses, and five of these died. The four who recovered were stated to have produced abscesses "spontaneously as a complication." British Army cases were not given this treatment.

Lethane belts were available in fairly large quantity, but they were never found to be practicable for use, even by natives, in the hot weather; they were therefore seldom employed in Algeria or Italy.

Typhus in the British Forces

There were about 40 cases of typhus in 1943, but at least six of these were not louse-borne (see Table). Many of the

Table showing Typhus Cases in the British Forces

		Sicily	N Africa	Italy	Total	Deaths
1943	Louse-borne ..	—	36	3	39	
	Other forms ..	—	6	5	11	
	Total ..	—	42	8	50	8
1944	Louse-borne ..	1	0	2	3	
	Other forms ..	1	4	7	12	
	Total ..	2	4	9	15	3

cases were brought into association with Arabs in the course of their work, but in others all contact with natives was denied.

Only two were found to be lousy or showed evidence of louse bites on admission to hospital. Bath discipline was good in all the units concerned, but A.L.63 was often being used haphazardly or not at all. Two officers were affected. Both had lived in premises occupied by Arabs a short time before. Prompt civilian notification records were not being received in some districts; the M.O.H. of an area from which many of our cases came professed little knowledge of a severe Arab outbreak near the town concerned.

One of the British cases was fully inoculated; three had received one injection, 60, 26, and 22 days before the onset respectively. All of these recovered. Records of 25 cases occurring between January and April, all louse-borne, show the death rate to have been 32%. The cases were severe in type and clinically suggestive of classical typhus. Rashes were typical and constant. The Weil-Felix reaction was consistently useful in diagnosis, but agglutination was not usually appreciable until the end of the first week. Between the 7th and 21st days the titre rose from 1:250 to 1:10,000. On an average our cases were diagnosed on the 10th day of illness. Deafness was a noticeable symptom in most of them.

A case of murine typhus occurred in a member of the R.A.F. He was stationed in an isolated post. The local French doctor prevailed upon him to have an injection of the living vaccine of Blanc. He became ill on the 12th day, but not seriously. The illness was suggestive of mild enteric, but agglutination tests were negative. His rash was scanty, and not typical of typhus. Profuse sweating was a marked feature. His case was diagnosed as murine typhus in retrospect, as a result of Weil-Felix agglutination. Later in the year, and the following year in Italy, there were a few cases of *fièvre boutonneuse*, most of which were probably infected in Sicily or Southern Italy. About 20 cases occurred among American troops, none of which is said to have been fatal. It is significant that all the Americans were inoculated with Cox's vaccine.

Many Algerian doctors subscribed to the belief that air-borne transmission by way of the mouth or conjunctivae was a not uncommon source of infection. In my experience there was little evidence to support this theory, though conditions were very favourable for the spread of a disease which is capable of transmission by this means. The streets of towns and villages occupied by troops were generally dense with Arabs, whose robes were billowed out by the breezes of the windy Atlas plateau. The Arab delouses himself by hand-picking the lice and dropping them alive to the ground. In the case of children the disease may be symptomless, and many ambulatory cases occur; these nevertheless infect the louse. The air of the dusty Algerian highways must have been well charged with dried louse faeces! Had transmission in this way been even remotely possible the uninoculated British Forces must have suffered heavily.

TUNISIA

Details as to the prevalence of typhus in Tunisia were not at first obtainable, but it was understood that the Algerian outbreak had also affected Tunisia. It soon became evident that this was a fact. When official returns from "Free Tunisia" were furnished they showed 200 reported cases during the last week in February, about 500 in March, and 300 in the first ten days of April. These figures represented only a part of the actual total. A few First Army troops were infected in Tunisia. Vaccination and disinfestation of the Arabs were begun. This was a difficult and dangerous undertaking in the forward areas, frequently interrupted by Axis dive-bombers and often concluded in slit-trenches. Field hygiene sections and civilian doctors both played a leading part in this work.

After the fall of Tunis it was learned that many cases had occurred in the Axis Armies; the Germans, it was said, suffered to a greater degree than the Italians, which is surprising. Anti-typhus inoculation (? Cox type) was started in the German Army, but no Italian units were inoculated. At least six prisoners of war developed typhus after capture. There was a grave danger of this, owing to the high infestation rate in the German and Italian prisoners: 40% of German and nearly 80% of Italian prisoners were lousy. Bathing and delousing schemes were put into operation at once, but the disorganization following such a massive capitulation, and the shortage of

water, fuel, and equipment, made it a herculean task. It was a blessing that the typhus season was well advanced by this time. The weather was hot, and the prisoners wore the minimum of clothing. As organized prisoner-of-war cages were established, and satisfactory arrangements were made, the danger passed.

Relapsing Fever

The presence of this disease in North Africa has a bearing on this discussion. Relapsing fever is endemic in Algeria, and during 1943 twelve British troops were affected. The disease increased to epidemic form at the end of 1944 and early in 1945. It spread quickly from Algeria to Tunisia, where 1,746 cases occurred during the last two weeks of February. In January, 1945, there were 6,000, and in February 7,400 cases, including 80 weekly in a civil prison. It was reported that the epidemic was assuming enormous proportions in the Saharan towns and those of the Tel plateau. This disease is spread in epidemic form by lice; it is thus evident that the native infestation rate was still very great. One would therefore have expected the incidence of typhus to remain at a high level. The fact that a large number of the Arabs had already had typhus is not sufficient to account for the dramatic fall in morbidity in 1943, 1944, and 1945 in a heavily infested and economically depressed people. Vaccination was therefore effective despite the fact that infestation remained.

Reasons for the Low Incidence of Typhus among Allied Troops

Of first importance was the fall in the number of Arab cases in 1943, when the anticipated increase did not occur. This was probably the result of the mass vaccination scheme of the previous two years. Vaccination was continued in 1943, when notices appeared in the towns and in the Press stating that it was compulsory. All persons between 10 and 70 years were required to present themselves for inoculation; fines ranging from 100 to 1,000 francs were payable in default.

The fear of typhus, stimulated by intensive propaganda, made a great impression on the troops, and was a potent reason for our escape. The military police, despite their numerous other commitments, gave great help in enforcing orders and in ensuring that "out of bounds" notices were not ignored. Bath discipline was good. A.L.63 powder, although often used carelessly and irregularly, was extremely effective. The wide dispersion of units and the careful selection of camps probably helped also. Inoculation was not a factor of any importance, for until the late spring and summer the number protected was negligible.

(Part II will appear in next week's issue.)

DUODENAL ULCERATION: A GASTROSCOPIC STUDY OF THE GASTRIC MUCOSA AND ITS SURGICAL SIGNIFICANCE

BY

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The problems associated with the surgical treatment of duodenal ulceration and of some of the complications which follow in its wake in a very large proportion of cases have for many years occupied the mind of the profession, yet it seems that little universal progress has been made in the past quarter of a century in the treatment of a disease which still produces much physical and mental suffering in the individual and much economic loss to the community at large. With these problems in mind, I have made an intensive gastroscopic study of the mucosa of the stomach in the presence of duodenal ulceration, as well as a study of the mucosa in cases following operations for this malady, with a view to eliciting the relationship of the anatomy and physiology of the morbid mucosa and its transmutation as a result of surgical treatment, and its bearing upon the subsequent condition of the patient.

A close study of the aetiological factors said to be associated with duodenal ulceration reveals that a definite relationship

exists between this pathology and a deranged physiology of the stomach and, indeed, that of the greater part of the alimentary tract. It would therefore be as well to give consideration to the individual who presents himself with established ulceration or, on the other hand, merely with symptoms suggesting the outlines of the image, which, as time goes on, gradually evolves itself into the completed picture of a subject with duodenal ulceration. He is an extremely sensitive and hyper-irritable type, in a constant state of nervous tension and emotional instability; vasomotor disturbances are present and, above all, he is stomach-conscious. These nervous influences play a very important part by virtue of the fact that they are referred to his alimentary tract and can be readily demonstrated by the radiologist during an x-ray examination after a barium meal. They further manifest themselves in certain spastic phenomena, of which spasm of the pylorus and duodenum and of the descending colon are typical examples. So very often little importance is attached to these phenomena at the time of the examination or, indeed, to any subsequent report of these radiological findings or their possible interpretation. When spasm occurs in a vascular structure a temporary impairment of the blood supply to the part concerned results, with local loss of viability. These changes commonly occur in the duodenum, and the local loss of viability produces a condition in which the mucosa becomes vulnerable to injury by contact with irritant or insufficiently digested food; if in addition local necrosis occurs it is not difficult to visualize the possibility of ulceration in the presence of a high acid-pepsin content of the gastric juice. The duodenum houses a mechanism which is stimulated by the presence of food into liberating the hormone enterogastrone, which itself controls gastric secretion and peristalsis. When spasm and local loss of viability occur this mechanism fails, and the normal gastric function is now replaced by hypermotility and rapid emptying of insufficiently digested food, which may damage the vulnerable duodenal mucosa; such injury is aggravated by the high acid secretion which is a constant factor in the type of individual described.

The surgeon is frequently called upon to deal with a perforation of or haemorrhage from a peptic ulcer, but a precise history of gastric symptoms is very often lacking in these examples of "silent ulcer"; later inquiry into the health and habits of these patients reveals that the various nervous phenomena did however exist, and even at an early age a test-meal examination would show a marked increase in the amount and acid content of the gastric juice.

Normal Gastric Mucosa

As seen through the gastroscope the gastric mucosa consists of a thick transparent smooth orange-red lining thrown into many folds throughout the greater part of the stomach. These folds are tortuous in some areas and resemble the convolutions of the cerebral cortex. The folds can be straightened out or made to disappear altogether when the stomach is distended with air, and this is an important point in differentiating the normal from the hyperplastic type of mucosa, in which the folds in

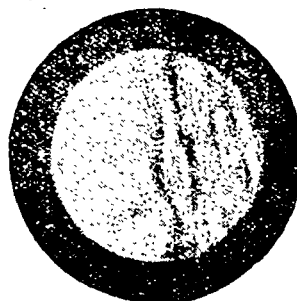


FIG. 1.—Normal mucosa on anterior wall (left of picture) and greater curvature.



FIG. 2.—Normal mucosa on posterior wall and greater curvature with little inflation.

certain areas remain tortuous even with full inflation. The smoothest part of the mucosa is found along the lesser curvature of the stomach, but occasionally one or two very thin parallel folds may be seen here. Both the greater curvature and the posterior wall of the stomach present a network of many folds, parallel and slightly tortuous in the former situation, but much

more tortuous and thicker on the posterior wall (Figs. 1 and 2). A few thin parallel folds are present in the pyloric antrum, but these readily disappear with very little inflation and are not often observed. The surface of the mucosa is very smooth and glistening in all areas of the stomach; many high lights are sprinkled over the gastroscopic picture, and these are due to the diffused glow of the lamp over the moist surface. When secretion is excessive the number of high lights is correspondingly increased; if gastritis is present and some of the ducts become blocked, secretion into the cavity of the stomach is diminished and the number of high lights seen is very small, or they may be absent altogether.

Gastric Mucosa in the Presence of Duodenal Ulcer

In a series of 50 gastroscopic examinations of cases of duodenal ulceration I found that in 76% the mucosa was of the hyperplastic type; the mucosa of the remainder varied a little in the development of the folds, but was considered to be within normal limits. This hyperplasia manifests itself in the formation of very many crowded, thickened, and extremely tortuous folds which cannot be straightened out even after full inflation of the stomach, and which certainly cannot be made to disappear. These crowded folds are most marked upon the posterior wall of the stomach; they develop along the greater curvature and may replace the straight folds normally present on the anterior wall. There is thus found a more or less generalized hyperplasia or hypertrophy of the gastric mucosa, with an increased complement of glandular elements which is capable of producing an excessive secretion of a hyper-acid juice.

Gastric Mucosa in Non-obstructive Cases

In addition to generalized hyperplasia gastritis may be present, and this manifests itself by areas of oedematous folds and scattered patches of viscid adherent greyish-yellow secretion, which occupies chiefly the valleys between these folds; high lights are markedly diminished over these areas of superficial gastritis, and the mucosa is vulnerable and may readily bleed during the examination. Gastritis is not necessarily an accompaniment of duodenal ulceration, but, when present, disappears with adequate medical treatment although the ulcer itself may still remain. When an ulcer has healed under a medical regime the hyperplastic nature of the mucosa does not change. Sometimes a gastric ulcer may also be present in addition to the duodenal ulcer, and I have observed three such cases in the series. The incidence of this phenomenon varies, and has no relation to the mucosa of the stomach; Carey and Ylvisaker (1942) have reported as many as 9 out of a series of 70 cases of duodenal ulceration in which gastric ulcer was also present.

Mucosa in Obstructive Cases

It is not sufficiently appreciated that obstructive symptoms following upon ulceration may be entirely due to local oedema and spasm of the pylorus. First, this is borne out by the fact that cases in which the radiologist reports a delayed emptying of the stomach will improve with adequate medical treatment and a little patience if the cause is essentially one of oedema and spasm, and it is always worth while repeating the x-ray examination two or three times after intervals of three weeks. Secondly, a large number of these cases are operated upon following the report of obstruction, and a gastro-enterostomy performed. When these patients are subsequently seen because of a recurrence of symptoms, and a fresh x-ray examination is carried out, it may surprise the surgeon when the radiologist reports that "a large portion of the meal passes through the pylorus." Obviously, then, these were cases where the obstruction was non-fibrous and purely transient.

The condition of the mucosa in these obstructive cases varies considerably; viscid adherent secretion and a dulling of or granular change in the surface of the mucosa constantly take place over large areas, but these mucosal phenomena disappear when the obstruction is relieved. If, however, obstruction has periodically occurred, or if the obstruction is of the fibrous variety and progressive, the changes seen in the mucosa are very much more marked: not only is there an increase of the pathological secretion but the folds are very oedematous and eventually become broken up into raised nodular segments which resemble pavement or cobble stones closely packed together.

These changes occur in the valleys between the folds as well as on the folds themselves. This condition is sometimes known by the name of "chronic hypertrophic gastritis," and must not be confused with simple hyperplasia of the mucosa. Occasionally the pyloric antrum becomes the seat of these changes, but only after the onset of true fibrous obstruction.

Fifty Cases of Duodenal Ulcer

Hyperplastic mucosa	38 cases	76%
Hyperplasia with no other changes	14 cases	38%
and superficial gastritis	15	30%
" " nodular gastritis	7	18%
" " antral gastritis	2	5%
Normal mucosa	12 cases	24%
Superficial gastritis	3 cases	25%

Post-operative Recurrence of Symptoms

It is not my intention to enumerate the many causes of recurrence of symptoms after operation for duodenal ulceration. Patients often present themselves with symptoms similar to those for which they were operated upon. These symptoms may be due to inflammatory changes which were present in the gastric mucosa before operation, and which persist after operation. It may be well worth while to gastroscopically examine the patient before any operation is contemplated, in order to visualize the gastric mucosa and its condition. With the failure of the short-circuit operation in many instances—for this had become a disease in itself rather than an intended cure—more radical measures were resorted to. Although advocates of gastro-duodenectomy and partial gastrectomy have shown individually results which should be very convincing, yet it is a fact that these formidable procedures still have a high mortality in some hands, and even a great degree of morbidity in others. Stomal ulceration may occur after partial gastrectomy (Fig. 3), and I have observed such cases; doubtless more

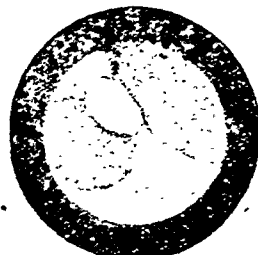


Fig. 3.—Stomal ulcer 18 months after partial gastrectomy.

cases will be recorded as gastroscopic examinations are increased. Inflammatory changes in the mucosa of the gastric stump must also be included in this category, so that this operation is not altogether a solution for a very important problem in surgery. In addition, the creation of a very grossly distorted anatomy and a grossly deranged physiological function of the stomach does not seem rational in the quest for a cure of a condition the aetiology of which is still unknown. The initial success of partial gastrectomy may be hailed by both patient and surgeon, but the morbidity is not quite appreciated because with a recurrence of symptoms a large number of these patients change their hospital. Even at the best the patient fails to regain weight or to admit of being comfortable; he remains stomach-conscious.

To ensure success of any medical regime in the treatment of duodenal ulceration it is essential that the amount of gastric juice and the degree of acidity be considerably reduced; whichever method achieves its object in healing the ulcer, the lowered acid content of the gastric juice is but a passing phase. When surgical measures are indicated it is desirable not only to obtain a physiological reduction in the activity of the stomach but to ensure that this reduction is permanent or at least prolonged, because very real risks of complications ensue on any surgical procedure if the original high acidity remains. The high-acid-secreting hyperplastic type of mucosa is very liable to stomal ulceration after the operation of gastro-enterostomy, and indeed after any surgical procedure if the high acidity is allowed to remain. Of those cases of stomal ulcer observed by me in the course of gastroscopic examinations, 65% occurred in the

presence of hyperplasia of the gastric mucosa. This operation alone should clearly be avoided when the mucosa of the stomach is of this type. Bearing this all-important problem in mind, it may be more rational to adopt a simpler and apparently surer method of attaining what the more formidable methods have failed to do, and in this respect we have seen some excellent results which have been obtained by Somervell (1942), who advocates ligation of a large proportion of the arteries which supply the stomach. The hypersecretion and acidity are immediately reduced, and remain so for a very long time.

In order to evaluate the results of ligation, I have observed the changes in the mucosa of the stomach in which I myself carried out this operation. It was seen that the mucosa in simple hyperplasia had undergone a marked transmutation from the hyperplastic state to one which could be considered as being well within normal limits. These cases were gastroscopied before (Fig. 4) and six months after (Fig. 5) gastric arterial ligation



FIG. 4.—Case of duodenal ulceration: hyperplastic mucosa with crowded folds.



FIG. 5.—Same case as in Fig. 4 six months after arterial ligation. Note regression of folds.

had been performed; the folds were now far less crowded and tortuous, and inflation straightened many of them. In the presence of fibrous obstruction, posterior gastro-enterostomy was performed in addition to ligation, but where nodular changes in the mucosa had occurred these remained unchanged after an interval of six months. It is possible that earlier treatment would have prevented these nodular changes from developing.

Although these conclusions have been drawn from a limited number of cases, it is possible to correlate the reduction of gastric acidity with the changes in the nature of the mucosa following upon ligation. This regression must be part of an inherent power peculiar to the mucosa, in which reverse changes—namely, regeneration under certain conditions—may also take

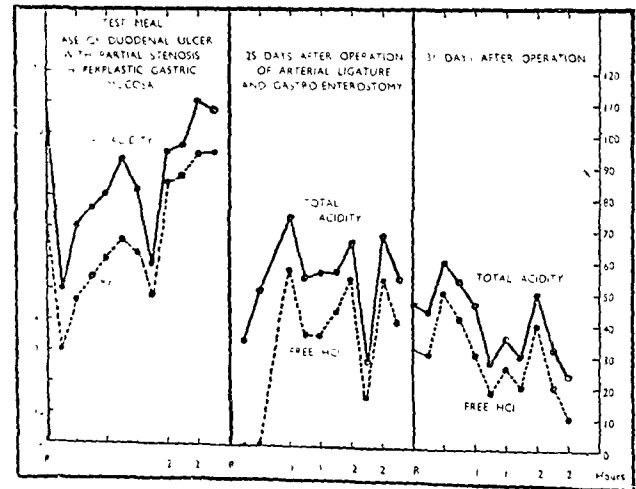


Chart of a case of duodenal ulcer.

place: the thinned atrophic mucosa associated with pernicious anaemia will regenerate and regain its thickness with suitable liver therapy, and the reappearance of folds will produce a picture which is difficult to distinguish from the normal.

It is thus reasonable to conclude that there is sufficient justification to look upon these more conservative surgical measures in the treatment of duodenal ulceration as heralding a tremen-

dous field of opportunity for further work in this direction. The clinical and physiological results, as well as the gastroscopic findings following upon arterial ligation alone, or in conjunction with gastro-enterostomy (see accompanying Chart of a case) if fibrous obstruction is present, are such that even the most sceptical would agree on the value of, and the desirability for pursuing, measures less drastic than partial gastrectomy if these measures attain their object in reducing the high acid content of the gastric secretion without a gross distortion of the anatomy and physiology of the stomach.

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THEORY AND NOMENCLATURE OF THE Rh TYPES, SUBTYPES, AND GENOTYPES

BY

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The Rh blood types have been the subject of many communications to the *Journal*. The purpose of this article is to correct several statements which have appeared in some of these reports, in order to prevent widespread confusion in an already highly complicated subject.

In a recent letter to *Nature* Fisher and Race state: "The notation has been frequently changed, and we feel that only a notation which designates unambiguously the antibodies, the genes or gene-complexes, and the antigens with which these antibodies react, can avoid widespread confusion." With the latter part of this statement I agree wholeheartedly, but would add that the notations should be made as simple as possible to favour their fluent use, both orally and in print, by medical men and geneticists, in order to further the work in the field. This has been my aim ever since my first work^{1,2} on the Rh types was done in 1940-2, at which time only the anti-Rh₀ and anti-Rh' agglutinins were available. Changes were made only when advances in knowledge, such as the discovery of the agglutinin anti-Rh" and the Hr agglutinins, made slight revisions and additions to the nomenclature necessary. As explained by me⁴ in a historical article presented before the New York Academy of Sciences, and also by Taylor and Race,⁵ these new findings did not change our previous results but merely added to them, and in revising the nomenclature as many of the old names as possible were always retained. The new findings required the creation of some new names, but at all times the principle of keeping the designations as simple as possible and unambiguous guided my actions. Some confusion has been created by the attempt of other workers⁶ to introduce numbered nomenclatures which fail to take into account the established genetic and serologic knowledge of the subject. Considering only the four agglutinins—anti-Rh', anti-Rh", anti-Rh₀, and anti-Hr—4×3×2×1 or 24 such possible numberings can be devised, so if the use of numbers were encouraged a far worse confusion would result than the Moss-Jansky jumble. Luckily, such numbered systems have found favour only in the laboratories of their originators, and so have caused little or no harm to date.

The letter by Fisher and Race continues: "Six of the gene designations here adopted are due to Wiener, but for the antibodies his notation seems arbitrary. While Cappell's names, such as anti-C, anti-D, anti-E, and anti-c, are unambiguous, Wiener's do not seem satisfactory, since, for example, the 85% reacting serum is called anti-Rh₀ whereas besides Rh₀ it reacts with the genes Rh₁, Rh₂, and Rh₃." As can be seen from Table I.

TABLE I.—Scheme of the Eight Rh Blood Types

Clinically Rh-negative Individuals (15%)				Clinically Rh-positive Individuals (85%)			
Designations of Types	Reactions with Antisera			Designations of Types	Reactions with Antisera		
	Rh'	Rh"	Rh ₀		Rh'	Rh"	Rh ₀
rh	Neg.	Neg.	Neg.	rh ₀	Neg.	Neg.	Pos.
Rh'	Pos.	Neg.	Neg.	Rh ₁ (Rh ₀)	Pos.	Neg.	Pos.
Rh"	Neg.	Pos.	Neg.	Rh ₂ (Rh ₀)	Neg.	Pos.	Pos.
Rh'Rh"	Pos.	Pos.	Neg.	Rh ₁ Rh ₂	Pos.	Pos.	Pos.

TABLE II.—Classification of Rh Blood Types and Subtypes

Rh Blood Types	Reactions with Sera			Genotypes	Reactions with Sera		Rh Subtypes	Approximate Distribution (% among Caucasians in New York City)
	Anti-Rh'	Anti-Rh''	Anti-Rh ₀		Anti-Hr*	Anti-Hr*		
rh	Neg.	Neg.	Neg.	$r'r'$	Pos.	Pos.		13.0
Rh'	Pos.	Neg.	Neg.	$R'R'$	Neg.	Pos.	Rh'Rh'	0.01
				$R'r'$	Pos.	Pos.	Rh'r''	1.00
Rh''	Neg.	Pos.	Neg.	$R''R''$	Pos.	Neg.	Rh'Rh''	0.005
Rh'Rh''	Pos.	Pos.	Neg.	$R'r''$	Pos.	Pos.	Rh'r''	0.5
rh ₀	Neg.	Neg.	Pos.	$R'R''$	Pos.	Pos.		0.01
				$r''r''$	Pos.	Pos.		2.0
				$r'r''$				
				$R'R''$				
Rh ₁ (Rh ₁ ') Rh ₂ (Rh ₂ ') Rh ₃ (Rh ₃ ') Rh ₄ (Rh ₄ ') Rh ₅ (Rh ₅ ') Rh ₆ (Rh ₆ ') Rh ₇ (Rh ₇ ') Rh ₈ (Rh ₈ ') Rh ₉ (Rh ₉ ') Rh ₁₀ (Rh ₁₀ ') Rh ₁₁ (Rh ₁₁ ') Rh ₁₂ (Rh ₁₂ ') Rh ₁₃ (Rh ₁₃ ') Rh ₁₄ (Rh ₁₄ ') Rh ₁₅ (Rh ₁₅ ') Rh ₁₆ (Rh ₁₆ ') Rh ₁₇ (Rh ₁₇ ') Rh ₁₈ (Rh ₁₈ ') Rh ₁₉ (Rh ₁₉ ') Rh ₂₀ (Rh ₂₀ ') Rh ₂₁ (Rh ₂₁ ') Rh ₂₂ (Rh ₂₂ ') Rh ₂₃ (Rh ₂₃ ') Rh ₂₄ (Rh ₂₄ ') Rh ₂₅ (Rh ₂₅ ') Rh ₂₆ (Rh ₂₆ ') Rh ₂₇ (Rh ₂₇ ') Rh ₂₈ (Rh ₂₈ ') Rh ₂₉ (Rh ₂₉ ') Rh ₃₀ (Rh ₃₀ ') Rh ₃₁ (Rh ₃₁ ') Rh ₃₂ (Rh ₃₂ ') Rh ₃₃ (Rh ₃₃ ') Rh ₃₄ (Rh ₃₄ ') Rh ₃₅ (Rh ₃₅ ') Rh ₃₆ (Rh ₃₆ ') Rh ₃₇ (Rh ₃₇ ') Rh ₃₈ (Rh ₃₈ ') Rh ₃₉ (Rh ₃₉ ') Rh ₄₀ (Rh ₄₀ ') Rh ₄₁ (Rh ₄₁ ') Rh ₄₂ (Rh ₄₂ ') Rh ₄₃ (Rh ₄₃ ') Rh ₄₄ (Rh ₄₄ ') Rh ₄₅ (Rh ₄₅ ') Rh ₄₆ (Rh ₄₆ ') Rh ₄₇ (Rh ₄₇ ') Rh ₄₈ (Rh ₄₈ ') Rh ₄₉ (Rh ₄₉ ') Rh ₅₀ (Rh ₅₀ ') Rh ₅₁ (Rh ₅₁ ') Rh ₅₂ (Rh ₅₂ ') Rh ₅₃ (Rh ₅₃ ') Rh ₅₄ (Rh ₅₄ ') Rh ₅₅ (Rh ₅₅ ') Rh ₅₆ (Rh ₅₆ ') Rh ₅₇ (Rh ₅₇ ') Rh ₅₈ (Rh ₅₈ ') Rh ₅₉ (Rh ₅₉ ') Rh ₆₀ (Rh ₆₀ ') Rh ₆₁ (Rh ₆₁ ') Rh ₆₂ (Rh ₆₂ ') Rh ₆₃ (Rh ₆₃ ') Rh ₆₄ (Rh 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also states that the relative frequency of gene R'' to gene R_1 as compared with R' to R_1 indicates that his mythical gene locus c lies between d and e . However, these statements are based entirely on the findings in England and disregard the findings in other countries. In America, for example, the relative frequency of R' to R'' is reversed, while in negroes the frequency of r^0 (42.1%) is quite different from the sum of R' (2.7%) and R'' (none found).¹⁷ As a result Fisher's theory leads to a contradiction. In my opinion a much more plausible explanation is that the genes r^0 , R' , and R'' arose by mutation. Thus the high frequency of gene r^0 and of the intermediate R genes, as well as the intermediate gene A_1 ,² suggests that the peculiar distribution among negroes is due to a higher mutation rate in this race.

The argument that the discovery of the so-called c^w factor¹⁸ supports Fisher's theory does not seem correct, because this factor appears to have the characteristic predicted by me^{12} for factor Rh'' .

In this connexion I should like to point to a recent attempt¹⁹ to develop an elaborate theory of inheritance of the four blood groups by means of four gene couplets. On the basis of this theory, Myslivec derives formulae for the gene frequencies involving the square root of the difference 0-2 AB. Since populations exist in this world where the frequency of group O is less than twice the frequency of group AB, the theory leads to an obvious contradiction.

In conclusion I should like to take this opportunity to answer the rather academic attack²⁰ on my use²¹ of the term "conglutination" in connexion with the Rh antibody reactions. Recent findings²² have all sought to justify my use of this term. The term "co-agglutination," used by other workers, applies to a phenomenon obviously identical with mixed agglutination, and one would expect this to occur in conglutination where the second stage is non-specific.²³ In agglutination, involving bivalent antibodies, where the second stage is specific, co-ideas and findings concerning univalent (blocking antibodies or agglutinins) and bivalent antibodies (agglutinins) have led me to the theory²⁴ that erythroblastosis foetalis actually comprises three separate entities instead of a single disease. According to my proposed nomenclature, these three entities are as follows: (1) Congenital haemolytic disease (with anaemia and hydrops), usually due to univalent Rh antibodies; (2) icterus gravis with kernicterus, usually due to bivalent Rh antibodies; and (3) icterus praecox (formerly confused with "physiologic" icterus, usually due to A-B sensitization. Further details will be given in papers now in the press and in preparation.

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From a world starved of all types of scientific and surgical equipment by six years of war, inquiries and orders are pouring into Britain for products in this field. To cope with this new demand, a group of leading manufacturers announce the formation of a new company, "SCIEX" (Scientific Exports (Great Britain) Ltd.), with offices at Buckingham House, Buckingham Street, London, W.C.2. Their plans include group selling in overseas markets by a wide development of the existing agency organization of individual members. New agents are also being appointed in territories where member companies had no previous export business.

THE Rh FACTOR AND HEPATOMEGALY AND SPLENOMEGALY IN CHILDREN AND ADOLESCENTS

BY

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Infants affected with congenital haemolytic disease may sustain damage to liver or spleen, or both, as manifested by jaundice and hepatomegaly, or splenomegaly, during early infancy. It seemed, therefore, of interest to apply Rh factor investigations in families in which there were children or adolescents suffering from enlargement of liver or spleen, on the ground that the aforementioned damage might become manifest in childhood by enlargement of these organs. Accordingly, three families were investigated and data concerning them are given below. The affected children were referred for diagnosis to the paediatric department of the Cardiff Royal Infirmary. Rh factor investigations were carried out in the laboratory of the Welsh Regional Transfusion Service. In two of the three families rhesus-immunization of the mothers was proved, but in the third family this was definitely excluded. The method of proof was the biological test, as the usual *in vitro* tests failed to reveal Rh iso-antibodies in the sera of the mothers. These cases are of much interest, since the affected children had enlargement of the liver or spleen, and such diagnoses as von Gierke's disease (glycogen disease), Gaucher's splenomegaly, Banti's disease, familial cirrhosis of the liver, etc., had been considered from time to time. Before giving an account of the families and investigations, the biological test may here be reviewed.

Oehlecker (1921, 1924) originally devised the biological test to determine whether blood was compatible for transfusion. The test was the rapid intravenous injection of 20 ml. of the proposed donor's blood, and a further similar quantity if after an interval of several minutes there were no symptoms. If the second injection caused no symptoms the donor's blood was regarded as compatible and its transfusion proceeded with. The donor's blood was considered incompatible if symptoms such as tingling, chill, nausea, etc., were caused by the small trial injection. This test, however, is not entirely reliable, because transfusion of incompatible blood may cause no symptoms (Drummond, 1944). Oehlecker's test, which in effect is simply a trial transfusion of blood, was subsequently adapted by Wiener, Wexler, and Gamrin (1944) for determining whether a particular individual had been previously sensitized to the Rh factor. It was known that *in vitro* tests might fail to demonstrate Rh agglutinins or blocking antibody in the sera of a small percentage of Rh-negative mothers who had had erythroblastotic infants, and in such cases the biological test was successfully used to demonstrate previous rhesus-immunization of the mother.

The biological test (see Wiener, Silverman, and Aronson, 1942) is carried out as follows: The mother to be investigated for previous immunization to the Rh factor is transfused with 50 ml. of fresh blood from a known Rh-positive donor. The ideal donor is the husband. The red cells of the donor must be compatible in the A-B-O system with the recipient's serum. Immediately before transfusion a 10-ml. sample of venous blood is taken from the mother with a clean, dry sterile syringe and divided between two tubes, one dry and the other containing 1 ml. of sodium citrate solution. One hour after the transfusion a further 10 ml. of the recipient's venous blood is taken and treated in the same way as the first sample. The serum and plasma of the pre- and post-transfusion samples of the recipient's blood are then compared. If the donor's blood is compatible the pre- and post-transfusion samples of the recipient's serum and plasma will be of the same colour—usually a pale straw colour. Hyperbilirubinaemia in the post-transfusion serum sample, along with its absence from the pre-transfusion serum sample, indicates that the donor's red cells are incompatible and have undergone rapid destruction in the recipient. When the biological test is positive the transfusion is usually, but not always, complicated by a febrile reaction with chill, rigor, etc. A cross-matching test by a reliable tube technique before transfusion should,

of course, have shown the donor's red cells to be compatible with the recipient's serum; it is a positive biological test which demonstrates the incompatibility. It has been pointed out by Mollison (1943) that even though an Rh-negative woman has, many years previously, been immunized to the Rh factor by bearing an Rh-positive foetus, and the Rh antibodies have long since disappeared from her serum, yet transfusion of Rh-positive blood will rapidly erode the Rh agglutinins, with consequent haemolysis of the donor's blood.

Case Report: First Family

Mrs. M., aged 47, had never had a blood transfusion and has had the following pregnancies:—First: 1923, male (Ll.); no history of jaundice—further data below. Second: 1925, female (Els.); normal. Third: 1927, male (Rbt.); no history of jaundice—further data below. Fourth: 1930, male (On.); normal. Fifth: 1933, female (Jy.); slight jaundice soon after birth, which persisted three days. Sixth: 1936, male (Gd.); died intensely jaundiced, aged 3 days. Seventh: 1939, male (Gl.); apparently normal. Eighth: 1940, female (Jan.); moderately jaundiced for a few days after birth; now apparently normal.

The first child (Ll.) weighed 9 lb. (4.08 kg.) at birth. When 3 years old he underwent inguinal herniotomy. His abdomen has always been large, and he did not walk until 3 years old. He was stated to be a trifle slow mentally, though he attended an ordinary school. He occasionally had loose pale stools. The third child (Rbt.) weighed 8½ lb. (3.85 kg.) at birth and had a similar history, including operation for hernia. Neither of these boys was ever jaundiced.

Both boys were referred for diagnosis in December, 1936, because of much-enlarged bellies since birth. The first (Ll.) was at this time 13 years old and was slightly stunted in growth: height 4 ft. 3½ in. (131 cm.) (normal for age, 4 ft. 10 in. or 147 cm.); weight, 5 st. 5 lb. (34 kg.) (normal for age, 6 st. or 38 kg.). When standing his abdomen was protuberant and there was slight genu valgum (Fig. 1). Some telangiectases were present on the limbs and face.



FIG. 1.—First family. Left to right: First child (Ll.) and third child (Rbt.), with liver areas mapped out. The boy standing on the right is the fourth child (On.), who was apparently normal.

The liver was grossly enlarged, its lower border being down to the level of the umbilicus, and smooth and firm on palpation. Spleen not palpable. Mentally he seemed normal, but the I.Q. was not estimated. The condition of the third child (Rbt.), then aged 9 years, was similar to that of Ll. but his liver was much larger, for its lower border was felt well below the umbilicus. The spleen was just palpable, and there was a well-marked genu valgum (Fig. 1). There was some degree of infantilism, his height being 3 ft. 7½ in. (111 cm.) (normal for age, 4 ft. 2 in. or 127 cm.) and weight 3 st. 10 lb. (23.6 kg.) (normal for age, 4 st. 2 lb. or 26.3 kg.). The parents were healthy, and the second, fourth, and fifth children (then aged respectively 11, 7, and 3 years) were normal, while the remaining sixth child had died, intensely jaundiced, when aged 3 days.

The Wassermann reactions of the parents and Ll. and Rbt. were negative. In both boys the red cells showed slight decreased fragility. The blood-sugar curve was normal in the case of Ll., but there was some delay in return to normal in the case of Rbt. A leucocyte-tolerance test on Ll. was normal. In both boys the van den Bergh test was negative. Each boy had a Hb of 74%; neither had a leucopenia. At this time (December, 1936) a diagnosis of familial cirrhosis of the liver was made. The other children were reported as normal at this time, and had no liver or splenic enlargement. Nothing further was heard of these two boys until 1945, when it was decided to apply Rh factor investigations. Ll. was examined in January, 1946; he was then of about average height, and his liver and spleen were no longer palpable. It will be noted that since the examination of the first and third children, in 1936, two further children (seventh and eighth, both Rh-positive) were born, the last of which had jaundice and recovered, whilst the other was apparently normal.

Rh Factor Investigations (July, 1945).—The mother was group O (IV) Rh-negative, and her serum contained neither Rh agglutinins nor blocking antibody. The Diamond-Abelson (1945) slide test was negative. Wiener's (1945) so-called conglutination test was difficult to interpret because of rouleaux formation, but the reaction was in all probability negative. The father was group B Rh+ (heterozygous). The children's groups were: Ll., O Rh+; Els., B Rh+; Rbt., B Rh+; On., B Rh+; Jy., O Rh-negative; Gl., O Rh+; Jan., O Rh+. On Jan. 14, 1946, the biological test was performed. The donor was Ll., the first child (group O Rh+). The father could not be the donor, as he was group B. The donor's red cells were compatible with the recipient's serum, and vice versa. Fifty ml. of the donor's blood was taken into 350 ml. of sodium citrate solution and at once transfused. The recipient, of phlegmatic temperament, became restless, anxious, and flushed when about half the blood had been transfused. Transfusion was completed in 30 minutes. The temperature was normal throughout, but an hour after transfusion it rose to 100.2° F. (37.9° C.). Thirty minutes after transfusion the recipient had a moderately severe rigor lasting 20 minutes. After five hours the patient's condition was normal. The pre-transfusion samples of the recipient's serum were a pale straw colour, but post-transfusion samples taken 1½ hours and 2½ hours after transfusion were deeply icteric. A catheter sample of urine collected an hour after transfusion was orange-coloured; there were no casts. A sample of the recipient's serum was collected on the 18th day after transfusion; it contained Rh agglutinins (anti-D) of titre 1/16. The Coombs *et al.* (1945a, 1945b) anti-human-globulin test, using a pre-transfusion sample of the mother's serum, gave a negative reaction.

Case Report: Second Family

Mrs. I., aged 42, had never had a blood transfusion and has had the following pregnancies:—First: 1934, male (Wm.); normal. Second: 1937, male; died of pertussis aged 5 weeks. Third: 1939, female (Pt.); full-term and normal at birth; no jaundice—further data below. Fourth: 1940, female; stillbirth at full term, but foetus was alive one week before delivery. Fifth: 1941, female; stillbirth at 28th week. Sixth: 1943, male; stillbirth at 26th week.

The third child (Pt.) was first seen in June, 1945, because of herpes zoster. Two years previously a school medical officer noted that she had an enlarged spleen. Apparently the child was not jaundiced at birth, nor at any time subsequently, but her abdomen had always been noticeably enlarged. Examination (in 1945) revealed a considerably enlarged spleen extending almost to the umbilicus. The liver also was enlarged, its lower border being 3 in. (7.6 cm.) below the costal margin (Fig. 2). The patient was a trifle undersized for her age. The haemoglobin was 76% and leucocytes 6,400. Fragility of red cells, normal. A tentative diagnosis of Banti's syndrome with cirrhosis of the liver was made. In January, 1946, the condition of the spleen and liver was unaltered. The parents are healthy, and the mother's Wassermann reaction is negative.

Rh Factor Investigations (July, 1945).—Mother, group O Rh-negative; no Rh agglutinins or blocking antibody detected in her serum. The third child (Pt.) was O Rh+, and her cells were not agglutinated by her mother's serum. Husband, O Rh+. First child (Wm.), O Rh+. The Diamond-Abelson (1945) slide test was negative, but the so-called conglutination test of Wiener (1945) gave a positive reaction.

It was decided to obtain more certain evidence of rhesus-immunization of the mother by applying the biological test. The husband of Mrs. I. was not available (being abroad), so a group O R_h donor was used (in case the mother was immunized to either the R_h or the R_h antigen). On Dec. 11, 1945, 50 ml. of the donor's blood was taken into 350 ml. of sodium citrate solution and at once transfused into the mother. Preliminary cross-matching tests showed that the donor's cells were compatible with the recipient's serum. Transfusion was given slowly over one hour because the recipient soon became restless and alarmed and experienced tingling sensations, throbbing in the head, nausea, vomiting, and pain in the lumbar

region. The reaction was fairly severe, and included rigor and rise of temperature from normal to 102° F. (38.95° C.). Samples of the recipient's serum collected one hour and four hours after the transfusion were markedly icteric compared with the pre-transfusion serum sample. A catheter sample of urine taken before transfusion was water-clear, but a similar sample taken one hour after transfusion was orange-amber in colour; no urinary casts were found.

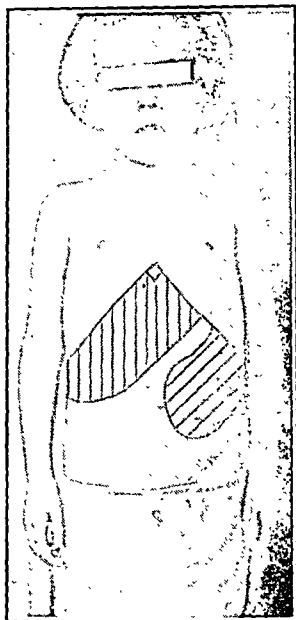


FIG 2.—Second family. Third child (Pt.). Area of liver and spleen mapped out.

On the ninth day after the biological test strong Rh agglutinins of titre 1/64 (anti-D) were found in the recipient's serum. Finally, in January, 1946, the Coombs anti-human-globulin test was carried out on a pre-transfusion sample of the recipient's serum, and a positive reaction was obtained.

Case Report: Third Family

Mrs. L., aged 42, had never had a blood transfusion. She has a cleft palate, and has had the following pregnancies:—First: 1930, female, one month premature; moderately jaundiced for two weeks and died of pneumonia aged 16 months. Second: 1932; abortion at seventh week. Third: 1933, twins; one was of undetermined sex and died soon after birth; the other, a female, had convulsions and died, intensely jaundiced, on the eighth day. Fourth: 1935, male (M.I.); two weeks premature; never jaundiced; surviving and normal. Fifth: 1938, female (J.I.); became moderately jaundiced a day or two after birth, and jaundice persisted three months. Enlargement of liver detected when the child was a month old.

The fifth child (J.I.) has been under observation intermittently since infancy for hepatomegaly and splenomegaly. In December, 1945, her abdomen was very protuberant. The spleen was much enlarged and extended 3 in. (7.6 cm.) medially from beneath the left costal margin. The lower border of the liver was palpable two fingerbreadths below the right costal margin. In recent months epistaxes have occurred. A blood examination revealed slight secondary anaemia and a leucopenia. The child was intelligent and of about normal size. The mother's Wassermann reaction is negative. The clinical diagnosis was considered to be Banti's disease or splenic anaemia.

Rh Factor Investigations.—Mother, A, Rh+ (R,R⁺), and no irregular antibodies detected in her serum. Husband, O Rh+ (R,r). M.I. (fourth child), A, Rh+ (R⁺r). J.I. (fifth child), A, Rh+ (R,R⁺). Wiener's conglutination test was negative. The Coombs anti-human-globulin test, using the red cells of the children, was negative. The biological test, using the husband as donor, gave a negative reaction. Subsequent to the biological test no irregular agglutinins appeared in the mother's serum. There was therefore no evidence of iso-immunization of the mother to an antigen in the red cells of her foetuses.

Discussion

In some infants affected with congenital haemolytic disease, when Rh agglutinins or an incomplete antibody has been demonstrated in the maternal serum, we have observed liver or

splenic enlargement, or both, in addition to jaundice. Occasionally such enlargement of liver or spleen persisted for several weeks after jaundice had disappeared. Other investigators—for instance, Wiener and Wexler (1943), Wiener (1944), Wiener, Wexler, and Gamrin (1944), and Langley and Stratton (1944)—have also observed jaundice, hepatomegaly, and splenomegaly in newborn infants affected with haemolytic disease. The relationship between neonatal jaundice and liver damage and the Rh factor has recently been dealt with by Skelton and Tovey (1945).

There are not, apparently, any reports on Rh factor investigations in families in which there were older children or adolescents with liver or splenic enlargement. Since previous rhesus-immunization of the mothers was clearly proved in the first and second families in this report, it is possible that the hepatomegaly and splenomegaly in these children is a late manifestation of damage caused by the noxious action of Rh iso-antibodies. In this connexion it is to be noted that Rh group-specific substances have been demonstrated in the liver, spleen, kidney, etc., by Boorman and Dodd (1943). Cappell (1944) states: "The severity of foetal liver damage in some cases of haemolytic disease is an indication that harmful effects are by no means confined to the blood and haemopoietic organs."

If damage by Rh iso-antibodies was the cause of the liver and splenic enlargement in the affected children of the first and second families, it then becomes intriguing to know why, in the first family, the second, fourth, and seventh children, who were all Rh-positive, were not affected with jaundice, hepatomegaly, or splenomegaly, whereas the sixth infant died jaundiced and the eighth had a moderate degree of jaundice but recovered spontaneously. The Rh-negative child in family No. 1 has always been normal. That the first child in family No. 2 was not affected, although Rh-positive, is understandable, for it is well known that in haemolytic disease the firstborn is frequently unaffected. However, since rhesus-immunization of the mothers was proved in the first two families, it seems likely that congenital haemolytic disease was the cause of the liver and splenic enlargement. The cases of the children affected with splenomegaly and hepatomegaly in the first two families are unusual in that jaundice apparently never occurred. It is, however, well known that some infants affected with congenital haemolytic disease may be profoundly anaemic though never jaundiced. On the other hand, in the third family the affected child was jaundiced for several weeks, but the possibility of rhesus-immunization of the mother was definitely excluded.

Familial cirrhosis of the liver has long been recognized clinically, and our findings in the first family suggest that in such cases Rh factor investigations are essential in a search for the true cause. It would also seem, from our findings in the second and third families, that Rh factor investigations should be applied in cases diagnosed clinically as Banti's disease or splenic anaemia in children. Liver and splenic enlargement in children may, apparently, in some cases be attributable to congenital haemolytic disease, and, if this is so, Rh factor investigations are essential in the differential diagnosis of unexplained forms of hepatomegaly and splenomegaly occurring in children or adolescents.

We wish to thank Dr. T. R. Davies, Dr. G. S. Lewis, and Dr. F. Pearson for their co-operation in securing the investigation of the families reported in this paper. We desire also to thank Dr. R. R. Race of the M.R.C. Serum Unit, Cambridge, for carrying out Rh genotyping and the Coombs test in the third family, and for supplying rabbit sera for the Coombs test in the first two families.

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TUBERCULOSIS IN SERVICE MEN: PRELIMINARY REPORT

BY

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So much has been said on the subject of tuberculosis that it is almost impossible to write anything new, except about the specific drug that remains to be discovered. But while I was analysing the Service cases of this war, nearly 3,000 of which have passed through the tuberculosis section of this hospital, I felt that there was ample room for rearrangement of emphasis on different factors of this disease within the framework of what is already known.

Tuberculosis is still one of the major causes of death and disablement among young people in this country, but it is doubtful if in any other disease so many avoidable and grievous mistakes are made. It would be futile to blame the M.O.s and general practitioners for these lapses. The teaching of this disease in most of our general and teaching hospitals is very inadequate. It is astonishing that a state of affairs should be allowed to exist in which tuberculosis services are almost completely dissociated from the general hospitals. After all, it is through these general hospitals that most of our young doctors pass into practice. Osler's fear that tuberculosis will become an overspecialized subject has come true. It is important to realize that specialists, with all their knowledge, are powerless to help the patients unless the M.O.s and general practitioners can recognize the disease in time, and refer the cases to them.

I hope to publish a full and detailed analysis of these cases in the near future, but here I will try to give, as a preliminary report, only the broad conclusions which have emerged from the analysis.

More Important Groups of Presenting Symptoms

1. *No Symptoms*.—The person feels quite fit and does his normal Service duties without any apparent ill effect. Routine or incidental x-ray examination reveals pulmonary tuberculosis. It is worth noting that cases with fairly extensive disease may be found in this group.

2. *Vague Symptoms*.—A large number of patients belong to this group. Feeling "out of sorts," general malaise and lassitude, lack of concentration and interest in their jobs, etc., are the common symptoms. These may be persistent or periodic.

3. *More Definite Symptoms*.—Cough with or without sputum, loss of weight, night sweats, pleuritic pain, and dyspnoea are some of the common symptoms in this group.

4. *Haemoptysis*.

5. *Gastric Symptoms*.—Symptoms simulate gastritis and/or peptic ulcer. Pulmonary tuberculosis is diagnosed when preliminary screening of chest is done before a barium meal test.

6. *Influenzal Symptoms*.—In a certain number of cases the presenting symptoms may be indistinguishable from those of influenza and very often they are diagnosed as such. At a future date, when tuberculosis is recognized, it is said that the attack of influenza "flared up" a latent lesion. It is more true to say that influenza was wrongly diagnosed and that those symptoms were the expression of the tuberculous pathological process itself. It may be further said that it is unusual for true attacks of influenza in a tuberculous person to flare up the disease if the proper precautions are taken.

Diagnosis

For the purpose of diagnosis, reliance on physical signs may be so misleading as to be almost dangerous. It is surprising that a large number of these Service patients, who reported sick with definite symptoms such as persistent cough, expectoration, loss of weight, general lassitude, and in some cases even haemoptysis, were given "medicine and duty" because physical examination of the chest was negative. Despite persistent symptoms, skiagrams were not advised for the same reason—viz., absence of physical signs. The effect of such an attitude on the early diagnosis of tuberculosis is obvious. Here again it will be wrong to blame the M.O.s. For generations the importance of physical signs in chest diseases has been drummed into us, and it has been copied from edition to edition of textbooks.

To-day, when x-ray films have shown the inadequacy of physical signs over and over again, we are loath to accord to physical examination second place, as if to do so would be to renounce the supremacy of man over machine.

The physical sign in its proper perspective is of great value, but careful analysis and evaluation of a good history should be the basis of every diagnosis. If history and symptomatology, however remotely, suggest tuberculosis the case must be x-rayed. It should not be loosely labelled as "idiopathic," "functional," "bronchitis," "influenza," etc., without proper investigation. In a doubtful case it is better to err on the side of "too many" rather than "too few" skiagrams.

Treatment

1. Rest is still the most important measure in the treatment of tuberculosis.

2. Collapse therapy is only ancillary and never a substitute for rest. I know of a few instances in which the patient was allowed to go home on the same day as, or within two to three weeks of, induction of an artificial pneumothorax. This practice is fraught with danger and has little to recommend it.

3. In the acute exudative type of lesion a preliminary period of bed rest should precede any attempt at artificial pneumothorax. In suitable cases phrenic crush and/or artificial pneumoperitoneum may with advantage be considered during this period of rest.

4. When radiologically the lesion is close to the hilum it is advisable to carry out bronchoscopy before inducing an artificial pneumothorax. In this type of case a main bronchus is very often involved, in which event artificial pneumothorax is contraindicated.

5. In certain cases it is justifiable to continue an artificial pneumothorax for a limited period of time even when the artificial pneumothorax is unsatisfactory in the commonly accepted sense of the word. Needless to say, these cases need very careful handling, and should be done only by those "who know what they are doing."

6. Abandonment of artificial pneumothorax should always be gradual.

7. Artificial pneumoperitoneum has a greater scope than is accorded to it to-day.

It is interesting to note that collapse of the lung, varying from small areas to whole lobes, occurs far more frequently in tuberculosis, especially in association with artificial pneumothorax, than is generally realized. There appears to be a high correlation between collapse and fluid formation in the case of artificial pneumothorax.

The Age Factor in Assessment

The importance of age in assessing a case of tuberculosis is very often overlooked. It is not fully appreciated that a radiological lesion in a person 20 years old has a very different significance from a similar one in a person of 40. In a patient under the age of 25-27 years a tuberculous lesion, however innocuous it may appear on clinical and radiological examination, should never be declared inactive unless the patient has been under close observation for a fairly long time, during which period his exercise tolerance has been satisfactory. Even then it is desirable for him to have a radiological examination from time to time.

Rehabilitation

There is no other disease for which the statement "you treat the person and not the disease" is more true. Hence for proper management of a tuberculous case not only do you need the full clinical data, but due note must be accorded to the sociological and temperamental aspects of the patient. The importance of rehabilitation in the treatment of tuberculosis cannot be overestimated. During this period the patient is gradually hardened off through occupational therapy and sheltered employment under medical supervision. Moreover, in the present state of our knowledge, by this method alone it is possible to judge what sort of life he will be able to lead outside. Furthermore, the patients themselves learn what they can and what they cannot do.

Strict exercises—viz., measured walks, etc.—are of great value in the beginning, but these are too artificial when compared

with the ordinary routine of life. Whenever possible they should be followed up by observing the patient while he works and lives under conditions approximating to those prevailing outside the sanatorium.

Conclusion

If the history, however remotely, suggests tuberculosis the patient must be x-rayed.

If the patient is below the age of 25-27 no lesion should be declared inactive unless he has been under observation for a period of time. During this period his clinical examination, skiagrams, and exercise tolerance should be satisfactory.

There must be close co-ordination between general hospitals and tuberculosis services.

My thanks are due to Dr. F. R. G. Heaf, Hon. Medical Director, for his help and kind permission to analyse these cases.

Medical Memoranda

Amoeboma of the Hepatic Flexure

The following case illustrates the importance of keeping amoebiasis in mind in the Tropics and of carrying out a sigmoidoscopy even when stools are entirely negative.

CASE RECORD

A well-nourished Gurkha sepoy aged 23 was admitted to hospital on Dec. 14, 1945, having complained of pain in the right chest and hypochondrium with an evening pyrexia for three weeks. There was no history of previous ill-health, the patient being questioned particularly regarding bowel disorders.

On examination a few rhonchi were found at the right base, and in the right hypochondrium a rounded swelling, $3\frac{1}{2}$ in. (8.9 cm.) in diameter; it was rather hard, not fluctuant, not hot, slightly resonant, and tender but not exceedingly so. It appeared not to be continuous with the liver, and to be attached to the rectus abdominis. The stools contained no blood or mucus on naked-eye inspection, and were repeatedly negative for exudate, cysts, and ova. The white cells numbered 14,000 per c.mm., of which 80% were polymorphs. The urine was normal. By Dec. 18 the swelling was becoming more definitely adherent to the abdominal wall, and indeed appeared to be an abscess within the wall about to involve the skin. Sigmoidoscopy showed many patches of ulceration typical of amoebic infection; unfortunately no scraping was taken.

The radiological report on the 19th was as follows: "*Straight skiagrams in upright and right decubitus positions*:—Multiple fluid levels in the small and large intestines proximal to hepatic flexure. *Barium enema*:—Screening; passage of enema normal up to proximal end of transverse colon, which became distended as the enema proceeded. The patient had a desire to return the enema, and some escaped around the nozzle. After a delay of several seconds a narrowed stream of barium passed onwards into the ascending colon and caecum. The appearances suggested a constriction $2\frac{1}{2}$ in. (6.3 cm.) long and about $1\frac{1}{6}$ in. (0.4 cm.) in width. The site of constriction corresponded with the site of the tumour and of tenderness. *First skiagram after enema*:—Gut filled from caecum to rectum; haustrations normal; hepatic flexure ill-defined, proximal end of transverse colon showing an abrupt ending. *Skiagram after evacuation*:—No change in amount or density of barium shadow in caecum and ascending colon; rest of large intestine partly emptied. *Skiagram of lateral view in supine position*:—No barium shadow extending anteriorly into region of tumour. *Conclusion*: Appearances suggestive of chronic obstruction at or near hepatic flexure."

A diagnosis of amoeboma involving the tissues of the anterior abdominal wall was made, and on Dec. 19 emetine (1 gr.—65 mg.—daily \times 6) and penicillin (100,000 units daily \times 8) were started. A dramatic reduction in size and tenderness of the swelling resulted: on the 9th day of treatment it was only the size of a hazel nut, and was hard and free from tenderness. The total white cells had fallen to 11,400 per c.mm. After three days' rest a further 4 gr. (0.25 g.) of emetine was given, together with a course of chiniofon retention enemas. The patient was afebrile throughout his stay in hospital except for a rise to 100° F. (37.8° C.) on Dec. 18.

On Jan. 14, 1946, the radiologist reported: "*Barium enema*:—Filling of whole of large intestine now normal. No evidence of any intestinal lesion or spasm." Sigmoidoscopy on Feb. 2 showed a normal mucosa except for a very few minute flat-topped "warts" characteristic of healing pin-point craters. Nothing abnormal could be palpated in the abdomen.

In this case the criteria of amoebic stenosis as distinct from carcinomatous stenosis were fairly well fulfilled, the narrowing being of considerable length and width.

I desire to express my thanks to Lieut.-Col. H. R. S. Hartley, I.A.M.C., surgical specialist, and to Lieut.-Col. R. Heathcote, I.A.M.C., radiologist, for their great interest in this case; and to Lieut.-Col. H. M. Salamat Ullah, I.A.M.C., for permission to publish this report.

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Reviews

CLINICAL NEUROLOGY

Introduction to Clinical Neurology. By Gordon Holmes, M.D., F.R.S. (Pp. 183; illustrated. 12s. 6d., plus 6d. postage.) Edinburgh: E. and S. Livingstone. 1946.

The contributions to the literature of their subject which we owe to great clinicians fall easily into two categories. There are those papers and communications in which they place on record their original contributions to knowledge, and there are the textbooks and monographs in which they present to the general body of their professional brethren the sum of their experience, in a part or over the whole of their own field, and thus take their due place as teachers. Gowers, one of the master builders of modern clinical neurology, wrote numerous monographs and one great textbook, in them displaying the intimate familiarity with his material which is the foundation of that clinical wisdom in which he was so pre-eminent. Of original papers in the strict sense his sum was relatively small. Dr. Gordon Holmes, a one-time pupil and now a worthy successor of Gowers, can claim a long and distinguished bibliography of original contributions to neuropathology and clinical neurology, but hitherto he has not summed up his experience in a book or monograph for the benefit of those who have not had the privilege of following his teaching by the bedside and in the out-patient clinic. There can be few neurologists of the present time who have not listened to this teaching in the wards at Queen Square, but to those who have as well as to those who have not, this "Introduction" will be welcome.

Often believed to be the most complex field of medicine, assuredly one in which the British school of medicine has been pre-eminent, neurology is certainly one calling for logical and sustained thinking and, at least in its higher reaches, for a sound basis of anatomy and physiology. It is thus an excellent training discipline for anyone who wishes to graduate into medical science with a view to teaching and research, or even to teaching alone, in any branch of medicine. Therefore this "Introduction" should prove of value to a wide circle of readers, for it is in fact an introduction to the clinical method in its most rigorous aspect. It is not a textbook of clinical neurology and does not deal with diseases, but discusses and analyses the symptoms and abnormal signs that may be presented by any case of nervous disorder on clinical examination. It is, in fact, an exposition of first principles in clinical neurology.

The plan of the book is one familiar to all who have studied at Queen Square. The "systems"—motor, sensory, and reflex—vision and the ocular movements, the speech function and its disorders, and visceral neurology are all dealt with in turn. Each section—e.g., that on the motor system—contains a brief statement of the relevant anatomical and physiological factors, and chapters on methods of examination and on the various categories of disordered function that the clinician recognizes under the heading of "signs and symptoms." Here, lucidly presented, and displaying that balance of emphasis that comes from an intimate knowledge of the methods and needs of clinical study, are those foundations of clinical neurology upon which alone the student of the subject can hope to build with the aid of experience a sound edifice of theoretical and practical knowledge, of clinical wisdom.

This little book will recall to those who have been Dr. Gordon Holmes's clinical assistants and clerks at Queen Square those strenuous and stimulating ward rounds that have helped to mould so many of the leading neurologists of to-day in all countries, and from them as from a younger generation of readers this "Introduction" will be sure of the warm welcome it deserves, for indeed no physician living has contributed more to the international prestige of British medicine at this time than its author.

MODERN PSYCHIATRY

Modern Psychiatry. By William S. Sadler, M.D. (Pp. 896. 50s.) London: Henry Kimpton.

In this large volume the author has attempted to construct a reference book of what he calls "personology," in which the practitioner may find information about the diagnosis and treatment of disturbances of the patient as a whole. Psychosomatic

medicine is dealt with briefly in the very forefront of the book, in an introduction, in order to stress the need for satisfying the patient who, having been to hospital, may, with great justification, say, "If this is the place where you come to find out what is not the matter with you, where do I go to find out what is the matter with me, for I am a most miserable and unhappy woman?"

The first part of the book is concerned with the meaning, structure, and maladjustments of personality at all ages. Next the psychoneuroses are taken up in considerable detail, reference being made to people who are merely difficult and queer as well as to those presenting frank manifestations of accepted psychoneurotic diseases. Thirdly the psychoses are similarly dealt with, and also mental defect. The chapter on this is termed "defective reaction types," among which are classed not only mental deficiencies but epileptics and endocrine deficiency cases as well. In the final part all forms of treatment are considered, including physical methods. This section has an interesting chapter on the influence of philosophy and religion. A brief description of the various schools of psychiatry is given in an appendix. Among these the author includes an "American School" which is evolving out of the others. The book is rounded off with an adequate bibliography and a full index.

This volume is too bulky to be recommended for general reading, but as a reference book it should be invaluable. The practitioner will find it difficult not to get from the ripe experience of the author some useful and stimulating information on any subject connected with the mind in health or disease.

MEDICAL PROGRESS IN THE ALLIED COUNTRIES

Acquisitions Médicales récentes dans les Pays Alliés. By A. Abaza. (Pp. 706, 1,000 francs.) Paris: G. Doin et Cie, 8, Place de l'Odéon. 1946.

Dr. Alphonse Abaza, a member of the medical staff of U.N.R.R.A., has attempted in this book nothing less than a general account of medical progress, mainly in Great Britain and the U.S.A., during the enemy occupation of France. In performing this colossal task his industry must have been prodigious, and the result is a comprehensive series of monographs which should be of great service to those who have been cut off from contact with the rest of the world, and find it difficult to grasp what has been happening there. Penicillin and other antibiotics and new forms of sulphonamide treatment occupy nearly half the book; the choice of subjects for the rest is an interesting reminder to anyone of the advances of the past five years. They include epidemic hepatitis, atypical pneumonia, D.D.T., B.C.G., methods of immunization against diphtheria, pertussis, typhus, and enteric fever, air sterilization, oestrogens, alloxan diabetes, new forms of insulin, dicumarol, fluorescence microscopy, thiouracil, thymectomy, and ligation of the ductus arteriosus. Large lists of references are given, many of which, especially in an appendix, are quite recent. The medical profession in France will find this work invaluable, and others in more fortunate countries may find it a useful source of information.

SURGERY OF THE OESOPHAGUS

Injuries and Diseases of the Oesophagus. By G. Grey Turner. Being the George Haliburton Hume Memorial Lectures. (Pp. 100; illustrated. 15s.) London: Cassell and Co.

Prof. Grey Turner in 1943 paid tribute to the memory of his former teacher and chief in the George Haliburton Hume Memorial Lectures delivered at Newcastle-upon-Tyne. These lectures on injuries and diseases of the oesophagus have now been republished in book form and are thus made available to a larger circle of readers. Prof. Grey Turner relates that his interest in the surgery of the oesophagus was first aroused by a clinical lecture on cancer of the gullet delivered by Hume to his pupils and by cases under his care. That interest has never flagged and, although an extensive acquaintance with the relevant literature is displayed, it has provided the author with a vast personal experience, upon which he has drawn in order to present a clinical picture from the point of view of a general surgeon. In consequence he has something, but not very much, to say about endoscopic methods of examination and treatment, but rather he describes those conditions which demand something more than endoscopy and lie in the territory

where the throat specialist and the general surgeon must co-operate. The second chapter, on examination and diagnosis, is an example of this, for it is shown how much can be learnt from a proper clinical examination apart from the use of the oesophagoscope, which of course is not ignored. How deeply Prof. Grey Turner has pondered over the difficulties of the surgery of this elusive and rather defenceless tube is shown in the third chapter, on congenital anomalies; and while allowing himself the liberty of indulging in some reasoned speculation he gives a fascinating account of what has been attempted for the relief of infants so afflicted and foretells the lines along which further progress is possible.

The oesophagus still presents more than an average share of unsolved, or at any rate partially solved, problems, and among these the management of achalasia and of malignant disease are prominent. The views of the author on these debatable matters must command the respect due to one who has had great experience and some remarkable success, due largely to careful preliminary investigation and independence of thought. He is sceptical, like some others, about the short oesophagus, and there are other points which he has not attempted to discuss fully. His readers and many admirers of his work will be none the less grateful for what he has to say, and will be fascinated by the graphic description of his clinical experiences, and the accounts of some of his disappointments and impressive successes, so faithfully related.

Notes on Books

The March of Medicine in Western Ontario, by Dr. EDWIN SEABORN (Toronto: The Ryerson Press; London: Hatchards, Ltd., 30s.) falls naturally into three phases: the Indian period, the French, and the British. The first period chiefly, though not entirely, is a record of witchcraft and folklore; the second is concerned with medicine from the days when French explorers first set foot in Canada and found strange herbs as curative agencies. The French brought to Canada the first physician from Europe, François Guitault. The main bulk of the book, however, deals with the steady progress of British medicine in Western Ontario from humble beginnings to its present state of high efficiency. Dr. Seaborn has searched available records and for the later phases has drawn upon personal recollections and correspondence, bringing to life in an interesting manner the pioneers in a medical world who came from Britain and from the United States. His position is such that he can speak with authority, and he has brought to his task great enthusiasm and industry. The result is a work invaluable as a reference for the medical historian. The book is copiously illustrated and well documented.

A twelfth edition, revised and enlarged, of the *NAPT Handbook of Tuberculosis Activities* has been published, with a Commonwealth and Empire supplement, by the National Association for the Prevention of Tuberculosis, Tavistock House North, Tavistock Square, London, W.C.1. It is a complete directory of tuberculosis dispensaries, clinics, sanatoria, etc. The main contents are grouped under local authority tuberculosis schemes, mass radiography units, centres for thoracic surgery, sanatoria and hospitals for the treatment of tuberculosis. The editor, Dr. Harley Williams, in his foreword notes that the years since the publication of the last regular edition have seen many changes, but the British system of tuberculosis control has survived them, and remains substantially unaltered. Since the first edition appeared some thirty years ago enormous progress has been made, but the NAPT is still conscious of what remains to be done both at home and over-seas. The price of this very useful handbook is 7s. 6d.

Outline of Industrial Welfare and Personnel Management is published by the Industrial Welfare Society, 14, Hobart Place, London, S.W.1, at 1s. post free. This booklet has been produced as a convenient introduction to the functions of a personnel department. It is written to help those who may wish to have a summary of the scope and content of personnel work. A full list of sources of reference is included as an appendix, together with a list of voluntary organizations and Government departments concerned with different aspects of social and industrial welfare activities.

The 102nd edition of the *Medical Directory*, for the year 1946, has been published by Messrs. J. and A. Churchill Ltd. The number of entries in the main section is 70,461, not counting the names of 4,070 temporarily registered practitioners which appear without addresses near the end of the book. The total 70,461 is larger by 1,458 than the figure for 1945 and nearly twice as large as that for 1900.

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REHABILITATION

The treatment of a patient is not completed until that patient is back at work and able to support himself. This is obvious enough, but it is an idea which has been widely realized only during the last five years, and perhaps even at the present day it is not generally accepted by the medical profession. The Council of the British Medical Association in 1945 took the initiative and set up a committee to consider and report on rehabilitation as it was practised and to make recommendations for the future. Its report appears in our *Supplement* this week, and the subject is considered from two aspects: first, the facilities that exist at the present time are described and reviewed, and then planned rehabilitation is discussed. Of disabled persons, 25% are surgical, mostly accident or orthopaedic, 25% are neurotic, and 50% are medical patients. Surgical rehabilitation is not as a rule difficult, because common sense indicates, to a large extent, what a man without a leg or an arm can and cannot do; and, further, the disease is normally not progressive. It is easy, therefore, to explain the facts to the management, and once the problem is settled it usually does not require further attention. The limitations of the neurotic, the tuberculous, or the patient with heart disease are much more difficult to assess and explain. Most attempts at rehabilitation therefore have up to now been made by orthopaedic surgeons, and this is well shown in the first part of the report, dealing with present facilities, but other branches of medicine must follow their lead even though the path will be more difficult.

The first recommendation is that the medical services of industry should be part of a comprehensive health service, administered by a single Government Department under a Minister responsible to Parliament. This is fundamental, and until it happens no rehabilitation scheme will work smoothly; when it happens the physician and social service in hospital will be able to work with the industrial medical officer and welfare officer in industry, as occurs at present with the large firms who have established such services with great success. Unfortunately for rehabilitation, though fortunately for the nation, the bulk of industry is carried on by small firms, and the only way for these to achieve the desired results is for groups to combine in local areas and employ doctors and welfare officers. Doubtless in this way there will be a variety of employment within the group, so that jobs may be found for people with all types of disablement. At the present time, however, between the individual health service and the industrial health service comes a third party—the Ministry of Labour—whose inten-

tions are good, but since it cannot possibly have an understanding of the problems it serves only to obstruct the project and prevent the two services getting together. A great example of this lack of understanding was the plan, reasonable to the lay mind but extremely foolish to anyone with a knowledge of medicine, of rehabilitating silicotic coal-miners in South Wales as electric arc welders. In its attempt to achieve satisfactory employment for the disabled the Ministry of Labour has decreed that a register shall be kept, and that the labour of firms who do not have 2% of their employees on this register shall be controlled; that is a typical Civil Service approach to the problem, but what is wanted is that work within their capabilities shall be found for the grossly disabled. The former approach does not even achieve its object, since it merely means that the 2% will be made up of those with flat feet and subject to bronchitis, while nothing is done for those grossly incapacitated. Let it be stressed again that success can be achieved only by doctors in hospital with social service staff working together as a team with industrial medical officers and their welfare officers.

Another thorny aspect of the problem is the question of who directs the intermediate part of the treatment—exercises, gymnastics, and occupational therapy. In most hospitals in Great Britain there has been developed a department of physical medicine, a department which seems to cover a group of unrelated subjects—a study of rheumatic diseases, treatment by radiation, and medical gymnastics. This is undoubtedly a bad division of medicine, but it is so firmly established that it would be difficult to undo; further, it is impossible for each physician and surgeon in a hospital to have his own gymnastic and occupational therapy department, so that it seems inevitable that these should be under the general direction of one member of the staff, even if there is no clear reason why that member should be the physician who is a specialist in rheumatic diseases. The orthopaedic surgeons would undoubtedly like to control these departments, but common sense seems to suggest that they will be very much better under the care of a physician. Manifestly, this physician must work in the closest touch with the physician or surgeon under whose care the patient was for his initial complaint, and later they must together co-operate with the industrial medical officer. The report insists on the need for continuity of care and the overall responsibility by the specialist in charge, and supervision at all stages by a qualified medical practitioner responsible to him.

Many groups of people are disabled during childhood as a result of congenital abnormalities or of diseases such as rheumatic fever or poliomyelitis. It is important that these individuals are trained for suitable jobs in life and that they should be properly placed. At the present time the situation for them is most unsatisfactory. Theoretically and on paper the facilities for training them are there; they come under another Government Department—the Ministry of Education—but in practice the achievement of them is difficult, particularly in country areas. This,

however, draws attention to the fact that the placement of the disabled is only a part of a much bigger problem—the satisfactory placement of all individuals. Much harm, not only physical but usually psychological, is done by bad placement. Perhaps industrial medicine will be judged more on its success or failure in placing individuals in industry than on any other aspect of its work.

THE FATALITY RATE OF MEASLES

Measles is a familiar but important problem in child health. Despite the success which has been achieved in lowering the mortality from this disease it remains one of the largest causes of death among children. That the clearly defined characteristics of the trend of the mortality from measles—the seasonal rise, the definite periodicity, the marked progression with urbanization, the sensitiveness to social and environmental conditions—have had a fascination for the epidemiologists and workers in public health is clearly evident from the large number of articles on these subjects. The relation between degrees of urbanization and measles mortality can be easily demonstrated from the statistics of the inter-war period: during 1921–38 the mortality per 100,000 living was 140 in the county boroughs, 79 in the urban districts, and only 41 in the rural districts. The association between social conditions and measles mortality was equally striking: the mortality at ages 1–2 in 1930–2 by social class of father was 25, 70, 194, 246, 469 for social classes I to V. The apparent simplicity of the epidemic curve of measles has given rise to many hypotheses concerning the spread of infection. These give a fair description of an outbreak, but since most were of necessity based on mortality, as the incidence was unknown, they could not be rigidly tested. The chief difficulty in obtaining a simple mathematical expression for the trend of measles is that of spatial distribution. The spread of infection through a city from the one or more foci in which it begins is comparatively slow and variable, and the disease may take several months to cover the whole area. If as sometimes happens the first appearance of the outbreak is postponed, then the disease dies down as usual in the summer months, leaving districts unattacked, and as a consequence the number of susceptibles is unduly high in the next outbreak.

Extensive data on the incidence of measles have been scarce and most of the work in England has been confined to deaths, since measles was not generally notifiable before 1940, although in some areas notification or a modified form of notification—e.g., the first case in a household—had been made for varying periods. During the first two years of notification, 1940 and 1941, over 800,000 cases were notified. The death rates for these years were 21 and 29 per million and were less than one-twelfth of the rates of 30 years earlier. Some cases of measles escape notification because medical aid is not sought, measles being regarded by the parents as a mild disease. If allowance is made for these cases it is evident that the fall in mortality was not due to any decrease in prevalence. The surprisingly large reduction that must have taken place in the

case fatality led Lieut.-Col. William Butler¹ to review the recent trend of measles. For the first time it was possible to compare the trend of mortality with that of incidence for London and the large towns. It is well known that for many infectious diseases the fatality rate varies not only between epidemics but during an epidemic. Col. Butler has attempted to relate the deaths to the appropriate cases from which they were derived by means of a smoothed moving average which he termed the "batch fatality rate." The calculation of this rate was based on a nine-weeks period, and is found by dividing the deaths during the last five weeks by half the cases in the first four weeks plus all the cases in the middle (5th) week plus half the cases in the last four weeks. Though all the assumptions on which this index is based may not be justified the batch fatality rate does give a good approximation to the trend of fatality.

Col. Butler has in the April and May issues of the *Monthly Bulletin* of the Ministry of Health and the Emergency Public Health Laboratory Service extended the application of his index up to early 1946. The batch fatality rate during the six years 1940–5 showed a winter maximum and a summer minimum. The maximum ranged from 4.2 to 6.4 and occurred once in October, twice in November, once in January, and twice in February. The minimum value varied from 0.2 to 1.4 and appeared once in July, three times in August, and twice in September. An interesting feature of the maximum values is that they do not occur in the winters which contain the peaks of the epidemics—e.g., the peak of notifications in the 1940–1 epidemic occurred ten months after the maximum batch fatality rate of 1940 and eleven months before the maximum batch fatality rate of 1941. This may be partly due to the fact that notifications tend to be more complete in periods when the disease is very prevalent than when the incidence is low and slight attacks are more likely to pass unsuspected. The batch fatality rates for the first nine weeks of 1946 were exceptionally high, with a maximum of 7.6. The largest value for the preceding six years, 6.4, was exceeded three times, and on seven occasions higher values were found than the yearly maxima of 1941–4. That the case fatality during the first weeks of this year was large could have been shown by the customary method of relating the deaths in the period to the number of notifications. The usual approximation to the fatality rate gives, for the first nine weeks, a rate of 4.6 per 1,000 in the great towns, whereas for the corresponding period in the six preceding years the rate ranged from 1.3 to 4.1. If short periods are used the method of relating deaths and cases in the same time-interval will understate the actual case fatality when the incidence is increasing rapidly, and conversely it will overstate the actual rate when the incidence is falling rapidly, and a rapid change is a feature of measles—e.g., in 1945 the notifications ten weeks either side of the maximum differed from the maximum by about 15,000. Col. Butler's batch fatality rate overcomes to a certain extent the effect of rapid changes in the trend of notifications, though his index has the properties of a moving average which tends to smooth out the peaks in a curve by spreading any abrupt change over a period.

¹ *Journal of the Royal Statistical Society*, Vol. CVIII, 1945, parts iii and iv.

FOOD-BORNE OUTBREAK OF STREPTOCOCCAL SORE THROAT

Milk-borne streptococcal infections are common enough, and numerous epidemics have been recorded in practically every country in which close attention has been paid to milk hygiene, but well-documented accounts of streptococcal food-poisoning due to other vehicles are uncommon. In the outbreak of tonsillitis and pharyngitis recorded by a team of American Army workers¹ at Fort Bragg, North Carolina, infection appears to have resulted from the consumption of creamed eggs served for breakfast. The mode of preparation of the eggs could not be ascertained accurately, nor was the way in which they became contaminated at all clear; but the eggs had been boiled, sliced by hand, and left, presumably at kitchen temperature, for ten hours before being served. Of 228 men who ate in the same messroom, 86 (37.7%) were attacked within three days, most of them within two days. There were 18 (14.7%) secondary cases among those who had escaped primary infection. Accompanying the 86 primary cases were 9 symptomless carriers, and 22 symptomless carriers accompanied the 18 secondary cases. Clinically the cases were exactly like those met with in air-borne infections. Patients whose tonsils had been removed had less exudate in the throat, harboured smaller numbers of streptococci, and rid themselves of the infecting organisms more rapidly than those whose tonsils were still intact. For example, only 19% of the tonsillectomized group were still carrying streptococci after six weeks as opposed to 57% of patients with tonsils.

The effect of sulphadiazine, in ordinary dosage, was studied under controlled conditions on 110 patients admitted to hospital. Apart from alleviating the subjective symptom of sore throat, the drug had apparently little effect. No significant change was noticeable in the objective signs, nor was the incidence of non-suppurative complications any less in the treated group. The number of streptococci in the throat diminished during the period of treatment, but returned to "normal" as soon as the drug was stopped. Non-suppurative complications affected 13 patients—3 had acute rheumatic fever, 2 suspected rheumatic fever, 4 febrile relapses without localizing signs, and 4 an afebrile cardiac disturbance associated with electrocardiographic changes detected during convalescence. Once more, therefore, the association between haemolytic streptococcal infection and acute rheumatism is manifested.

For the diagnosis of streptococcal infection, the authors insist not only on the presence of haemolytic streptococci in a throat swab, but also on the demonstration of a rise in the serum content of streptococcal antibodies. Extensive experience of upper respiratory infections at Fort Bragg has shown that about half of all patients admitted to hospital with an exudate in the throat do not harbour haemolytic streptococci; and that many patients suffering from a sore throat from which haemolytic streptococci are isolated have no rise in streptococcal antibody titre and are merely fortuitous carriers suffering from some other form of respiratory disease. In the present outbreak 80% of all patients admitted to hospital showed a rise in the antistreptolysin content of the serum, and 20% in the antifibrinolysin content. Altogether 85% of patients had a rise in one or other, or both, antibody titres. It is of interest that although the infecting organism belonged to group A, type 5, none of the patients developed a rash. In many milk-borne outbreaks cases of scarlet fever and of septic sore throat have appeared side by side, but in spite of a normal proportion of Dick-positive subjects at risk in the exposed population at Fort Bragg no scarlet fever cases were observed.

¹ Report of Commission on Acute Respiratory Diseases, Fort Bragg, North Carolina. *Johns Hopk. Hosp. Bull.*, 1945, 77, 143.

HUMORAL TRANSMISSION OF NERVE IMPULSES

Dr. Otto Loewi has discussed in the Janeway Lectures,¹ given in New York, the present position of the theory of the humoral transmission of nerve impulses, which has been built upon the demonstration he first made in 1921. He showed that when the vagus nerve to the frog heart is stimulated, acetylcholine is liberated and is responsible for the cardiac arrest. The theory supposes that, in general, nerve impulses are transmitted to the end organ they supply, or to another nerve, by the mediation of a chemical substance and not by the passage of an electrical current. So far we know of only two substances which serve this function, acetylcholine and adrenaline.

Acetylcholine itself has had little application because of its instability. Belgian physicians use it, however, to terminate paroxysmal tachycardia; it is given by intravenous injection and the initial dose is as much as 10 mg. If this amount is ineffective the dose is doubled, and up to 160 mg. has been injected at once. Acetylcholine is destroyed in the body so rapidly that there is no record of a fatality, though these large amounts cause momentary cardiac arrest. More stable esters of choline, notably the carbaminoyl ester known as carbachol ("doryl" and "moryl" are the proprietary names), are used in atony of the bladder or intestine. Two fatalities are on record, one at Oxford² in 1942 and one at Croydon a few months ago (p. 1002), both of which were due to an overdose of the "moryl" preparation. The value of carbachol in treating urinary retention is widely accepted; its value in preventing or relieving paralytic ileus has not yet received the widespread investigation it deserves, though Marden and Williamson³ describe its use.

The effects of acetylcholine are prolonged by the administration of physostigmine and still more by prostigmine, and for this reason these substances antagonize the action of curare on skeletal muscle. The resemblance between the symptoms of myasthenia gravis and those of curare poisoning led Mary Walker⁴ to use physostigmine in myasthenia. The success attending this treatment led to a closer analysis of the pathology of the disease. Walker's evidence⁵ that the skeletal muscles of these patients release a curare-like substance into the blood has recently been confirmed by Wilson and Stoner.⁶ Harvey,⁷ on the other hand, believes that in myasthenia the nerve liberates less acetylcholine than usual, for when acetylcholine is injected intra-arterially the muscles are much more than normally sensitive to its action. Myasthenic muscles react like muscles which have been denervated. Intra-arterial injection of acetylcholine, or of prostigmine, furnishes a useful diagnostic test; in myasthenia it produces contraction, while in the normal subject it causes temporary paralysis.

Loewi now puts forward a new theory to explain the great increase—as much as one thousand-fold—in the sensitiveness of muscle to acetylcholine which follows denervation. He suggests that the hypersensitivity of the denervated cell represents its true sensitivity, but that the nerve-fibre normally controls and reduces this sensitivity. Loewi proposes this as a second function of nerve fibres, in addition to their primary function of conducting nerve impulses. If the theory suggests a new experimental approach to this problem, which was revealed by Auer and Meltzer as long ago as 1904, it will indeed be useful.

¹ *J. Mt. Sinai Hosp.*, N.Y., 1945, 12, 803, 851.

² *British Medical Journal*, 1942, 2, 28.

³ *Surg. Gynec. Obstet.*, 1939, 69, 61.

⁴ *Lancet*, 1934, 1, 1200.

⁵ *Proc. roy. Soc. Med.*, 1938, 31, 722.

⁶ *Quart. J. Med.*, 1944, 13 (new series), 1.

⁷ *Johns Hopk. Hosp. Bull.*, 1941, 69, 566.

OTITIS IN THE NEWBORN

Infections in the newborn are one of the most important causes of neonatal mortality; they probably rank next on the list after intracranial birth trauma and prematurity. In a series of 499 infants dying in the first month of life Macgregor¹ found infection at necropsy in 36.5%, and in no less than 73.6% in those dying between the second and fourth weeks. Much of this is the result of cross-infection in the nurseries of maternity wards and hospitals. Epidemics are not uncommon, and outbreaks of pemphigus, diarrhoea, and pneumonia are still too frequent. The late Prof. McKim Marriott used to stress that any infant properly and adequately fed (especially if on the breast) and without constitutional disease must, if losing weight, be suffering from some infection. That this might be true even in the neonatal period has often been overlooked. In the newborn, acute infections may run a very rapid course and cause death in a matter of hours; in the absence of a necropsy death may be wrongly attributed to intracranial birth injury.

When infection has been suspected attention has been focused particularly on the nasopharynx, skin, kidney, and bowel, and the ears have not been specially investigated, partly because of the difficulty of routine inspection of the eardrums at this age. The importance of regular examination of the ears in older infants suffering from gastro-enteritis and unexplained fever is recognized and otitis is known to be a common cause of failure to thrive.

Two recent papers stress the importance of otitis in the newborn. The first, by Couper,² deals with the empirical use of penicillin in a small series of 20 infants who were going downhill: 8 were premature and 12 full term, and all of the latter had acute otitis. No myringotomies were performed and 11 of the 12 infants recovered. Clinical improvement followed promptly on penicillin treatment, but weight gain was sometimes delayed. The second paper, by Lévy-Solal, Lelong, Joseph, and Debain,³ deals with 11 newborn infants seen during a nine months' period at the St. Vincent de Paul Hospital in Paris. In this series penicillin was not used, but results similar to those obtained by Couper followed myringotomy in every case. All the infants were breast-fed. In 5, the infection occurred between the tenth and twelfth days, in 2 on the fifteenth day, and in 4 between the fifteenth and twenty-first days. Symptoms were somewhat indefinite, but when looked for a recognizable syndrome was observed—taking the breast less well, not gaining weight, slight pallor, occasional vomiting, and some alteration in the character of the stools. The temperature varied but was never high; indeed it was sometimes normal, and in one case subnormal. The clinical picture suggested otitis, and although the drums often showed little change, myringotomy resulted in prompt improvement and gain in weight. In some cases the diagnosis was made *a posteriori* by the fact that immediately after myringotomy the weight began to increase. Of the 11 infants reported, 7 were cured by a single paracentesis and the other 4 required two or three. The authors further contend that an unrecognized otitis originating in the first fifteen days of life may be the cause of subsequent marasmus. Certainly it is the experience of most paediatricians that in a high proportion of necropsies on infants dying of marasmus there is found an otitis or mastoiditis that had been overlooked during life. The question arises whether, as is suggested in this paper, every infant who goes off his feeds and ceases to gain weight on two consecutive days should have a myringotomy forthwith (unless

there is an evident cause for the upset) or whether chemotherapy should be instituted. Further experience may provide the right answer; in the meanwhile the authors have done a service in recording their experiences, and paediatricians and obstetricians alike should bear in mind the possibility of otitis as a clinical entity in the newborn.

SOCIAL MEDICINE AT OXFORD

The Institute of Social Medicine at Oxford—the first of its kind—describes in its brief annual report a number of investigations now in progress under its auspices. It must be borne in mind that the observations and researches of such a body are in connexion with groups and populations rather than with individuals, and that they require different methods and collaborations from those undertaken in clinical medicine. One of the investigations is a child health survey in Oxford, using eight welfare centres in the city. The purpose is to study and compare the health, development, and sickness experience of children in all social groups from the first weeks of life to the age of five. Another investigation is a statistical analysis of sickness absence at a great industrial works near Oxford, including correlations of the main causes of sickness with such factors as age, sex, trade, and season. It is hoped later to take particular causes of sickness absence, such as peptic ulcer and the chronic rheumatic diseases, for a more detailed inquiry. A third investigation is an extensive survey of school-children at ages 11–15, in several districts of England and Scotland, to determine the varying incidence of thyroid hyperplasia in relation to the iodine content of drinking-water. An x-ray department has been set up at the Institute and is carrying out skeletal studies of several hundreds of children, including Dutch children in this country, with a view to discovering evidences of nutritional deficiency and the incidence of other abnormalities and also information, at present lacking, on the range of variability within the "normal" of bony characters at different years in the period of growth. A "pilot survey" has also been made of 42 pairs of twins of school age, with a record of face, eye, and hair colour, radiographical resemblances, and heights and weights, and a much wider inquiry with an extended range of anatomical and physiological observations is contemplated. It is thought that while human genetic studies in their medical bearings have been largely based on family trees, much might be learned from a continuing follow-up study of the growth, health, and sickness of individuals of the same age and parentage and living under identical nutritional and environmental conditions. A statistical analysis of still-birth rates and neonatal death rates in the counties and county boroughs of England and Wales, in relation to such factors as urban and rural conditions, population density, and local employment of women, is another useful enterprise. If some "black spots" are revealed by such an analysis a specific local survey will be undertaken. In addition to all this, the Institute has undertaken at the Radcliffe Infirmary a course of instruction in social medicine for students in the clinical period and has also issued a number of publications. Prof. John A. Ryle, the director, and his staff have had a very promising first two years of work.

Viscount Addison, M.D., F.R.C.S., Secretary of State for Dominion Affairs and Leader of the House of Lords, was entertained to lunch on his 77th birthday (June 19) by the other Labour peers, when the Lord Chancellor handed him an inscribed silver cigarette box.

¹ Arch. Dis. Childh., 1939, 14, 323.

² Ibid., 1945, 20, 117.

³ Presse méd., 1946, 54, 25.

BRITISH LEGION RHEUMATOLOGY UNIT

The British Legion unit of rheumatology at the Three Counties Emergency Hospital, Arlesey, Beds, has begun work, and the first patients, all ex-Service men and women, have arrived. It is a one-year scheme for the intensive treatment of arthritis, rheumatism, and allied diseases, under the direction of Dr. C. B. Heald, who has written a note on what is available or will be possible at this special unit.

The doctors in charge of the patients will be men who have made, or are making, rheumatology their special interest and work. The majority of the nurses have volunteered to work for the British Legion, to help ex-Service personnel suffering from these diseases. The physiotherapists have all been chosen because they possess some advantage in training or experience that helps to fit them into the team. The hospital is in the country, surrounded by a home farm, thus ensuring the quiet and sense of peace so essential in all forms of arthritis. Any question of isolation and inaccessibility to London as a result of this situation has been met by the Joint Council of St. John and the British Red Cross Society providing an almost daily "ferry service" in order that contact with friends and relatives may be kept alive and active. Since the patients will all be resident in the hospital, but not necessarily confined to bed, daily treatment will be available.

The first period of each patient's stay will be concentrated on an accurate basic diagnosis and assessment of his or her condition. During this time one of the advantages the unit has secured becomes most actively operative. It is maintaining close liaison with the Royal Free Hospital, and all general medical and surgical departments are continuously available, with their expert visiting consultant staff from London. The special departments have also signified their desire to support this investigation; for example, the professor of pathology lives near the hospital, and the senior throat and ear, skin and nerve specialists visit weekly. This is the first time that any London teaching hospital has so clearly associated itself with a scheme of this size and scope in an intensive attack on arthritis and rheumatism. The British Legion has also secured as its consultant observer Lord Horder, chairman of the Empire Rheumatism Council.

A feature of the scheme will be the steady and progressive attack on the patient's condition in an atmosphere of "no hurry, no worry, and we shall see you back into the wage-earning ranks if possible." For this aspect of the work, a rehabilitation supervisor has been appointed. Here the New Zealand Division has been most helpful, and has seconded its chief physiotherapist, Capt. Guyton, a medical corps officer, with extensive experience at the hot springs of Rotorua and Hanmer. His duties will range from supervision of the diversional and recreational needs to the replacement of patients in industry. The Ministry of Health has also shown support and collaboration by approving the unit as suitable for the appointment of a specializing resident medical officer.

ROYAL MEDICAL BENEVOLENT FUND Projected Homes for the Aged

Sir Arnold Lawson, in his address from the chair at the annual general meeting of the Royal Medical Benevolent Fund on June 12, referred to a proposal, which was assuming practical shape, for the provision by the Fund of homes for old and infirm members of the medical profession or their dependants. As a beginning, a house had been found in Putney which admirably fulfilled the ideas which the committee had in mind, and it was hoped in a month or so to announce the completion of the purchase. It would provide accommodation at an extremely small rental for about a dozen elderly ladies, each of whom would have a comfortable bed-sitting room, and there would be communal sitting and dining rooms and access to the garden. If this initial scheme was a success it was hoped to extend it by providing other houses for married couples or for a larger number of single people of either sex. The project was an ambitious one, but to carry out the complete scheme would cost a great deal of money, and the extent to which it could be enlarged by buying more property, and building perhaps a small nursing home, depended upon the generous support of the profession. He added that the residences would not be called "homes" or given any label which signified that the occupants were recipients of charity.

Position of the Fund

In reviewing the general position of the Fund Sir Arnold Lawson said that the number of subscribers was now in excess of all previous records; legacies had been more abundant than ever; the Christmas gifts appeal had risen to a new level of over £2,000, and "on all sides there are indications that our profession increasingly recognizes what we stand for and is desirous of taking part in our efforts." Those who were concerned with a charitable fund must necessarily

be very much aware of the present tendencies towards State control and the taking over of endowments. It would be a tragedy if the Fund were to be merged into the general structure of a national social service or made subject to the whims of a Government Department. The nationalization of charity meant inevitably the restriction of private giving.

Sir Arnold Lawson was re-elected president of the Fund, with Dr. C. L. Bateson as treasurer, and Mr. R. M. Handfield-Jones as honorary secretary. The resignations of Sir Alfred Webb-Johnson, Dr. N. G. Horner, and Dr. Z. Mennell from the Committee of Management were accepted with regret, and Prof. G. Grey Turner and (representing the Medical Women's Federation) Dr. Frances Huxley were elected to the committee. Thanks for continuing help were expressed to the Ladies Guild, the British Medical Association, and its Charities Trust Fund, the Medical Insurance Agency, and the medical press.

MEDICAL BIRTHDAY HONOURS

The names of the following members of the medical profession were omitted from the list of Birthday Honours printed last week at page 961: Robert Benedict Bourdillon, M.C., A.F.C., D.M., Director, Electromedical Research Unit, Stoke Mandeville Hospital, Medical Research Council, was appointed C.B.E. (Civil Division); Surg. Capt. James White Thomson, M.B., Ch.B., British Guiana Garrison, M.B.E. (Military Division); and Rai Bahadur Kanan Bihari Sen Roy, M.B., B.S., Deputy Inspector-General of Civil Hospitals, United Provinces, M.B.E. (Civil Division).

Correspondence

The Population of India

SIR,—Dr. B. H. Kirman (June 8, p. 890) states that it appears to him "at once fantastic, inhuman, and unscientific to describe India's problem as an excess of population." A few years ago only a very small number of persons would have come within the scope of this scathing indictment, but recently there has been a remarkably rapid change in the outlook on the population problem, so that to-day most of the leading experts in public health, economics, and sociology in India are committing the offence which has aroused such feelings of indignation.

Startling evidence of this change of outlook is found in the very important report just issued by the Health Survey and Development Committee, which was appointed by the Government of India in October, 1943. A distinguished Indian, Sir Joseph Bhore, was the chairman of the committee; 19 of the 25 members were Indians, the rest were Europeans. Most of the members were prominent experts in medicine and public health, but seven, including the chairman, were laymen. The Indian members were fully representative of all the great religious communities and of every shade of political opinion. After more than two years spent on intensive survey and inquiry, the committee have now produced a comprehensive report on every aspect of health conditions in India. In the section dealing with the population problem the following passages occur:

"The question of the need for a continued adjustment between the population and the resources that are available cannot be ignored and should receive serious consideration." . . . "It has been the experience in more than one community that, under favourable conditions, the population doubled itself in about 20 to 25 years." . . . "If our proposals are carried out there is every reason to believe that there will be a saving of at least three million lives every year in British India." . . . "Under such conditions the very large increase of 83 millions which took place between 1921 and 1941 is likely to be reached within half that time. A purposeful control of mortality without a corresponding fall in the fertility rate of the community can thus have far-reaching consequences." . . . "A limit to economic productivity will be reached, sooner or later, and uncontrolled growth of population must, as far as we can see, outstrip the productive capacity of the country." . . . "We feel that the only practical steps that can be taken are: (1) a relentless pursuit of the measures that are now being proposed for the reconstruction of the national life in order to raise the standard of living, and (2) the spreading of the knowledge of birth control, as far as the limitations imposed by the peculiar circumstances of the country, to which we have referred, will permit." . . . "We consider it highly desirable that the population problem should be the subject of continuous study."

A remarkable feature of this momentous report is that it was almost unanimous; of the 19 Indian members of the committee only one found himself "unable to subscribe to some of the recommendations," and of the 6 European members only one dissented from the recommendations on the population problem. Neither of these two dissenters has given any reasons for his disagreement. No further comment is needed on the letter of Dr. Kirman or on the other recent letters from writers who have argued either that there is no population problem in India or that, even if the problem does exist, it must not be discussed lest the susceptibilities of the people of India should be offended.—I am, etc.,

Hawthorn, Kent.

J. W. MEGAW.

Fibrositis and Prolapsed Disk

SIR.—Following the paper by Prof. Arnold Sorshy and Dr. A. Gormaz (April 20, p. 597) I wrote a letter (May 18, p. 774) in which the main plea was for the abolition of the term "rheumatism" or for a more limited definition. In his reply to my letter Mr. J. S. Maxwell (June 8, p. 889) was taken up by two side issues—namely, "fibrositis" and prolapsed intervertebral disk, though, in fact, prolapsed intervertebral disk was never mentioned by me. With regard to his remarks on "fibrositis," Mr. Maxwell is an orthopaedic surgeon, and in that stormy torrent of medical practice there is perhaps little or no time to devote to the careful study of many painful conditions, especially those whose pathology is unknown and whose recovery is invariable. Like him, I have suffered from pain about the right shoulder which recovered spontaneously, though, unlike him, I would not be prepared to say that it was limited to or in any way related to the trapezius muscle, nor, in my case, was it connected with temperature changes or open windows. Whether or not this constitutes a "clinical entity" I do not know, but I suggest that there is no proof that such a pain is in any way related to fibrous tissue, nor indeed that it has an inflammatory basis. I would not go so far as to suggest that my pain, still less his, was psychogenic, but I notice that Mr. Maxwell does not comment on my statement that the bulk of cases labelled "fibrositis" are, in fact, examples of psychogenic pain. Like him, we have all seen people with sciatica, or almost any other malady, who attribute their troubles to sitting in a draught, though this aetiological "fact" is probably more often than not in the same class as being "dropped on the head when a baby," or being "scratched by a rusty nail," and the absence of abnormal signs, and the spontaneous recovery, do not, to my mind, in any way prove the patient's contention.

I should not have thought that there was any fashionable tendency to label conditions "prolapsed intervertebral disk" which were previously labelled "fibrositis," with the sole exceptions of those complaining of sciatic pain or "brachial neuritis" with their almost invariable accompanying signs. I understand that one of the commonest sites for "fibrositis" is the scalp, and I have never heard of a scalp pain being attributed to a prolapsed cervical disk. I would agree that a prolapsed disk has not always been found at operation in cases of sciatica, though I think such negative exploration has become increasingly infrequent during the past few years; such a state of affairs has probably applied in the past to every pathological condition which has become amenable to surgery. In both sciatica and so-called "brachial neuritis" the importance of a prolapsed disk as causative factor is now well established.—I am, etc.,

Leeds.

HUGH G. GARLAND.

The Spread of Infection

SIR.—The article on nasopharyngeal infections by Dr. Ronald Hare and Miss Dorothy Mackenzie (June 8, p. 865) and the letter on influenza and cholera by Dr. J. Walker Tomb (p. 887) show a commendably alert attitude to epidemiological problems. The writers contend that there is much more to understand in the variation of virulence in bacteria and viruses and the alterations of resistance in the tissues than has yet been realized. The rather simple belief that epidemics can be equated in terms of a species of organism known to produce disease in some circumstances and a human being lacking in antibodies to that species has been given too much assent because the two factors mentioned are comparatively easily ascertained. Latent infection and the rise from it of endogenous disease in

the carrier and exogenous disease in others are subjects which may be better understood by extensions of Shope's work on the non-infective form of the swine influenza virus found in the lung worm. These results are quoted by Hare and Mackenzie and by Tomb, who also refers to his own published conclusions that the alteration of cholera vibrios in the human intestine from a non-infective to an infective form is important in the cause of epidemic cholera. Systematic study of bacteria and viruses will be needed with a receptive and critical outlook, and it is hoped that this will be hastened by the Society for General Microbiology which was formed last year. There have been for some years carefully prepared results in this field which are too much ignored. One of these is the occurrence of the G forms of certain organisms (P. Hadley, *J. Infect. Dis.*, 1931, 48, 1), which vary so much from the forms usually recognized that they have been left out of account in the study of diseases caused by better-known forms. Confirmation of much of this work has been given by other workers, including, in this country, A. Haddow (*J. Infect. Dis.*, 1938, 63, 129). Another result is the conversion of pneumococci from one type to another *in vivo* and *in vitro*; this fact needs special consideration because the change is made from an avirulent pneumococcus to a virulent one of another type. The beginning of this latter work was made by the late Fred Griffith (*J. Hyg.*, 1928, 27, 113) in this country, but the development of it has been left to American bacteriologists. The occurrence in your *Journal* of the article and letter to which I have referred indicates, I hope, that fresh knowledge will soon be sought and welcomed in studies of epidemiology.—I am, etc.,

London, N 19.

J. M. ALSTON.

Spread of Nasopharyngeal Infections

SIR.—St. Kilda provides further and earlier evidence in support of the theory of indirect transfer of nasopharyngeal infections discussed by Dr. Ronald Hare and Miss Dorothy Mackenzie (June 8, p. 865). In 1697 Martin Martin, a native of Skye, M.A. of Edinburgh University and later M.D. of Leyden, visited the island. In his *Voyage to St. Kilda* he records that the inhabitants always contracted a cough when the steward and his retinue from Skye paid their yearly visit, and whenever any strangers landed and stayed for any time. The cough, very productive of sputum and lasting ten to fourteen days, affected all the islanders. Infants at the breast were very subject to this cough, a fact brought forward to convince Martin, who at first considered the notion of infection fanciful. When any foreign goods were brought there the cough was of longer duration than otherwise. Martin does not say that the visitors were free from cough, but in view of his reluctance to admit that the islanders' theory was correct it is probable that they were, in fact, free, for elsewhere he says that if the fever had been among those of the steward's retinue, even before their arrival in St. Kilda, some of the islanders were infected. After the infected cough was over, neither young nor old among the strangers and inhabitants of St. Kilda did so much as cough once more, though frequently assembled for divine service.—I am, etc.,

Southampton.

W. P. CARRILL.

Smallpox in the Vaccinated

SIR.—Dr. C. Killick Millard (June 8, p. 890) is correct about the soldier. He had been successfully vaccinated and revaccinated and he was the cause of the outbreak. Though it does not necessarily follow that this was because he was a mild case, for cases in Southend were caused by a virulent unvaccinated case to whom no doctor was called as it was thought to be a case of chicken-pox.

Dr. Killick Millard appears to advocate no vaccination until cases occur. Surely he would not include troops going to India. If he considers these should be vaccinated I cannot follow his reasoning, as if troops for India should be vaccinated so should civilians going to India, so that always there will be a risk of the missed, mild, modified case of variola. Perhaps Dr. Killick Millard will agree with this, but holds that people in Great Britain should not be vaccinated until an outbreak starts, on the grounds that an immediate virulent case or two will readily be diagnosed and so a widespread epidemic will be prevented at the cost of only a few deaths. Surely, recent outbreaks have proved this contention to be incorrect. Mild modified

cases in a number of instances recently have been readily diagnosed and outbreaks have not been widespread. The alternative appears to be between an unvaccinated population and a risk of some deaths and *perhaps* a very limited outbreak. That seems to be Dr. Killick Millard's choice.

On the contrary, I prefer a vaccinated population, even without revaccination (though this should be advised), few deaths, if any, and *perhaps* a rather more widespread outbreak of modified cases. I do not agree that the size of the outbreak at all necessarily depends upon the type of the first cases. I wonder if Dr. Killick Millard would apply the same reasoning to immunization against diphtheria?—I am, etc.,

Health Department, Colchester.

W. F. CORFIELD.

Naples Typhus Epidemic

SIR,—Your issues for April 13 (p. 579) and May 4 (p. 700) contain, respectively, an article by Lieut.-Col. H. J. Craufurd-Benson and a letter by Col. H. D. Chalke on the Naples typhus epidemic in which certain inaccuracies occur which I am anxious to correct.

It will be appreciated in the first place that the epidemic was a civilian affair and, as such, the first brunt of it fell on the Allied Military Government organization of the Fifth Army, then established in Region III with H.Q. at Naples. I took over as colonel, Public Health and Welfare, on Dec. 3. Lieut.-Col. Chalke was then A.D.H. at Adv. Admin. Echelon, A.A.I., and was neither the "Senior Hygiene Officer in Naples" nor directly concerned with the epidemic.

Drs. Soper and Davis of the Rockefeller Foundation, to whom the greatest part of the credit for the control of the epidemic is due, were sent over to me by N.A.T.O.U.S.A. At no time did they "work alone." I had the privilege of having them working with me as part of the organization I was then building up in A.M.G. to fight the epidemic.

Col. Chalke refers to "the whole-hearted co-operation of British and American medical services" and to "the pooling of resources." For the sake of accuracy it should be known that everything A.M.G. required to fight the epidemic in those early December weeks had to be begged for, or borrowed (with difficulty), or even stolen! A request made by me for insecticidal powders on Dec. 3 was refused—if not treated with scorn. Other than the few decrepit cars obtained from the Italian authorities (who played 100%), I found it impossible to get any transport for the dusting and case-finding team from the Army. As another example of "whole-hearted co-operation" a reference had to be made to the highest possible authority to get the R.A.F. out of the only infectious diseases hospital in Naples. It was not until the U.S. Typhus Commission came in armed with full authority to demand anything they wanted that the resources of the Armies in men, transport, and material were placed at their disposal. The U.S. Commission took over the organization established by A.M.G. on Jan. 3, and expanded it, but the epidemic had already been checked by A.M.G., as the drop in incidence on Jan. 9 and the subsequent steady decline showed.

Because of the refusal of insecticidal powder in the beginning steam disinfection was used—but only on a minor scale because of the immense difficulties met with in finding the required materials in the shattered city. We did succeed in opening centres at the Albergo dei Poveri, at the Pace Hospital, and at the Ospedali Riuniti. They were used until the dusting powders became available.

The first public dusting centre was opened at the railway station on Dec. 15. MYL was used merely because of the difficulties experienced in finding grinding and mixing machinery. D.D.T. was brought into use about ten days after the first dusting, scarcely "relatively late" in the epidemic. D.D.T. is the insecticide of choice because of its prolonged action. MYL was a useful stop-gap which was backed soon after by D.D.T.

If there is one lesson to be learnt from the Naples epidemic it is the absolute need for Military Government in the field to have an equal priority in bidding for men, transport, and material as any other organization in the field. This lesson had not been fully appreciated in N.W. Europe, where I was Director, Public Health, A.M.G., 21 Army Group. It would have saved valuable time in both theatres of war.—I am, etc.,

Nagpur, India.

W. H. CRICHTON.

Hernia and Strain

SIR,—Mr. Stephen Power (June 8, p. 888) adds his testimony to the growing belief that the transversalis fascia is of primary importance in the aetiology of inguinal hernia. He implies that in young men the repair of these herniae should be limited to removal of the sac and suture of the torn fascia, deploring the "building up" of "a barrier at an anterior level." His wording is a trifle ambiguous, and that the operation should be limited to suture of the transversalis fascia and reconstitution of the remaining structures may not be his meaning. For my purpose this ambiguity is of little importance. What is important is that Mr. Power gives operative advice based on anatomical observations without reference to his results. I submit that this is not good enough. In this matter one cannot hope to carry conviction without figures. I do hope he will repair this omission.

That the "barrier at an anterior level" can be an effective barrier was, I think, demonstrated by the late results reported by Mr. J. T. Morrison and myself at the recent meeting of the Association of Surgeons. We quoted 230 unselected adult inguinal herniae of great variety, with recurrence in 4. In all of these cases the sac was removed and the canal repaired (without previous suture of the transversalis fascia) with a strip of aponeurosis taken from the external oblique in the manner strongly advocated these many years by my collaborator.—I am, etc.,

Liverpool.

CHARLES WELLS.

SIR,—Mr. Stephen Power (June 8, p. 888) has described a very important factor in the anatomy of hernia. He points out the existence of a hole in the fascia transversalis at the internal ring, and stresses the importance of its closure after the sac has been ligated and removed. I feel sure that if this procedure is not carried out during the repair of a hernia the chances of recurrence are very much increased. If this opening in the fascia transversalis is left patent the stump at the sac directly behind it has no barrier to prevent it bulging through the opening when the patient strains, and so extending itself forward and becoming elongated to give rise to a new sac formation.

I feel that the existence of the hole in the fascia transversalis in inguinal hernia has not been described fully in the textbooks on hernia. In fact, many herniotomists are not aware of its existence. During the meeting of the Association of Surgeons in London in May, when a discussion on hernia took place, no mention was made by any of the many speakers of the existence of a hole in the fascia transversalis and the importance of its proper closure. While performing a radical cure on hernia, I always make it a practice to point out the opening to my assistant by placing my forefinger into the opening prior to sewing it up. The size of the hole is very variable. In some cases it can admit two fingers, and one can see how far medially the deep epigastric vessels are displaced. The opening in the fascia should be closed by means of a continuous suture, just enough room being left for the cord to emerge.

As regards the suture materials used in the repair, I am of the opinion that this is not so important. I have used Chinese twist, floss silk, fascia lata, buried nylon in the form of a filigree, and even skin strips. It is the method of repair that counts and not which suturing is used.

Lastly, I should like to mention one other point which I consider important in order to prevent recurrence. This is to alter the course of the cord after it emerges from the internal ring. Normally the cord after its emergence passes down the canal medially and caudally. It is advisable, I consider, to make the cord pass upwards and laterally before passing downwards and medially. In this way a hernia, should it attempt to recur, finds its path of exit from the internal ring more difficult. I learnt this tip from Mr. Rodney Maingot, and I think the principle of it is very sound.—I am, etc.,

London, W.1.

MAURICE LEE.

Old Age and Calories

SIR,—Among the problems connected with the subject of old age there is one that seems to me worthy, so far as possible, of special investigation. I refer to calorie value of the diet during the prime of life. It has been suspected that a very high calorie value—especially excess of meat—tends to shorten life, death

occurring at between, say, 60 to 70 years of age instead of between 70 and 80. It would be very interesting if dietetic investigations could throw light on this subject. Even during my life-time habits seem to have changed considerably, much less meat being consumed by well-to-do men in the prime of life (I refer, of course, to ordinary times of peace). The metabolic and excretory organs (especially the kidneys) are presumably less constantly overworked, and maintain their proper functional activity to a later period of life; this may partly account for the modern increase of old persons with normal mental powers.

Is there any reason for endeavouring to increase the number of old persons? Yes, I think so. One of the chief advantages of healthy old persons in a community consists, I believe, in their accumulated knowledge and resultant *doubt*. "Doubt grows with knowledge" (Goethe), and knowledge should increase with age. Old persons, owing to their knowledge and *doubt*, should be less prone than the young to that kind of "fanatical certitude" which provokes enmity, aggression, and war.

As to the effects on the chances of longevity of a relatively low calorie value of diet during early and middle life very little, I believe, known, though unfortunately, especially at the present time, much is known about the immediate disastrous results of grave undernutrition.—I am, etc.,

London, W.1.

F. PARKES WEBER.

Artificial Respiration

SIR,—Prof. R. R. Macintosh and Dr. W. W. Mushin (June 15, p. 908), comparing the efficiency of different methods of artificial respiration, state that too much stress has been laid on details and not enough on essentials, such as a clear airway. They say that the choice of method is relatively unimportant. This is true, with one qualification—that the method is properly carried out. This sounds foolishly obvious, but there is one method which is often used badly and inefficiently.

In respiratory failure during or after anaesthesia the patient is normally lying on his back and the most convenient method is Schäfer's (direct pressure on the chest). If this pressure is applied too low, which is a very easy mistake if the surgeon is doing it from his normal position, it falls entirely on the liver and the effect on the lungs is practically *nil*.

Illustrative Case.—A stone in the ureter was removed from a soldier in a German prisoner-of-war hospital. He stopped breathing after his return to the ward. The cause was probably the combined depressant effects of morphine, evipan, and ether. (The only available apparatus for dealing with these tough male adults was an open ether mask, which is rather like shooting elephants with an air-gun, so we often gave undesirably large doses of preliminary drugs.) It was not my case, but I was called in. I found the surgeon energetically using Schäfer's method, but no air was entering or leaving the lungs. Putting in an airway made no difference. The oxygen apparatus arrived from the theatre at this moment. Now the German Army portable *Sauerstoffgerät*, though fitted with multiple breathing tubes and face-pieces for treating four patients at once, has no provision for giving oxygen under pressure. The bag of the apparatus confirmed the absence of pulmonary ventilation. So, telling the surgeon to do a rapid wash-up for a cardiac massage, I continued the artificial respiration by pressing with one hand on the sternum. This immediately caused a free flow of oxygen in and out.

The anaesthetist's normal position at the patient's head makes it practically impossible for him to make the mistake of pressing too low down. Pressure on the lower ribs may be all right if the patient is lying prone, but it is certainly useless when the patient is lying on his back. It would be interesting to have this point confirmed by spirometer readings during anaesthesia.—I am, etc.,

Leeds.

W. STANLEY SYKES.

The Catheter and the Prostate

SIR,—The letters from Dr. Seymour Edelman (June 1) show that the abstract of my paper was too condensed to be lucid. The acute prostatic retention should be operated upon as an urgency and the pain immediately relieved by morphine; or, if the waiting interval is too long—as in a patient who travelled last week from Devon to Manchester—by the suprapubic insertion of an aseptic lumbar-puncture needle attached by a

rubber tube led into a sterile bottle. These methods are less painful than catheterization and do no damage to the delicate urethra. The preparatory chemotherapy is intramuscular.

There are no more misleading statistics in medicine than those in connexion with prostatectomy. I refused to operate upon 8 out of 573 cases (1.4%), and there were no pre-operative drainage deaths because I do no pre-operative drainage. This suggests a higher standard of operability than any yet recorded. Mr. H. P. Winsbury-White (June 1) refused (so far) at least 18 cases out of 113 (15.9%). If one were to pick one's cases I presume that the mortality might be *nil*. Mr. Clifford Morson (June 8) makes comparisons between my figures and those of the late Sir Peter Freyer which are misleading because they are incomplete: he is unaware of the number of cases Freyer refused and left to die, but he is well aware of the appalling mortality of simple suprapubic drainage in those days, before even slow decompression came into practice. Until we know the numbers of cases refused, the mortality of the preliminary drainage, and the ultimate after-condition of the patient, we can form no opinion of the value of the various methods of prostatectomy; and the simple prostatectomy mortality figures with the pre-operative drainage mortality statistics concealed are valueless. If Mr. Winsbury-White will do his prostatectomies aseptically he will see absolutely clear urine every day, though not in every case.

My removal of the greater portion of the trigone is described as a "physiological mutilation of the trigger of micturition." Well, I do not know of any old man, passing urine many times at night, who would not be glad to get rid of his "trigger." I strongly suspect that the absence of the trigone is the reason for the lesser frequency of micturition after my operation than after those done by me by the retropubic route.

History will show that the catheter and suprapubic drainage, and the shibboleth of slow decompression, have put back the clock of prostatectomy by thirty years, and have caused the birth and spread of septic transurethral resection with its imperfections and complications.—I am, etc.,

Manchester.

WILSON H. HEY.

SIR,—The mortality rate for simple suprapubic cystostomy in my recently mentioned prostate cases was 2 in 73 cases (2.7%) not 11.1%. Dr. Terence McCall (June 15, p. 931) seems to have overlooked the 55 cases of cystostomy which proceeded later to the second stage of prostatectomy.—I am, etc.,

London, W.1.

H. P. WINSBURY-WHITE.

Treatment of Sterility in Women

SIR,—Many women are now seeking help because of sterility, and the investigations of this complaint have now reached a high standard of efficiency, but is it possible that the investigation is outdistancing treatment? I find that patients all over the country are having their tubes inflated or made opaque by lipiodol, and then being sent away under the impression that pregnancy will shortly follow. Surely all the gynaecologist can say after such a manoeuvre is, "Provided I have not done any damage, you are just the same as you were before." It is amazing how many people seem to forget that the operation of dilatation of the cervix is still the most important factor in the treatment of sterility.—I am, etc.,

Leeds.

DAVID CURRIE.

Notification of Venereal Disease

SIR,—A full system of notification and compulsory examination and treatment, as Dr. C. M. Ockwell (June 15, p. 929) reminds us, still awaits official acceptance in this country. Although Regulation 33B is an inadequate compromise, its introduction implies Government recognition of the need for compulsion in certain circumstances. This Regulation has proved useful, but its value in V.D. control could be augmented greatly by extending its provisions so that official action could follow the receipt of one notification. This step would, in my opinion, be more simple and effective than seeking the inclusion of the venereal diseases among the notifiable infectious diseases referred to in the Public Health Act.—I am, etc.,

Ipswich.

S. M. LAIRD.

Industrial Medicine

SIR,—Whatever views may be held on the merits of artificial sunlight in industry, surely no informed person will claim that physical methods are anything but ancillary to the more radical methods of preventing sickness and absenteeism to which you refer in your leading article (June 8, p. 882). The primary function of industrial medicine is research, directed to the detection and elimination of industrial hazards.—I am, etc.,

Derby.

GERALD F. KEATINGE.

Psychology in the Child's Education

SIR,—The letter from Dr. E. Stungo (June 15, p. 930) stimulates me to make comment. We can easily agree that children are the citizens of the future and deserve the best we can give them, but why is it that when we start planning we so easily start on the wrong foot?

The main suggestion in the letter is to the effect that children should be taught as the Nazi children were taught, only taught citizenship. How easy to say, and how difficult to put into practice! Dr. Stungo leaves out the real source of good citizenship, which is in the life of the child in his own home, including the first relationship, that between infant and mother. On the basis of a good first relationship, more complex relationships can be developed gradually at home, and if all goes well the wider world is approached through the family's external relationships. If these things fail, citizenship (or something else) has to be taught, and a job it is.

If doctors are to interest themselves in this business of producing citizens they can start immediately by refraining from all avoidable interference with infants and small children. Neither should any physical treatment be undertaken that can possibly be avoided, nor should infants and small children be taken from home except in case of dire necessity. Small children in hospitals should be visited so frequently that they never cease to be sad, which means that they do not lose the thread of home life; and they should be sent home as quickly as possible. Moreover, there should be a stop to the general practice of taking over responsibility from parents who would like to retain responsibility: it is possible to give help without in any way making parents feel they are not fit to act on their own judgment.

Doctors and psychiatrists should remember that parents and teachers cannot wait for psychology to get to know everything. Parents and teachers have to deal with whole problems, and this is specially true of mothers with their infants. We understand some very important things about emotional development, but there is very much we do not yet know, or but dimly see. Let us not imagine we can tell a mother how to be a mother or a teacher how to teach. We can help each to understand this and that, and we can make their mothering and teaching jobs more conscious and more interesting; but all the time parents and teachers will have to carry on intuitively and without being able to account for all that they do.

Dr. Stungo says "children learn something of love, charity, sacrifice, humility, modesty, good and evil from religious instruction . . . they should be taught to appreciate the nature of hate, envy, greed, spite, guilt, and temper. . . ." In my opinion children know more about all these things than we do, and we could spend our time letting them teach us with a good deal of profit.—I am, etc.,

London, W.1.

D. W. WINNICOTT.

SIR,—Dr. E. Stungo deserves credit for drawing attention to educational affairs of utmost importance, both national and international. Surely, the medical profession must not lose sight of its long-established educational function within the community. While child psychiatrists will find themselves in hearty agreement with the general line of Dr. Stungo's striking observations and far-sighted demands, there are, on the other hand, some points in relation to his statements which require further elucidation. Modern child psychology distinguishes certain "phases" in the normal development of the child, each of them having great biological importance. It is, therefore, not quite appropriate to use the slogan "A child ought to be taught . . ." unless one refers to a certain phase or age in the child's development. Unfortunately, this point of view has been omitted from Dr. Stungo's remarks. There are phases in the

child's development in which psychological enlightenment in the sense of training would be entirely out of place. Nature has provided the child, for a certain span of his life, with a precious gift—viz., "naivety" (but for processes in his unconscious). It would be unwelcome to all concerned to deprive the child of this gift by guiding him towards precocious introspection and assessment of "fellow men." Child psychiatrists know how often the untimely destruction of a child's naivety by events in his home—or outside it, for that matter—can lead to a neurotic development. I had to utter a similar warning a few years ago, when a psychologist in a book on children's development recommended some sort of "confession," which the child had to make every night to his father or mother sitting at his bedside, on wrongs he had done during the day. It should be realized what a "neurotizing" effect a surplus of introspection at an early age can have. No harm can be done by guiding children aged 10 to 13 to a correct and alert observation of people, by ways and means for which the Boy Scout system can be an example. The first approach of the child to "systematic" psychology should be, to use a modern term in psychology, "behaviouristic." With the approach of puberty the child becomes naturally introspective and at the same time very much concerned with the motives of people's actions and conduct. It is at this stage that terms of structural and deeper psychology can be brought, gradually and unobtrusively, to the child's mind. This is the age in which, as Dr. Stungo rightly expects, the endeavour to understand other groups and nations should find a fertile soil.

Some of Dr. Stungo's remarks are directed against "frustration" in the child's life, created by competitive systems in education. It is not frustration itself which is noxious or to be feared, but a surplus or an overwhelming intensity of it. Without frustration the development of a child's character would be as "shallow" as an adult's development without inner conflict.

The most practicable part of Dr. Stungo's remarks is where he speaks of the teacher's training in child psychology. That teachers should be trained, in addition to the facts of normal development, also in the recognition of developmental difficulties and behaviour disorders, just sufficiently so as to guide those children into the proper medical channels and to co-operate in their treatment, cannot be enough underlined. The best solution would be to allot some time in the curriculum of trainee teachers to such child psychiatrists as would be willing to co-operate in a direct way within the educational system. It can be safely said that while our age and society tend to exclude waste in every possible sphere, the sphere where most waste and frustration is still tolerated is that of psychic economy and mental hygiene. Surely, if society wants to overcome this state and to prepare for an age of better social adaptation, new ways must be found in order that new sap, provided by medical knowledge, may reach the roots of our educational system.—I am, etc.,

Virginia Water.

STEPHEN KRAUSS.

The Health Bill and Medical Research

SIR,—I have read the contents of the White Paper and the various Parliamentary debates connected with it, and can find no reference to that fountain-head of medical progress—namely, medical research. This is the more surprising since vast sums of money have been pledged to atomic research and other destructive agents, and I can find no mention of similar sums being set aside for the saving of human life in the field of preventive medicine and associated research. In fact I quite agree with Drs. Hilton and Luntz (June 1, p. 850) that the only available sums amount to some £215,000 per annum for the whole of the British Isles.

It is popularly assumed by Parliamentarians and public alike that anyone can undertake medical research. This, I maintain, is far from the truth: a trained research worker is very much like a judge, and requires much the same mental outlook. Just as a judge requires a comprehensive knowledge of the law so the trained research worker requires a vast knowledge of comparative medicine and, in addition, a comprehensive knowledge of international research literature. In preparing his paper he has to act not only as counsel for the prosecution but also as counsel for the defence, and jury, and, by mental cross-examination, build up his thesis or "summing up."

I can well foresee the time when those who spend some time on unpaid medical research will, when the Bill is made law, drift into the more secure and more lucrative harbours of a full-time salaried appointment under the State, and medical progress will retrogress.—I am, etc.,

Northampton.

JOHN H. HANNAN.

"A Doctor's Charter"

SIR.—Dr. Edith Summerskill, addressing the Labour Party Conference, is reported to have described the Health Service Bill as a "charter of liberty for the medical profession," explaining that "in future no doctor need prostitute his science by pandering to the hypochondriac." I suppose that in the circumstances in which she made it this astounding statement was taken for sober truth, and raised not even "cries of 'Oh.'" The *Times* has had the grace to print a well-deserved comment on it by Dr. Alfred Cox, but even his letter does not, I think, do full justice to its extreme perversity. I can imagine situations in which it might be genuinely difficult for a doctor to rid himself of an unwanted hypochondriac. A Lord of the Manor or popular trade union leader or, in future, a chairman of a Regional Board, if thus afflicted, might, in an over-organized community, be hard to shake off without undue loss. But such cases, if they occur, can scarcely be affected by an Act of Parliament. What matters is not the exceptional but the ordinary hypochondriac.

In a community of free individuals accustomed to pay direct for medical attention nothing is easier than to avoid this "privatization of medical science." A lifted eyebrow, a well-judged silence, a lack of enthusiasm for the latest thing in therapeutics and the bird will fly. Moreover, the bird is gregarious, and others of his feather or hers will fly too or keep away. In the conditions of free private practice such patients can be collected for investigation and treatment or avoided at will. Plenty of work of other kinds and a decent livelihood remain for those of us who prefer to avoid them; doctors and patients alike tend at least to get what they desire and, it may well be, what they are most fitted to do or to receive.

But when every hypochondriac has already paid his fee by way of compulsory contribution; when he has a right to "the best" for the asking and is officially urged to take every "early symptom" to the doctor forthwith; when he may be allotted by a committee to a reluctant practitioner deprived of the right to raise his fee or to request the patient to choose another doctor; then I fear, if we enter the service, we shall learn what it is to be at the mercy of these unhappy but exhausting folk. Or if, following Dr. Summerskill's lead, the whole service steels its heart so that they cannot get "twixt the lawful sheets" the recurrent investigations and treatments their souls desire, then must arise a medical or quasi-medical "black market" hitherto unknown, and in that market medical science will indeed play the prostitute.—I am, etc.,

Hampstead, N.W.3.

LINDSAY W. BATTEN.

Health Service Bill

SIR.—I am certain that a large number of medical men must feel, as I do, increasing apprehension at the present policy of the B.M.A. with regard to the new health Bill. However you may look at it, organized refusal to work the Bill is a strike, and it is just because I am a lifelong Conservative that the idea of a direct action strike against the Government of the day is repugnant to me, and I, personally, will take no part in it, however much I disapprove of the Government's policy. Such a strike, reprehensible enough when undertaken by miners, transport workers, etc., is doubly so when threatened by an educated section of the community like the medical profession.

There is now little doubt that the great majority of the people are in favour of the Bill, and doctors who think otherwise are merely indulging in the good old habit of "wishful thinking." The people frankly do not understand what the doctors are making a fuss about, but the seeds of suspicion are being sown that the doctors are intent on getting their money to the exclusion of everything else. Let us do all we can by constitutional means to get what we consider to be the best conditions for all concerned, but do let us stop these foolish threats to strike which are rapidly bringing the profession into disrepute.—I am, etc.,

Diss, Norfolk.

J. V. DOCKRAY.

SIR.—I am one of the many doctors who view with misgiving the Government's proposals for a National Health Service, but I have been almost converted in its favour by the pamphlets recently published by the B.M.A. for distribution by doctors to their patients.

Space will permit mention of only the grosser absurdities in these circulars. In one of them the following underlined statement appears: "*Under the National Health Service Bill your doctor may be told how to treat you by Government circular.*" Does any intelligent person believe that such a possibility exists and is there any justification for the suggestion? In the Forces, to which disparaging reference is made in another circular, it is true that "directives" were issued from time to time, as well as the eagerly read Army Medical Department Bulletins. Both of these contained advice on treatment based on current experience over a wide field; to that extent they indicated "how to treat" the patient. So far as I remember they never ordered a particular line of treatment. They did, occasionally, order a certain line of investigation, and sometimes put a ban upon treatment that accumulated experience had shown to be highly dangerous. It may be suggested that not a few patients might have been spared a good deal had their doctors been "told how to treat" them in this way.

In another pamphlet statements by Sir William Beveridge and the Government actuary are quoted, and the reader is asked to "note the distrust of the doctor shown" in them. Both statements emphasize the necessity for a high standard of certification, and one suggests that "there may be a tendency on the part of doctors to require longer periods off work" for their patients. Are we, then, so thin-skinned—or is it a sense of guilt—that we wince at the mention of "careful certification"? And does not experience of the working of N.H.I. suggest that the Government actuary's fear of "longer periods off work" is, at least, well founded?

Finally, a paragraph of barely veiled innuendo referring to doctors in the Forces ends with the sentence: "The task of the Forces doctor is to make all ranks fit for duty and to protect the pensions fund." Success in the second of these tasks follows largely upon success in the first, and both seem to be eminently desirable. If a National Health Service can bring about such a happy state of affairs, then the sooner it is in force the better.—I am, etc.,

Newcastle-upon-Tyne.

A. ANGUS.

Assistants and the Bill

SIR.—In my letter (June 1, p. 847), I listed five general respects in which the introduction of an assistant into a practice conflicts with the so-called Principles of the profession. Now, although these items clearly relate to matters of fact, Dr. R. McIntosh (June 15, p. 928) endeavours to convince us that they are subject to a vast difference in point of view which he assumes exists between him and myself. Although for some reason he presumes that I have a sordid conception of the relations between principal and assistant, it would appear that his views on that matter are the same as mine. I entirely agree with his three classes of assistants, and join with him in his whole-hearted condemnation of the "grasping principal." He had absolutely no excuse for any assumption to the contrary. I can only suppose that he found nothing to burn in my letter and so had to resort to this rather doubtful method of producing a guy upon which to release the heat of his annoyance.

Having survived this burning in effigy, may I be permitted to restate the fact that, for whatever motive an assistant is employed, it is customary for conditions of his employment to run contrary to the recently adopted Principles of the profession. In fact, at the outset an agreement is usually signed which gives the employer powers of direction far beyond anything contemplated in the present Bill. Another constant feature of such agreements is the acceptance of a salary by the assistant and an undertaking that the doctor employing him shall receive all the assistant's earnings. Both parties are in fact prepared to abandon the precept that remuneration shall be proportionate to effort. While still leaving my views on this doctor-assistant-patient relationship to the guesses of Dr. McIntosh, it may be said that for the most part it is a necessity under the present system. However, my purpose was not to criticize this relationship but to examine its apparent incompatibility with the Principles.

It is obvious that any doctor fundamentally convinced that both salaried service and direction were bad would not be party to any agreement involving any infringement of these Principles. Then one must ask how has it come about that doctors who for many reasons have employed assistants under conditions conflicting with the present avowed Principles of the profession are among those now upholding these Principles when the Government threatens to ignore them to a comparatively slight extent? I am of the opinion that this paradox arises out of some confusion in the interpretation of the word "principle." The Principles are in fact a codification by the B.M.A. of our present relationship with the public, and are put forward by those who are against fundamental change as the frontier upon which they are prepared to stand and fight. That attitude may be unreasonable or hopeless, but it is not necessarily at all dishonest. The latter element is being introduced by those who attempt to invest the Principles with a generalized and almost sacred significance, which is incidentally incompatible with any desire to uphold or retain the present doctor-assistant-patient relationship. To avoid charges of dishonesty doctors should therefore take care to distinguish between the principles of the profession and the recent codification of the Principles of the profession's present struggle against changes involved in the Bill.—I am, etc.,

Eye, Suffolk

J. SHACKLETON BAILEY.

Artificial Sunlight in Industry

SIR,—Dr. Schmidt (June 8, p. 890) criticizes my comment on his statement that ultra-violet irradiation had reduced sickness absence in a colliery by 18%. He based this conclusion on the fact that in the year in which treatment was given at one colliery, Kirkby (Notts), there was 18% less sickness than in the previous year, when there was no treatment, while at one other colliery, where there was no solarium, the rate actually rose. From these facts Dr. Schmidt deduced that the ultra-violet treatment was responsible for the improvement at Kirkby.

Dr. Schmidt is mistaken in thinking that in quoting his figures I compared the "absolute mean sickness figures" of the two collieries. My argument was that, as the sickness absence rates in the two were very different in the year before the irradiation started, a comparison of the changes in their rates in the two years was not valid. Yet Dr. Schmidt based his conclusion on this comparison. He did not ascertain, by a study of the health records of a control group of unirradiated men selected at random within the Kirkby Colliery, whether influences other than the irradiation had caused or contributed to the drop in the sickness rate. Dr. Schmidt argues that each colliery has its own features regarding absenteeism, that some have high rates, and some have low. That may well be true, but he goes on to say that these "general characteristics remain fairly irrelevant" when trying to judge the influence of one specific factor—i.e., the solarium treatment. But his comparison of the changes in these rates depends entirely upon this assumption of irrelevancy. He gives no evidence that from year to year these general characteristics do invariably remain constant and that there are no yearly variations in sickness absence due to the underlying causes he mentions.

To what extent do they occur in the absence of any specific form of treatment? Extension of such observations in space and time might strengthen his case by showing that in different collieries at different times a fall in absenteeism invariably followed solarium treatment. He merely offers a single comparison, and it is obviously impossible to deduce cause and effect from it. On the other hand, Dr. Schmidt might have given more convincing evidence if he had used an adequate control group with the Kirkby Colliery, for it is possible to draw certain reliable conclusions from a relatively limited inquiry which is well controlled. When experimental conditions are less favourable—as, for example, when comparison is made between one period of time and another, or between groups of subjects living in different environments—the observations must be far more extended.

Far from being "lost in a jungle of statistics," I was fortunate in having the guidance of experts both in the planning and in the interpretation of my experiments.—I am, etc.,

London, W.6.

DORA C. COLEBROOK.

Judicial Responsibility of the G.M.C.

SIR,—In the report (*Supplement*, June 8, p. 165) of the Summer Session of the G.M.C. the President, after announcing the restoration of the name of Dr. Hennessy to the *Register*, is reported to have said that he had been asked by the Council to add a few words. "A judge of the High Court (Mr. Justice Charles), in a judgment delivered by him on April 12, 1946, had intimated that the Council 'not having the advantage of the great mass of evidence that had been put before him and which was not put before them,' had 'in the absence of adequate evidence (and they could only deal with the matter on the evidence before them)' come to a conclusion adverse to the practitioner which had resulted . . . in a gross miscarriage of justice." The President continued: "But I must emphasize that it is imperative in all inquiries held by the Council under Section 29 of the Medical Act, 1858, that an accused practitioner should call before this Council all material and relevant evidence in support of his case. *If he neglects to do so, it is at his own peril*" (italics mine). "This Council can only deal with any case on the evidence before them. If there is evidence that is relevant and that could be adduced on behalf of the practitioner and is not so adduced, the responsibility of any adverse view by the Council *must rest with the accused practitioner*" (my italics).

I would make the following observations: (1) Evidence given before the G.M.C. is not given on oath and is not evidence in a legal sense. (2) Neither the Council, the complainant, nor the accused practitioner has the power to subpoena witnesses, and it follows that even the unsworn evidence may be incomplete (and a material witness may be unwilling to attend to give evidence because of the time involved in travelling and attending the hearing or a wish not to be "mixed up" in a case). (3) In view of the foregoing, the statement of the President that "an accused practitioner should call before the Council all material and relevant evidence in support of his case" (presumably this means his defence) "and if he fails to do so it is at his own peril," is nonsense, and is all the more disquieting in that it is, presumably, a considered statement, and emphasizes the need for the judicial activities of the Council to be placed in the hands of a trained lawyer, who could sit, if need be, with a medical assessor (similar to the procedure in Admiralty cases). Let the cobbler stick to his last.—I am, etc.,

South Shields.

TERENCE G. ROBINSON.

SIR,—The President of the G.M.C. says that an accused practitioner should call all material and relevant evidence in support of his case; if relevant evidence could be adduced and is not, the practitioner is responsible for an adverse view of the Council. But what if the necessary witnesses will not come? Neither the Council nor the doctor can compel them to. Until the Council is given power to subpoena witnesses, and obliged to do so on the motion of the respondent doctor, its disciplinary proceedings will continue to fall lamentably below any reasonable standard of justice.—I am, etc.,

London, S.W.19.

D. H. KITCHIN.

SIR,—May I express in your columns my support of, and gratitude to, Dr. R. V. Goodliffe, on his plain and decisive exposure of the G.M.C. President's complacent statement about the Council's recent gross injustice to a medical practitioner. That statement does mean: "We presume and hold you guilty until you satisfy us of your innocence."—I am, etc.,

Albert Dock Hospital.

H. M. HANSCHALL.

For two years the American-Soviet Medical Society has been publishing the *American Review of Soviet Medicine*. Arrangements have now been made for publication in this country. The first number of the British edition includes articles on: anaerobic infection of the brain; the role of vitamins in the pathogenesis and treatment of skin diseases; observations on the pathogenesis of hypertension; cyclodiathermy in secondary glaucoma; permeability of the haemato-encephalic barrier in massive arsenotherapy; immunization of diphtheria carriers; and "agonal states and clinical death." The publisher is Philip Firestein, 82, King Edward's Road, Hackney, E.9.

Obituary

PETER MCBRIDE, M.D., F.R.C.P.Ed.

Dr. Peter McBride, the veteran Scottish laryngologist who was for many years head of the ear and throat department of the Edinburgh Royal Infirmary, died on June 16 at St. Peter's Grove, York, where he made his home after spending some years in retirement at Harrogate.

Born on Aug. 16, 1854, son of James McBride, he went to school at Clifton College eight years after its foundation, and took his medical course at Edinburgh University, graduating M.B., C.M. in 1876; he was elected F.R.C.P.Ed., in 1880, and in the next year proceeded to the M.D., after attending clinics in Vienna to study diseases of the throat and ear. On his return to Edinburgh he was appointed to the staff of the Eye, Ear, and Throat Dispensary and began to lecture on diseases of the throat in the extra-mural School of Medicine. In 1883 he took charge of the new department for ear and throat diseases at the Royal Infirmary (where he had been resident physician) and held that position for twenty years, during the last five of which he was university lecturer on otology, rhinology, and laryngology. In recognition of his great service in building up the department he was made consulting surgeon in 1904.

Peter McBride was honoured by his fellow specialists far beyond the borders of Scotland. He had been president of the Laryngological Society of London, was twice president of the Section of Otology and Laryngology at Annual Meetings of the British Medical Association, and president of the Otological Section of the Royal Society of Medicine for two years; he had also been vice-president of the Otological Society of the United Kingdom. He was an honorary member of the Scottish Otological and Laryngological Society, corresponding member of the Berlin and the Vienna Laryngological Societies, and of the French Otological, Rhinological, and Laryngological Societies, also a corresponding Fellow of the American Laryngological Association. Three years after his retirement from active professional work he gave the Semon lecture in laryngology at the University of London in 1913.

In the course of a long life he wrote much. His *Guide to the Study of Ear Disease* came out in 1884, his *Diseases of the Throat, Nose, and Ear* reached a third edition in 1900, and he contributed many papers on affections of the ear, nose, and throat to medical journals; he had also translated Gottstein's *Diseases of the Larynx* in 1885. His miscellaneous writings included *Philosophy of Daily Life* (published under the initials "E.C.M."); *Psycho-Analysts Analysed* (1924); the *Riddle of Personality* (1926); the *Philosophy of Sport* (1932); and *Doctors and Patients: An Aid to Mutual Understanding* (1933). Keenly interested in outdoor and indoor sports and games Peter McBride loved a day with the hounds, and often hunted during his early years of retirement in Yorkshire. He had been a member of the B.M.A. continuously for 66 years.

H. G. EARLE, LL.D., M.B.

Dr. B. S. PLATT, Director of the Human Nutrition Research Unit, writes:

In the spring of 1941 Dr. Earle left his wife and family in England to return to Shanghai to his post as Director of the Henry Lester Institute of Medical Research to face the difficulties and dangers which he must have known were about to come to a head in the Far East. His action was in keeping with a high-minded sense of duty which characterized the care which he gave to the Institute he had nursed from its birth. In the same spirit he stayed on after his release from internment in Lunghwa Civil Assembly Centre at the end of the war with the Japanese. Although he had, by the end of the war, ceased to be Director of the Institute, he no doubt felt that he must do what he could to try to get it on its feet again. He must have suffered in mind during internment at the stupidity and waste of war, in spite of his naturally calm and philosophic outlook on life; for he loved peace and lived for the improvement of the lot of mankind. There can be little doubt that but for his sufferings undergone during the war he would have returned to a place of esteem and affection in medical circles in this country.

Dr. Earle had been adviser to the Henry Lester Trust since 1926. The Institute staff began to assemble in 1927 and grew in size and achievement till the outbreak of the Sino-Japanese war in 1937, when

its activities had to be considerably curtailed. Nevertheless, the annual reports from 1934 to 1940 are records of additions to knowledge over a wide field of medical research. His policy as Director was, to use his own words, "to stress the view that disease is a general biological problem and that all medical research should have a fundamental philosophical background if it is to be intelligently pursued." The loss of his wisdom and experience will be felt especially in China in the difficult period of rehabilitation ahead.

We regret to announce the sudden death on June 7 of Dr. JOHN DUKE STEWART, the well-known Dundee anaesthetist. He graduated M.A. of St. Andrews in 1915 and M.B., Ch.B. in 1921 and obtained the English D.A. in 1935. The following tribute comes from two colleagues: The tragic death of Dr. Duke Stewart has come as a shock to the people and medical profession of Dundee, where his services as anaesthetist were widely sought. For some years he had devoted himself entirely to the practice of anaesthesia and had recently been appointed lecturer on anaesthetics in the University of St. Andrews and promoted senior anaesthetist in Dundee Royal Infirmary. His keen interest in and knowledge of the subject, his patience and skill in the teaching of students, and his study of the problem of the individual patient pre-eminently fitted him for these responsible posts. Dr. Duke Stewart was particularly interested in the question of premedication and published a paper on this subject in the *British Journal of Anaesthesia* in 1939. He was a member of the B.M.A. and contributed articles to the *B.M.J.* Dr. Stewart was a Fellow of the International Anaesthetic Research Society and a member of the Scottish Society of Anaesthetists and of the Association of Anaesthetists of Great Britain and Ireland. Not only was his work known in the United Kingdom, but in 1941 he was elected a Fellow of the International College of Anaesthetists of U.S.A., and earlier had been invited to visit the United States to address the Society of Anaesthetists, but was prevented from accepting this honour by the outbreak of the war. The sudden death of one who gave such devoted service is a great loss and will be felt not only in Dundee but throughout the East of Scotland. Our deepest sympathy is offered to his widow and son.

News has been received of the death on June 14 at Berea, South Africa, after a long illness, of Dr. HENRY CURWEN, formerly principal medical officer of Zanzibar. Born in 1879, son of Robert Ewing Curwen of Frome, Somerset, he was educated at Trinity College, Glenalmond, and Edinburgh University, graduating M.B., Ch.B. in 1903 and taking the D.P.H. of Durham two years later. He was appointed senior medical officer for Zanzibar in 1907 and became P.M.O. to the Zanzibar Government and Protectorate in 1915. On his retirement in 1922 he was created C.B.E., and received from the Sultan the 4th Class of the Order of El Alich and the 2nd Class of the Order of the Brilliant Star of Zanzibar. Dr. Curwen represented his Branch at the Annual Meeting of the B.M.A. at Newcastle-upon-Tyne, and in later years held the post of medical superintendent of Kokstad Hospital, Griqualand East, Cape Colony.

Dr. VICTOR G. L. FIELDEN, who died recently, was consulting anaesthetist to the Royal Victoria Hospital, Belfast, and to the Ulster Hospital for Children and Women. He graduated in medicine at the old Royal University of Ireland in 1892 and obtained the M.D. with gold medal of Queen's University, Belfast. During the war of 1914-18 he held the temporary rank of captain, R.A.M.C., attached to the Queen's University O.T.C. He joined the B.M.A. in 1895 and was secretary of the Section of Pharmacology and Therapeutics at the Annual Meeting held in Belfast in 1909. Prof. P. T. Crymble writes: Victor Fielden was born in 1867 at Plymouth. His father was in the Royal Navy, and the son looked more like a naval officer than a doctor. He was a man of magnificent physique: over six feet, perfectly erect, he did most of his practice on a bicycle, and thought little of riding 25 miles to the seaside to see his family. Starting as a pharmaceutical chemist he followed the example of his chief, Sir William Whittla, and became a doctor. Almost immediately he started to specialize in anaesthetics, and for fifty years was our leading anaesthetist. Beginning with the Junker and bellows method he changed later to the Vernon Harcourt apparatus and continued to use this up to 1945. He proved that chloroform given in this way was an exceedingly safe method. In the University he taught practical pharmacy, and many stories are told in connexion with his classes. He formed a link with the past and could give a vivid description of operations performed under the carbolic spray. My own earliest recollection of Fielden was of seeing him simultaneously anaesthetizing and correcting proofs of Whittla's textbooks. Later he became my close personal friend

and did all my abdominal anaesthetics up to 1945. For many years he was a bellringer in St. Thomas's Church and gave long service to the Balmoral Reformatory. He had a very happy family life with a wife, a son, and five daughters.

We regret to announce the death of Dr. EDMUND ALBERT GOULDEN at Dymchurch, Kent, at the age of 76. He graduated in medicine at Manchester in 1893 and took the M.D. in 1905. The earlier part of his professional life was spent at Stockport, where he built up a large and busy practice. He served as captain in the R.A.M.C. in the 1914-18 war. He went through the hardships and horrors of the Gallipoli campaign and there developed cardiac trouble, which persisted to the end. At the close of the war Dr. Goulden went to Llandrindod Wells and practised as a spa physician until his retirement, owing to failing health, three years ago. He was an able physician and had a forceful and kindly personality. His death has been keenly felt by a wide circle of friends and patients. He had been a member of the B.M.A. since 1902.

Medico-Legal

ANOTHER CARBACHOL ACCIDENT

In June, 1942, a flight-sergeant of the R.A.F. died of an overdose of moryl, otherwise called doryl or carbachol, in the Cowley Road Hospital, Oxford. At the inquest¹ it appeared that the drug used had been packed in ampoules in crystalline form. Each ampoule contained a quantity of drug about 400 times the therapeutic dose. The instructions sent out with the ampoules said that the correct dose was 1/2 to 1 ampoule, but this referred to ampoules filled with solution and not with crystals. In 1944 the personal representatives obtained £2,000 damages from Messrs. Savory and Moore, the manufacturers, for negligence.² The manufacturers took steps soon after the accident to call in the blue packages containing moryl crystals, but a packet remained at the Croydon General Hospital, and the accident was substantially repeated on April 18 last. A married woman who had been admitted with cancer and a very rapid pulse was given the contents of an ampoule, 0.1 g. of the crystals, dissolved in sterile water. The correct dosage was 0.00025 g. She died in a few hours.

At the inquest Dr. H. G. McComas said that soon after the patient's admission he had instructed Dr. Maureen McNeill, the house-physician, to give one ampoule of moryl. Later she telephoned to him to say that the patient had died. He had examined the empty ampoule and the box from which it came, which had contained a blue paper saying that the dosage was 1/2 to 1 ampoule, to be repeated if necessary three or four times daily. Cross-examined, he said that he had seen the box before ordering the injection, and had seen that the ampoules contained crystals, but as he had never used the drug before, this fact did not strike him. It had never entered his head that the dosage on the box did not correspond with the contents of the ampoule. Dr. McNeill said that she also had not used moryl previously but had followed the directions of the blue paper in the box, which had corresponded with Dr. McComas's instructions. Mr. Samuel H. Stephenson, chief chemist of Messrs. Savory and Moore, said that the crystals, containing the drug in pure substance, were marketed for ionization. Tablets were prepared for administration by the mouth, and watery solution for injection. The firm's records showed that the hospital had ordered the box, containing 3 ampoules of 0.1 g. each, by telephone in December, 1940. Among other hospitals, Croydon General Hospital was asked by telephone to return the drug but had not done so, and the firm had presumed that it had been used. He agreed that the blue paper contained no word about the uses of the substance, and that the instruction did not apply to the contents of the ampoule. He thought, however, that members of the medical profession would have known this, for crystals could not be injected as they were. The jury returned an open verdict.

Medical journals have printed letters from the firm stating that it had called in the blue package containing moryl crystals and reissued the drug in an entirely new packet with a new colour scheme and literature. In case some hospital dispensaries may still have crystalline moryl with misleading directions, it is worth while to repeat the firm's request to examine their stores and return any moryl crystalline substance in the blue packet for free exchange.

¹ *British Medical Journal*, 1942, 2, 28.

² *Ibid.*, 1945, 1, 62.

Medical Notes in Parliament

HEALTH SERVICE BILL

In the resumed Committee stage on June 18 Mr. SOMERVILLE HASTINGS said that Clause 26 suggested that every general practitioner should be free to carry out inoculations against diphtheria. He felt that was undesirable on medical grounds. There was no objection to every medical practitioner undertaking vaccination, although the Government in times past designated certain practitioners as public vaccinators, but inoculation against diphtheria was a different story. Intradermal inoculations were not easy to carry out, nor were the Schick tests and the re-testing. Mr. LINSTEAD asked why compulsory vaccination was to be brought to an end by the repeal of the Vaccination Acts under subsection 5 of this Clause. Was this because of administrative difficulty or on medical grounds? Dr. BARNETT STROSS did not agree with Mr. Hastings. In hospitals, nurses and probationers were often expected to carry out hypodermic inoculations, and inoculation against diphtheria was usually a straightforward hypodermic injection.

Mr. BEVAN said there might be some forms of immunization or vaccination in which it was necessary to have special knowledge and it would be desirable for the local health authority to arrange for it to be carried out at clinics by a person with special experience. That was not ruled out by the Clause, but there were general forms of immunization and vaccination that the general practitioner could properly perform. The Bill provided for the general practitioner but did not exclude specialized arrangements. Compulsory vaccination had been dropped chiefly because large numbers of people were contracting out. At the same time, propaganda by the Ministry of Health urged people to have their children immunized against diphtheria and remarkable results were being achieved. In the controversy as to whether immunization or vaccination had established itself he must accept the specialist opinion that it had. The Clause was ordered to stand part of the Bill.

AMBULANCE SERVICES

On Clause 27 the Committee agreed, on the motion of Mr. KEY, to add words making it clear that the duty of a local authority to provide ambulance or similar transport existed only when there was a need for that transport; and that duty lay with the authority in whose area the need originated. Mr. BEVAN said the local health authority would have no regard to the origin of the patient but merely to his needs. The hospitals themselves would find it necessary to have a rudimentary ambulance service. A person who did not employ a doctor under the scheme but had a private doctor would get his ambulance free.

On the motion that the Clause stand part of the Bill Mrs. BRADDOCK said there would be duplication and delay in the methods proposed. The best way to deal with the ambulance service was to have a central service for the region, decentralized into areas, and alongside it a centralized bed bureau so that the regional organization would know what beds were vacant in every hospital. Mr. MESSER said that unless the ambulance service came under the same authority which was administering the hospitals there would be delay, if not confusion. Within the management committee area of a hospital there ought to be authority vested in the hospital to ensure that it would immediately get an ambulance. The hospital workers had expressed a hope that there would be a national ambulance service.

Mr. WILLINK hoped Mr. Bevan would not yield to pressure to make this a regional service. It should be normally a function for the county or county borough but with liberty to the Minister, as in the Bill, to make a larger joint unit for the purpose of an ambulance service. Dr. MORGAN supported the contention of Mrs. Braddock. He said that ambulance workers were trying to get an institute of ambulance workers with a definite training and curriculum for study. Employees of voluntary associations were unlikely to be really trained ambulance personnel.

Mr. BEVAN said all the arguments advanced by Mrs. Braddock were arguments for the merits of the local health authority ambulance service. The ambulance service was not a hospital service only—a local health authority was responsible for identifying cases to be taken to mental homes. The regional authorities were very far away from the administrative front and, after the regional plan had been made and the specialists had been appointed, the regional board would break down administratively into the hospital management committees. To add to that board a day-to-day administrative function seemed to him to be unrealistic. The local health authorities would

take exception to being under the supervision of a non-elected authority. The Clause as amended was ordered to stand part of the Bill.

PREVENTION OF ILLNESS

Mr. PIRATIN moved to amend in Clause 28 the provision respecting arrangements made by a local authority for prevention of illness, care of persons suffering from illness, or after-care of such persons by deleting the condition that "no such arrangements shall provide for the payment of money to such persons." He referred particularly to the work done by tuberculosis after-care committees and other organizations of a similar nature. He said that many a mayor's fund contributed to such people who were given lump sums of money. At present, under Memorandum 266.T., a regulation gave a fair sum to certain tuberculosis cases for after-care. The Bill would end this and there was nothing to replace it. Mr. MESSEY said that Parliament was going to repeal the 1921 Act so that all the tuberculosis work would be merged with the general health services; unless provision was made for the hospital authority to follow up its cases there was a danger that the service would be retrogressive.

Mr. BEVAN said the payment of money was a function of the Ministry of National Insurance. Certain categories of assistance were provided under the health scheme, but there would be a number of categories for which a new Bill would be necessary. It would deal with the winding-up of the poor-law system. The tuberculosis scheme had done extremely good work but had the cruel defect that when a person was found to be incurable the allowance stopped. Legislation would be required to alter that.

Mr. PIRATIN withdrew his amendment and moved another to delete subsection 2 of Clause 28, which authorized a local health authority to recover charges from persons availing themselves of the services provided under the Clause. Mr. BEVAN resisted the amendment. It would be impracticable to ensure that anyone who needed someone in attendance should have that service free.

The amendment was negatived, and on the question that the Clause as amended stand part of the Bill, Mr. REES asked for guidance on the interpretation of the words "the care of persons suffering from illness." Mr. LINSTED asked for some explanation of the arrangements to be made for prevention of illness. In Clause 28 the Committee had one of the few provisions in the Bill aimed at prevention as distinct from treatment and cure. Was the Minister asking for a large extension of educational health services at the expense of the local authority? Mr. WILLINK said the Minister had had representations from the National Council for Mental Health, which was concerned in providing for the care of those who were ill though they might not fall within the categories of illness or mental defect. There were serious cases of epilepsy and of neurosis. Did the Minister feel that he was able to make provision for helping such persons.

Mr. BEVAN said certain persons would be unable to follow some occupations but could follow others. The local authority would be empowered to establish and supervise special industrial premises in which such people could carry out their employment. Colonies could be established for persons suffering from certain disabilities. It was not, however, intended to apply this extensively. The Clause as amended was ordered to stand part of the Bill, as also was, with a minor amendment, Clause 29 (Domestic Help).

APPOINTED DAY

Clause 30 was also ordered to stand part of the Bill. Mr. BEVAN remarked that the administrative work to be done after Parliament passed the Bill would be enormous, and considerable time would elapse before the whole of the scheme was in operation. Even after that the full service would depend upon its being properly manned. The country was short of doctors, specialists, dentists, and health centres. He inclined to the view that until they could build new health centres they should adapt old buildings. It was intended that the Bill should come into operation on April 1, 1948. He did not think it would be possible to introduce it before that. It must be synchronized so far as possible with the National Health provisions. It would come into operation in different stages. He hoped to appoint the regional boards quickly; the local authorities would become authorities under the Bill as soon as it was passed. The Clause was ordered to stand part of the Bill.

LOCAL MEDICAL COMMITTEES

The Committee proceeded to examination of part 4 of the Bill which deals with general medical and dental services, pharmaceutical services, and supplementary ophthalmic services. On Clause 31 Mr. WILLINK drew attention to subsection 3 providing that the Minister may by order vary the constitution of

an executive council. He said the set-up of the new body with which doctors were to be in contact had given general satisfaction but the Minister was asking for a blank cheque of power to vary it. Mr. BEVAN said variation took place only after consultation with the local executive council concerned. The Minister did not act arbitrarily. Some of the functions of an executive council must be over a wider area, for example, in price-fixing for chemists' prescriptions. The Clause was ordered to stand part of the Bill.

On Clause 32 Mr. WILLINK moved that the term in the Bill the "Medical Practitioner Committee" should instead be termed the "Local Medical Committee." He pointed out that this would avoid confusion between the two bodies which the Bill termed "Medical Practices Committee" and "Medical Practitioner Committee." The amendment was agreed to and the Clause as amended was ordered to stand part of the Bill.

THE SPENS COMMITTEE REPORT

Mr. RICHARD LAW moved to add a new subsection to Clause 33 to provide that where the Minister on the advice on the Central Council was satisfied that by reason of the scattered population, or other special circumstances, it would not be practicable to give the inhabitants of an area, or a considerable proportion of them, satisfactory medical attention if the remuneration of the medical practitioners were by way only of capitation fees, they should be paid in addition such annual salary as might be prescribed. There was no word in the Bill stating what the conditions of the State medical service would be. If authoritative reports were to be believed, the Minister told the medical profession before Second Reading that the payment of general practitioners would be largely by a salary; yet he told the House on Second Reading that it would be substantially by capitation fee. Mr. Law hoped the Minister still had an open mind in this matter and that now he had received the Spens Committee Report he would feel able to give his intentions legislative effect in this Bill.

Mr. Law drew from the Spens Report the conclusion that to avoid a deterioration in the general practitioner service the monetary reward would have to be greater than in the past. He also inferred that there should be elbow-room within whatever scale of payment might be decided upon so that the skilled, efficient, and conscientious doctor might expect a greater financial reward, and so that the doctor who had exceptional skill in dealing with his family patients could expect a very high salary indeed. He took it that the Minister and the Committee would agree with the objectives that the Spens Committee had outlined. How could these objectives be met unless the Minister abandoned his idea of payment by basic salary and went back to a capitation fee alone, except in the under-doctored areas? He did not see how the Minister could make the principles of the Spens Report effective by a varying salary scale. Nor what standard Mr. Bevan could lay down which could justify one doctor receiving a higher salary than another. The Spens Committee itself decided that exceptional medical degrees would be an ineffective standard for exceptional financial rewards. It seemed to him that the only way to get round the difficulty of deciding how to give varying degrees of reward in a comprehensive State medical service was to allow the patient himself to decide. Where a doctor by his skill, sympathy, and devotion attracted patients he should be rewarded. He hoped Mr. Bevan would abandon his idea of a basic salary and go back to the principle of a capitation fee which would vary with the number of patients a doctor had on his list.

THE MINISTER'S VIEWS ON REMUNERATION

Mr. BEVAN said it was not only unprecedented but undesirable to put the method of remuneration in a Bill. That was not done in the original Health Insurance Act and had not been in any of the Acts since then. Parliament could have no more unpleasant duty than to argue about wages and conditions. That was much better done by regulation, and he believed the doctors would prefer it so. He did not think the Central Council was the appropriate body for giving advice on this matter. He was unable that day to indicate the attitude of the Government towards the Spens Committee's Report. He would like to see the principles of that Report expressed in a definite formula within the framework of the Bill. At the moment they were in the form of abstract principles, but the committee had provided a valuable document and he was grateful to its chairman and members.

Mr. Bevan said he was firmly convinced it was necessary to have an element of basic salary in the doctors' remuneration. A young doctor must be able to start work with his livelihood assured. At present young doctors sometimes spent a substantial number of years before they could win anything like a reasonable livelihood. The doctor was fairly old before he started, and either he could not get a family or could not keep

one under the conditions in which some doctors had to live. The arguments for a basic salary were overwhelming. The medical profession contained a number of dedicated persons, but he had not been able to see in it, in general, any more idealistic attitude towards remuneration than existed in any other profession. Some element of punishment and of reward was necessary. For that reason he had come down on the side of capitation as part of the pay. If the system was full salary, then one had to allocate patients among the doctors and doctors among the patients. That would result in an unhealthy relationship between patient and doctor. Therefore the Ministry found it necessary to have capitation. When the regulations were drawn up, he thought there would have to be a ceiling to the capitation and other modifications might be necessary. These would be subjects for negotiation with representatives of the profession. He was in consultation with the profession on these matters, and he preferred that the consultations should reach a more advanced stage before he expressed any definite opinion. The Government was clear where it stood. A uniform capitation and a variation of the basic salary was far better than a variation of capitation. It would give an opportunity for providing a principle by which the Ministry could attract doctors into under-doctored areas. Parliament would have an opportunity later of discussing the regulations when they were made.

Mr. REID said that to leave a blank cheque in the Bill on a matter of this importance was wrong. The Opposition proposed that there should be put in the Bill a clear direction in principle as to the method by which the remuneration was to be made up. Wherever it was found that there was a need to attract doctors to an especially difficult or unpopular area then the right way to attract them was to give a salary in addition to the capitation fee. If the area was very difficult or unpopular then it might require £500. The determination of the area, and of the amount necessary, was an administrative matter which might change from year to year and which no sensible person would put into the Bill. The Minister had provided no argument for giving a salary to a doctor with the same experience who was practising in an over-doctored, or average well-doctored area. One must assume that the only argument for giving him a salary was the doctrinaire one that all doctors should be the servants of the State and not of their patients. With regard to the young doctor, in most cases the right way for him to start was as an assistant, and the Bill left Mr. Reid in doubt how the position of assistant was to be preserved when the Bill came into operation. He agreed that Mr. Bevan was right in contending that the words "the advice of the Central Council" should be taken out of the amendment proposed by Mr. Law. There was a proposal in the White Paper that the capitation fee was to diminish in scale as the total number of patients rose. To increase the size of the panel did not alter the proportion of the people coming to the surgery. Therefore the payment must be per patient. Why should the good doctor be paid on the average less per patient than the bad doctor? In a particular area they generally found that the doctor with the large practice was the doctor who inspired most confidence.

Resuming on June 19 the discussion of the amendment proposed by Mr. Law, Mr. LINSTED said the facts did not justify the contention advanced by Mr. Bevan that it was necessary to provide salaries to help the young doctor to establish himself immediately after qualification. Nothing was easier than for the young medical practitioner to get financial support to establish himself in practice. He was opposed to the proposal to pay by salary but could not see that payment by salary or by capitation fee would make much difference for many years to come. There was going to be a shortage of doctors and however remuneration was made up all doctors would have all the patients they were allowed to take. The real question was how far the Committee wished the doctor to be an independent practitioner. The Opposition felt that when a salary element was introduced the doctor was made the servant of the State through the regional board.

METHOD OF PAYMENT

Mr. SOMERVILLE HASTINGS hoped the Minister would not fix a hard-and-fast rule on remuneration and salaries. Payment partly by salary and partly by capitation fee would be most popular among doctors. According to the questionnaire issued about two years ago by the British Medical Association, the majority of those who had filled in the forms decided that that was the most satisfactory method. Mr. Hastings suggested that very soon the majority of doctors would wish to be paid by salary. The advantage of capitation was that by it a doctor built up goodwill. In the future goodwill would not be saleable and that advantage would disappear. It would not always be easy for a young man to start in practice. The young man starting in practice with a small salary and a free list would have to take those people who had not expressed a choice or

could not be accommodated on the list of the doctor they had chosen. In addition the young man would have to try to attract as many patients as he could from other people's lists—not an elevating procedure. He would have plenty of time to contemplate how much better off he would be if he were paid a reasonable salary. Capitation gave the patient too much power over the doctor.

Sir HUGH LUCAS-TOOTH remarked that Mr. Bevan had said it was essential to have an element of reward and punishment. Did he mean that the basic salary should be used for some disciplinary purpose? Mr. BEVAN said obviously the reward and punishment related to the capitation grant because if a doctor was not industrious the patients would transfer to another doctor.

Dr. STEPHEN TAYLOR said the Spens Report made him feel there was a lot to be said for having a capitation fee element. Doctors after reaching a certain age deliberately cut down the work which they did. Provided patients could recognize a good doctor there was much to be said for their playing a part in deciding how much a doctor should get. In some parts of England doctors were divided into classes—the non-examining and the examining doctors. A doctor with higher qualifications had a case for having slightly more income than a doctor who did not take those qualifications. There was a case for giving doctors a bit more on their basic salaries as they got older. There was a case for the cash incentive for doctors to take a three-months refresher course after every ten years. Mr. WILLINK said a general service organized by the State could not be a service in which promotion was obtained from one grade to another. It was clear from what Mr. Bevan had said that the incentive to gather in people for whom the general practitioner must care was going to be reduced by every pound the basic salary was increased.

NEED FOR A BASIC SALARY

Mr. BEVAN said that members of the Opposition had been misled by uninstructed propaganda issued when the Bill was first published. All the references to State service, bureaucratic control of medical services, and to the virtue of unlimited competition between doctors had no relation to the proposition before the Committee. There was no need for him to repeat the arguments in favour of an elementary basic salary. At the same time he had accepted the proposition that a full salaried service was not reasonable and in existing circumstances would not operate to the best advantage of the community. Therefore he had reached a compromise between the two principles, introducing the element of security for the individual and the element of competition to refresh the service. Dr. Taylor had suggested that it was not attractive to have a diminishing capitation rate when reaching the higher lists. Mr. Bevan had proposed that to try to destroy the worst features of the panel system. The unlimited panel system now had for Conservatives almost mystic virtues. In the passage of years it had acquired a nimbus, but in 1911 it had horns. Very great evils were established in the building up of a panel system, brought about by the competition between the doctors themselves, and this led to a very undesirable situation. He had an open mind on the desirability of declining the capitation rate. It was not a matter of fundamental principle. It would have to be examined in the light of discussions with the profession. He was not impressed by what doctors said in their questionnaire. The amendment proposed by Mr. Law was defeated by 25 to 12.

ASSISTANTS IN GENERAL PRACTICE

Col. STODDARD-SCOTT moved to add a proviso that nothing in the Act and no regulation should interfere with the right of a general practitioner who undertook to provide general medical services to employ and pay under contract with himself an assistant. It was advantageous for a young man qualifying in medicine to act as an assistant to a capable principal. Mr. BEVAN thought this was a desirable way of introducing a doctor to general practice. But the Government could not give general practitioners an unrestricted right to take on as many assistants as they liked, because that would interfere with the proper distribution of doctors. It was intended that there should be no restriction on the right of general practitioners to have assistants in areas where the Executive Council agreed that these could be employed because the area was not over-doctored. Assistants would not be on the list but would be registered doctors.

Mr. HASTINGS asked whether the assistant would be bound by agreement with his principal not to start practice on his own in the same area. Mr. BEVAN replied that it would not be reasonable if a doctor took on an assistant who remained with him for some time for that assistant to go on the list for that particular area. He had already had discussions with the profession on what area of restriction should be imposed. The amendment was withdrawn.

On the motion that Clause 33 stand part of the Bill Col. STODDARD-SCOTT said subsection 2 (d) of the Clause dealt with certification and suggested that this would be decided by regulation. These regulations would refer only to doctors inside the service. He desired an assurance that doctors outside the scheme would be able to issue certificates which would be accepted. Mr. BEVAN said what certificates were accepted was a matter for the Minister of National Insurance. He himself thought that the certificate of doctors, whether in the public service or outside, stood on an equal footing. Clause 33 was ordered to stand part of the Bill.

DISTRIBUTION OF DOCTORS

Mr. WILLINK, moving an amendment which was rejected, said that the distribution of practitioners would improve automatically on the introduction of this Bill without the measures proposed in Clause 34. The Bill would enable 100% of the population to be safe patients from the financial point of view. The moment Mr. Bevan controlled distribution he automatically affected the value of goodwill. Some first-class doctors would shrink from the controls which had to be introduced into a service of this kind. It was in the public interest for such a doctor to be able to say that the bulk of his work was to be in private practice but that he would like to have a panel of 500 or something of that kind.

Mr. BEVAN said that Mr. Willink's point of view involved continuation of the sale and purchase of practices; it also involved a doctor choosing his own successor. Having decided as a first principle to abolish the sale and purchase of practices Parliament had then to determine the principle of succession. To that the machinery under Clause 34 was the necessary corollary. It was accepted by the medical profession that there was bad distribution of medical services. Therefore the procedure involved a negative control. In the future the young doctor would receive information from a central pool as to what areas he could go to at once and the areas where he would not be acceptable in the public service. He would know within a day and would not have to advertise or ask his friends. When there was a vacancy the local Executive Council would notify the local doctors' committee, so Parliament got the doctors themselves influencing the appointment of their new colleagues, the local executive appointing, and the central committee confirming the appointment.

Captain BAIRD asked what happened when there was a vacancy in an area for one doctor and five applied. Mr. BEVAN said in that case the doctors in the area would be invited to suggest a doctor who in turn would be suggested to the Executive Council. With the permission of the medical practices committee a contract would be entered into. Dr. TAYLOR hoped that every vacancy would be advertised in the medical journals so as to give the maximum field of choice. Practices should not be inherited.

Referring to other inquiries Mr. BEVAN said that all these things depended on sensible administration and could not be put into the Bill. There could be an appeal to the medical practices committee in the very rare circumstances in which irregular things had been done and undue influence exercised.

CONSULTATION WITH LOCAL MEDICAL COMMITTEE

On June 20 Mr. WILLINK moved an amendment to Clause 34. He proposed that applications by doctors to be included in the list of practitioners undertaking to provide general medical services if made in the prescribed manner to an executive council should be referred by that council to the local medical committee and that the recommendations made by that committee and the decision of the council thereon should be submitted to the medical practices committee. During the second reading of the debate he had formed the impression that Mr. Bevan very largely agreed that the choice of individual practitioners was not an appropriate function for one central committee. Mr. Bevan had said in that debate that in fact the executive would appoint the practitioners and they would be referred to the medical practices committee solely on the question whether that particular area was under-doctored or over-doctored. He noted that Mr. Bevan had put down an amendment to provide that before selecting any persons under this clause the medical practices committee should consult the executive council concerned and that council should, if a local medical committee had been formed for the area of the council, consult that committee before expressing its views on the persons to be selected.

Mr. BEVAN said there was not much between him and Mr. Willink. He thought the amendments he had put down satisfied the necessities of the case. The only circumstances in which the medical practices committee would be likely to question the appointment would be where some improper action had taken place. In order that the committee might have

authority to move it was necessary that, formally, they would make the appointment. He did not mean that the executive council should send forward three or four names to the medical practices committee. The local medical committee would say to the medical practices committee: "We propose to appoint Mr. Blank." The medical practices committee would never know who Mr. Blank was unless somebody said to that committee: "Something improper has happened down here." Did anybody imagine that a busy central committee was going to worry itself about the whole of these individual appointments? If the committee did not concern itself when something wrong had happened the Minister must do so, and the Government did not wish to drag the Minister into it. The executive council would proceed to do the job in the normal way, consult the local doctors, make the appointment, and send the name in to the medical practices committee, who would then authorize the appointment. Supposing a name were sent in and representations came from an authoritative quarter that there had been something improper in the selection, the medical practices committee would make an inquiry and say: "We are sorry, but we cannot confirm this appointment. Try again and make another appointment."

Mr. Willink's amendment was by leave withdrawn, and the Committee accepted Mr. Bevan's amendment.

"Before selecting any persons under this sub-section, the Medical Practices Committee shall consult the Executive Council concerned and that Council shall if a Local Medical Committee has been formed for the area of that Council and recognized under the Act but one foregoing Section consult that committee before expressing their views on the persons concerned."

FAMILY PRACTICES

Mr. LINSTAD moved, and later withdrew, an additional subsection to provide that the medical practices committee, medical practitioner committee, and executive council in exercising any power or determining any appeal under Clause 34 should have regard to a desire expressed by members of a family to work together or by a medical practitioner to succeed to the practice of his father or other near relative. He also wished to provide that these bodies should have regard to the views of the remaining members of a partnership before selecting a candidate to fill the vacancy. Mr. BEVAN said he did not think the committee should give a special statutory value to family relationships. It was often desirable that there should not be too much interbreeding in local areas and that there should be more infiltration from outside. He agreed that tradition would inevitably have its influence on the selection, but he did not wish to give directions to local executive councils about this; but it was just the sort of thing they ought to be free to do. The Minister ought not to tell local executive councils what sort of grounds they should consider in making an appointment.

On the motion that Clause 34 stand part of the Bill Sir HUGH LUCAS-TOOTH inquired the meaning of "already adequate" in the proviso that the medical practices committee could refuse an application to practise on the grounds that the number of doctors undertaking general medical services in the area or part of the area was already adequate. Mr. BEVAN said there could be no absolute definition of adequacy. Adequacy related first to the general supply of doctors for the country as a whole, secondly to the way that supply had distributed itself over the country, and, after these considerations had been borne in mind, to the special requirements of the areas under discussion. In some areas more doctors were needed because the average age of the population was higher. The Bill provided that the decision on the needs of an area would be made by the medical practices committee on which the majority would be doctors with experience of what was required. The Clause as amended was approved by 24 to 12.

PROHIBITION OF SALE OF PRACTICES

On Clause 25 Mr. WILLINK moved to add a proviso that if one or more members of a partnership were included in a list of practitioners undertaking to provide general medical service but one or more other members of that partnership were not included in such a list, nothing in the Act would apply to any sale of goodwill by a member of the partnership not included in that list. In English law goodwill was the asset of the partnership and not of the individual partners. What was to happen between now and the appointed day to partnerships where only one or some of the partners engaged in panel practice? This Clause would involve the dissolution of hundreds of partnerships all over the country before the appointed day. The Minister desired group practice, but the prohibition in the Clause would strike a grievous blow at co-operative work between medical men.

Mr. HENRY STRAUSS said he suspected that when drafting subsection 1 of the Clause the draftsmen had not partnerships

in mind. The Clause was so obscure that any doctor or any doctor's representative after the doctor's death or any doctor in an existing partnership who consulted a lawyer, assuming this Clause went through in its present form or even as amended by the amendments proposed by Mr. Willink, could only be advised to wind up the partnership and dissolve it before the appointed day.

Mr. BEVAN said nothing obscure in the Clause. He said that hitherto the Clause had been attacked on the ground that it was terrorizing and dealt comprehensively with so many different varieties of circumstances where persons might try to secure payment for goodwill even after compensation had taken place for loss of goodwill. Most of the terror had been taken out, although the protection for the Exchequer still remained. He was advised that the amendment proposed by Mr. Willink was unnecessary. But if the language of the Clause would have the effect of causing partnerships to be universally dissolved then the Clause would have to be amended. He promised to look into the question. Mr. Willink withdrew his amendment.

TRIAL BY JURY

In subsection 2, dealing with penalties for the new offence of unlawfully selling or buying a goodwill or part of a goodwill, Mr. WILLINK moved an amendment to provide that on summary conviction an offender should be liable to a fine not exceeding £100 and that the larger penalties proposed in the Bill should be applicable only in cases of conviction on indictment. He said that in another Bill the Government recently accepted the argument that it was inappropriate to give such powers to courts of summary jurisdiction. The Bill would give rise to questions of subtlety and difficulty. There were questions of allocation of the consideration given for a house and how far payment was because it was a nice house and how far because it had a surgery. There was a splitting of a series of transactions with the apportioning of consideration for the practice as against other elements in the contract. There was also the question whether money given by a son to his father was given in contemplation of his succeeding his father in the practice. Clearly more serious cases ought to go for trial by jury.

Mr. BEVAN agreed that where the higher penalties were involved there was a good case for the matter being tried by a court with a jury. He thought Mr. Willink might leave him to move an amendment at a subsequent stage. He did not wish the penalties to be too light. Parliament had met many examples of persons who went on violating the law because they made profit by that violation even after paying the penalties. The Government did not wish that to be done. These cases would occur only on the part of doctors who had entirely misrepresented to the medical practices committee what they had done or who had neglected to protect themselves by getting a certificate from the medical practices committee or who were persons obviously with felonious intent.

SALE OF A DOCTOR'S HOUSE

Mr. WILLINK next moved to omit subsection 4 dealing with the sale, letting, or other disposition of premises previously used by a doctor for the purposes of his practice. Mr. Willink said that although ingenious persons might work a sale of goodwill into the sale of the house the Opposition felt that this subsection was so unsatisfactory that its omission must be moved. It set up criteria which seemed to be unworkable, and it also covered cases which Parliament never intended to cover. The danger was not of people being unfairly convicted but of professional men being unfairly brought before the courts and subjected to embarrassment and expense. The criminal law should be clearly expressed. Mr. STRAUSS said part of the mischief of the subsection as it stood was that it created a criminal offence not dependent on any guilty intention.

Mr. BEVAN agreed that Parliament ought not to pass bad laws on the assumption that there was a good public prosecutor. He had considered this matter carefully because it did create a number of criminal offences, and the Government did not want to torment innocent people. At the same time the Exchequer had made a generous provision for the payment of £66,000,000 to the doctors in compensation for the loss of goodwill, which was far more than the medical profession ever expected. The State during many years had permitted a most pernicious system to grow up, but the doctors were as much victims of that system as they were beneficiaries from it; and when the State stepped in to destroy that system the Government had said that compensation must be paid. These practices had existed for a considerable time and were extremely involved, and he felt that some doctors who had not received compensation might want some payment for their goodwill which had already been bought by the State. The Government had to consider all the various ways in which doctors

obtained pecuniary advantage for their goodwill. One of the most valuable was the doctor's house. He was advised that it would be perfectly proper to give more for a doctor's house because of the physical structure of the house. If there was a surgery, if there was apparatus, if there was a special structural arrangement it would be proper to pay more for the house because of those conveniences. What the subsection did was to prevent the seller from obtaining a sum of money in respect of the fact that goodwill attached to the house.

Mr. STRAUSS asked the Committee to assume that the house had a special value because it had always been a doctor's house and that therefore whoever went to live in it attracted a certain amount of goodwill. The executors of the late doctor might not desire that extra value, but if the house were put up for auction the price would be influenced by the fact that it had been a doctor's house. If the house had been sold for more than if it had never been a doctor's house an offence would have been committed, though there was no guilty intention. Did Mr. BEVAN intend that it should be impossible for the widow to sell that house by auction without risking a criminal prosecution? Mr. BEVAN said he could not accept that. If goodwill had been made illegal from April 1, 1948, that would entirely change the value of doctors' houses in respect of the goodwill attaching to them. The Committee rejected Mr. Willink's proposal by 21 to 10.

In subsection 5 of Clause 34 dealing with valuable considerations given by or to partners in pursuance of any partnership agreement between doctors Mr. WILLINK moved to insert the words "made after the passage of this Act." He asked who could say what ought to be reckoned the appropriate consideration in 1947 on the basis of the facts of 1933 or 1943? Under the Bill if the shares of the partnership were inappropriate to the energy, skill, and success of the partners then there would be a criminal offence. The only way in which the Government proposal could be workable was by making it affect partnership agreements entered into after the Act. What was to happen supposing that there had been an agreement for the acquisition for the share of a partnership, the payments to be made in five instalments payable at intervals of two years, two instalments having been paid and three remaining to be paid? The payment of the third, fourth, and fifth instalments would be a crime in respect of something which had already been acquired. His amendment was intended to get rid of all pre-Act partnerships so far as this crime was concerned.

Mr. BEVAN said people ought not to be able to obtain money under false pretences. It was not the case that where a sale had taken place before the appointed day instalments due to be paid afterwards would have to cease because if they were paid that would be a crime. He was advised that under subsection 1 the legal sale would have taken place before, and therefore it was not indictable. It would be foolish to make an offence prospective. If the language of the clause bore that interpretation then it must be altered, but he was informed that it did not. There was no real difficulty in deciding the services rendered by one partner to another. A certificate obtained for these transactions from the medical practices committee was ample protection. A method of protecting the doctor from the consequences of ambiguity had been created.

Mr. HOPKIN MORRIS asked the Minister to reconsider subsections 1 and 5, and Mr. STRAUSS appealed to him to consult the Law Officers before the next sitting. He said the Minister was running a risk that the medical practices committee would be approached with questions about every existing partnership. The amendment was defeated by 21 to 7, and the Committee agreed to an amendment proposed by Mr. BEVAN to insert the words "having regard to the circumstances at a time when agreement was made." The Committee then adjourned.

Grants for Teaching Hospitals

In respect of the academic year 1945-6 an interim distribution of grants for teaching hospitals has been made thus: Universities in England and Wales £166,169, University of Aberdeen £9,046, University of Edinburgh £24,048, University of Glasgow £22,678, University of St. Andrews £8,027. The University Grants Committee will make recommendations for a further final distribution of the grant available for 1945-6.

Artificial Limbs.—Mr. WILFRED PALING on June 20 told Sir Ian Fraser that during the last six months deliveries of artificial limbs exceeded orders placed. He had no reason to think that this position would not be maintained. He anticipated that the time would soon arrive when the supply and repair of artificial limbs would be effected more expeditiously.

Notes in Brief

Mr. William Leonard stated on June 20 that the expressions "registered medical practitioner" and "duly qualified medical practitioner" were synonymous by virtue of Section 34 of the Medical Act, 1858. Current drafting practice favoured the former.

Universities and Colleges

UNIVERSITY OF OXFORD

I. V. Potunin, B.M., of Queen's College has been elected to the Schorstein Research Fellowship in Medical Science for one year from October 1.

UNIVERSITY OF GLASGOW

At a graduation ceremony on June 19 the honorary degree of LL.D. was conferred on Archibald Wilson Harrington, M.D., formerly Muirhead Professor of Medicine in the University, and on Sir Edward Mellanby, K.C.B., M.D., F.R.S., Secretary of the Medical Research Council.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The Prime Minister, who is a Hunterian Trustee, dined with the members of the Council, at the College, on June 5. He saw the damage which had been caused to the buildings by enemy action, and inspected the plans for rebuilding. Others present were:

The Earl of Athlone (Hunterian Trustee), Sir Alfred Webb-Johnson, Bt. (President), Sir William Collins (Hunterian Trustee), Sir Hugh Lett, Bt., Sir Max Page (Vice President), Sir Henrice Ogilvie (Vice President), Mr. A. F. Burgess, Mr. Victor Bonney, Sir James Walton, Mr. H. S. Souttar, Mr. Cecil P. G. Wakeley, Mr. L. E. C. Norbury, Mr. V. Zachary Cope, Prof. Hugh Cairns, Mr. P. H. Mitchiner, Mr. A. Tudor Edwards, Surg. Capt. Lambert Rogers, Mr. Geoffrey Keyes, Mr. R. J. McNeill Love, Dr. H. Guy Dain, Mr. G. F. Stables, Mr. V. E. Neuge, Dr. A. D. Marston, Mr. George Black, Prof. F. Wood-Jones, Prof. R. A. Willis, Prof. A. J. E. Cave, and Mr. W. F. Davis (assistant secretary).

ENGLISH CONJOINT BOARD

Diploma in Industrial Health

The Examining Board in England set up by the Royal College of Physicians of London and the Royal College of Surgeons has issued regulations for obtaining the Diploma in Industrial Health (D.I.H., R.C.P.Lond.&R.C.S.Eng.). It may be granted to those who possess a qualification registrable in the British Medical Register and to graduates in medicine and surgery of those universities and medical colleges recognized by the Examining Board in England for the purpose, who comply with the regulations. Candidates for the diploma are required to follow the curriculum of study, to pass the examinations, and to pay the prescribed fees, but exemption from Part I may be granted to candidates who hold a recognized Certificate in Public Health. Copies of the regulations may be had from the secretary, Examination Hall, 8-11 Queen Square, London, W.C.1.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales infectious diseases were less prevalent. There were decreases in whooping-cough 310, scarlet fever 83, acute pneumonia 50, measles 35.

The decline in whooping-cough was fairly widespread, and the chief falls were Lancashire 56, Warwickshire 36, Carmarthenshire 36, Surrey 34, London 31, Essex 29. The only change of any size in the local returns of diphtheria was a fall of 27 in London. A small decrease in scarlet fever was fairly general, and the only large fall was Middlesex 33. Considerable variations occurred in the trend of measles; the largest rises were London 106, Yorkshire West Riding 89, Surrey 52, and notable decreases were Middlesex 82, Lancashire 78, Durham 46, Warwickshire 45.

Notifications of dysentery declined by 14. The largest returns were Lancashire 40, London 17, Warwickshire 12, Dorsetshire 11.

In Scotland the only rise recorded was measles 12; the falls included acute primary pneumonia 67, scarlet fever 12, whooping-cough 11, dysentery 10. The decline in dysentery was due to the experience of the western area, where there were only 7 cases, compared to 24 in the preceding week.

In Eire also a general fall in prevalence was recorded; the only rise was whooping-cough 15. Only 27 cases of diphtheria were notified, spread over 16 registration areas.

In Northern Ireland an increase was reported for whooping-cough 28, diphtheria 7, measles 7, while scarlet fever declined by 6. All the cases of whooping-cough were notified in Belfast C.B.

Week Ending June 15.

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 866, whooping-cough 1,625, diphtheria 262, measles 4,415, acute pneumonia 505, cerebrospinal fever 44, dysentery 146, poliomyelitis 12, small-pox 2, paratyphoid 4, typhoid 7.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 8.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, as of Deaths recorded up to each infectious disease, are for: (a) The 125 great towns in England and Wales (London included), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1916					1915 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	47	—	21	1	—	55	—	23	1	1
Deaths	—	—	—	—	—	—	—	—	—	—
Diphtheria	304	16	84	27	15	423	23	103	7	10
Deaths	—	—	—	—	—	—	—	—	—	—
Dysentery	147	17	34	—	—	426	43	119	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Enteritis, lethargica, acute	—	—	—	1	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	27	9	—	—	—	47	4	1
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	47	1	8	7	—	41	5	5	6	3
Deaths	—	—	—	—	—	—	—	—	—	—
Measles*	3,826	1073	652	48	12	5,465	472	323	47	14
Deaths	—	—	—	—	—	—	—	—	—	—
Ophthalmia neonatorum	60	5	8	1	—	62	7	14	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	2	1	—	2(B)	—	4	—	7(B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza	546	25	11	16	5	427	23	4	12	3
Deaths (from influenza)†	—	—	—	—	—	—	—	—	—	—
Pneumonia, primary	—	—	161	35	—	—	—	16	25	6
Deaths	—	—	—	—	—	—	—	—	—	—
Poli-encephalitis, acute	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute	9	—	1	3	—	6	—	1	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	—	32	—	—	—	—	12	—	1
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia; Deaths	134	11	17	—	—	123	7	11	1	1
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	957	84	164	23	24	1,405	45	216	21	34
Deaths	—	—	—	—	—	—	—	—	—	—
Smallpox	3	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	4	—	3	8	1	—	—	—	3	3
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough*	1,749	162	81	42	44	1,033	53	88	25	20
Deaths (0-1 year)	—	—	—	—	—	—	—	—	—	—
Infant mortality rate (per 1,000 live births)	322	41	45	30	17	223	35	56	28	23
Deaths (excluding stillbirths)	4,110	570	534	178	120	4,060	555	575	215	112
Annual death rate (per 1,000 persons living)	—	—	—	—	—	—	—	—	—	—
Live births	7,994	1155	980	447	257	6,725	779	576	460	268
Annual rate per 1,000 persons living	—	—	—	—	—	—	—	—	—	—
Stillbirths	—	—	—	—	—	—	—	—	—	—
Rate per 1,000 total births (including stillborn)	236	26	38	—	—	209	21	25	—	—
Deaths	—	—	—	—	—	—	—	—	—	—

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

Medical News

A general meeting of the Medical Society for the Study of Venereal Diseases will be held at 11, Chandos Street, W., to-day, Saturday, June 29, at 2.30 p.m., when there will be a discussion on "The Treatment of the Infected Female by Penicillin."

A meeting of the Royal Sanitary Institute will be held at Stoke-on-Trent Town Hall on Saturday, July 6, at 2.15 p.m., when Dr. A. Meiklejohn will read a paper on "Silicosis."

The X-ray Analysis Group of the Institute of Physics announces that its 1946 Conference will take place at the Royal Institution, 19, Albemarle Street, London, W., on July 9, 10, and 11 next, and is open to all without charge. It is hoped that several distinguished foreign scientists will participate in the proceedings. Further information will shortly be available from the honorary secretary, Mr. F. A. Bannister, F.Inst.P., Department of Mineralogy, British Museum (Natural History), Cromwell Road, S.W.7.

The County Borough Group of the Society of Medical Officers of Health have arranged to hold its annual meeting and week-end conference from July 19 to 22 at the School of Domestic Economy, Eastbourne, under the presidency of Dr. R. H. H. Jolly. The programme includes "The Care of Homeless Children," by Dr. J. Fenton, M.O.H., Eastbourne; "The Peckham Pioneer Health Centre," by Dr. G. Scott Williamson; "The New National Health Service," by Dr. J. F. Galloway, M.O.H. Doncaster; "Medical Administration as a Career," by Prof. J. M. Mackintosh. The hon. secretary of the Group is Dr. J. Greenwood Wilson, City Hall, Cardiff.

The annual dinner of the Royal Medico-Psychological Association will be held at the Royal College of Physicians, 9, Queen Street, Edinburgh, on Wednesday, July 17, at 7.30 for 8 p.m.

At the recent meeting of the Senate of the Queen's University of Belfast among those on whom it is proposed to confer honorary degrees are Sir Alexander Fleming and Dr. Frederick W. Price.

The deaths of four babies, three at Auckland and one at Wellington, from tetanus traced to talcum powder are reported by a correspondent in New Zealand. The deaths occurred in the first week of June, and the authorities at the Auckland Public Hospital traced the tetanus to the talcum powder used on the infants. Immediately the cause of the deaths was announced in the Press, the distributor of a well-known brand of Australian talcum voluntarily withdrew the preparation from the market, and the New Zealand Department of Health is now considering withdrawing all supplies of talcum for sterilization. The Director-General of Health, Dr. M. H. Watt, stated that his Department had issued notices to all hospitals and to obstetricians warning them of the position and instructing the use of zinc oxide and starch instead of talcum on new-born babies.

Nutrition and Child Welfare is a periodical published at 6d. from 28, Alva Street, Edinburgh, 2, but all communications should be sent to the London office, 70, King's Road, S.W.3. The first number contains articles on "The Chair of Child Health and Infant Nutrition," by Prof. Alan Moncrieff; on why mild forms of rickets are undetected, by Dr. Ursula Shelley; and on the scientific principles of nutrition, by Dr. R. P. Cook. The journal is intended for health visitors, school nurses, nursery matrons, and nursery school teachers.

The Ministry of Health has issued a notice (Circular 133/46) on provision of medical treatment, under the Government Evacuation Scheme, for orphans and other children without suitable homes to which to return. The arrangement under which medical treatment was provided through the Local Medical War Committees has been revised. Doctors attending billeted children will from July 1 be paid through Insurance Committees, and the basis of payment will be a capitation fee of 14s. per head per annum for treatment and medicine and appliances for unaccompanied children in billets. Part-time doctors will be appointed to hostels and residential nurseries, and provision is made for medical inspection of nurseries and for medical treatment of children in sick bays.

Prof. W. M. Mitchell, M.B., F.R.C.V.S., has been appointed Principal of the Royal (Dick) Veterinary College, Edinburgh, in succession to Sir Arthur Oliver, who retired last year. Prof. Mitchell has been on the staff of the College for over 30 years and is president-elect of the National Veterinary Medical Association. During the first world war he served as a captain in the R.A.V.C. and was awarded the Military Cross; in the second world war he served as major in the R.A.M.C. He will take up his new post on Oct. 1.

Dr. F. Stratton has been appointed director of the Ministry of Health Regional Transfusion Centre, Manchester, in place of Dr. J. F. Wilkinson, who has resigned.

An Order dated June 14 places pethidine and its salts in Part I of the Poisons List and on the first schedule.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Atiology Westcent, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Fistula-in-ano

Q.—*In a case of fistula-in-ano the internal opening is three-quarters of the way up the lateral wall of the anal canal, and seems to be almost at the upper margin of the internal sphincter. Is it safe to divide all the sphincter superficial to this?*

A.—The answer to this question depends upon the course which the fistulous track takes between the internal and external openings. If it happens to pass deep to the entire external sphincter, which is uncommon, then it would be very unwise to cut through the whole track, for incontinence would probably result. If the track goes between the subcutaneous and deep parts of the external sphincter, the lower part could be cut through, but the upper portion of the track might be better dealt with by a silk ligature, which will gradually cut its way through the mucosa. The questioner would do well to consult Miles's classical paper on the subject (*Proceedings of the Royal Society of Medicine*, 1931, 25, 1649).

A Senior Partner Retires

Q.—*A, who has been in the practice for over 30 years, is retiring. B, the junior partner, will be joined by C, the present assistant. Is there any legal objection to B and C retaining A's name on the stationery when sending out patients' accounts?*

A.—As A is ceasing to be a partner, to keep his name on the stationery might well amount to a misrepresentation, and suggest falsely that A's services and skill were still available in the practice, and that he was still responsible for any claims made against the firm. To do this would be legally, as well as ethically, wrong.

Continuous-drip Milk for Peptic Ulcer

Q.—*In the continuous-drip milk treatment of peptic ulcer what is the correct rate of drip and the total daily quantity? Should alkalis and atropine be administered, and, if so, how?*

A.—The continuous-drip milk treatment of peptic ulcer is usually carried out through a long rubber tube sufficiently small to pass through the nose into the stomach. It is retained in position and attached to the cheek by adhesive tape. The milk is contained in a glass jar, similar to jars used for blood transfusion, and this is connected with the tube by a glass junction with a tap, or clip, enabling the rate of flow to be controlled. About 3 pints (1.7 l.) of milk or equivalent fluid food is given each 24 hours; additional water may be given either through the reservoir or directly swallowed. Alkali in powder, or aluminium hydroxide in suspension, may be added to the milk in appropriate amounts. This type of feeding has the advantage that a specimen of the gastric contents may be withdrawn from time to time by a syringe and tested for neutrality.

Atropine is not usually employed as well, but there is no reason why it should not be. Many authorities would prefer that it should be given early each morning, dissolved in several ounces of water in order that it may act directly upon a clean gastric mucosa. Although the tube may be retained almost indefinitely, it is desirable to remove and re-pass it every 48 hours at least in order to clean it, and so avoid the risk of local inflammatory reaction.

Posterior Pituitary Extracts in Labour

Q.—At a recent postgraduate course I was informed by two obstetricians that 0.5 ml. pitocin should be given intramuscularly to the mother as soon as the baby was born. As this teaching is contrary to all I learnt as a student, I would appreciate an authoritative statement as to what the dangers of this procedure are, if any?

A.—The questioner has raised one of the most controversial points in modern obstetrics. There is a sharp difference of opinion between those who believe that an oxytocic drug—pitocin or ergometrine—should be given as soon as the child is delivered, in order to minimize blood loss in the third stage of labour and hasten delivery of the placenta, and those who believe that no oxytocic should be given until the placenta is born.

Possible dangers of the procedure include, first, the risk of causing contraction ring, or hour-glass contraction, of the uterus. If this occurs, delivery of the placenta, and perhaps even manual removal, will be impossible until the spasm relaxes. The effect of pitocin is relatively evanescent and lasts only about half an hour, after which time it is possible to deliver the placenta in most cases. Another and more serious danger is that of "pituitary shock," fortunately rare but very alarming, and perhaps fatal, when it does appear. If pitocin is given by intramuscular injection the risk is minimal, though it is greatly increased with repeated doses of posterior pituitary extract in any form. For this reason no more than a single dose should ever be injected in the third and fourth stages of labour. A third possible risk is of acute inversion of the uterus, especially if the administration of pitocin is accompanied by a too vigorous attempt to expel the placenta.

The two opposing views were put forward in the correspondence columns of the *Journal* (1944, 2, 353, and 511). The discussion was summed up by Prof. Moir (1944, 2, 606), who stated: "The administration of oxytocic drugs before the birth of the placenta has been much disputed, and personally I dislike the routine use of such methods." He goes on to mention that 5 units (0.5 ml.) of pitocin may be given into the muscle of the uterus, through the anterior abdominal wall, in cases where the uterus is flabby and the placenta has not separated after half an hour. After mentioning reports from the United States of America, recommending the injection of ergometrine by the intravenous route with the birth of the anterior shoulder, he concludes: "The method has inherent risks and should not be used outside hospital practice."

Dry Skin in the Tropics

Q.—A 21-year-old spinster has always had dry shiny skin on the backs of both hands. She has lived in the Tropics all her life, and has fair skin, very freckled and hairy over exposed areas, and is red-haired. General health is excellent. I would be grateful for advice as to treatment.

A.—The exposed skin of white persons who live in tropical or subtropical regions tends to become thin, often yellowish, and to develop pigment spots and later keratoses, which may degenerate into basal-cell new growths. This is observed in Australia, and also, on the backs of the hands, among tea planters in India and Ceylon. It has been noticed in Australia that the more severe type of change is especially liable to occur in fair or reddish complexioned people of Scottish or Ulster descent. A simple cream, and avoidance of sunlight so far as possible, is about as much as can be done for the young lady mentioned above.

Virginal Erosion of the Cervix

Q.—A nulliparous woman of 22 has had a slight mucoid vaginal discharge for six or seven years. Two gynaecologists have told her that she has a "virginal erosion." Cauterization was performed a few months ago under general anaesthesia, but the discharge persists and the erosion is still there. Is any further treatment indicated, and, if so, what? Is the condition likely to prevent conception? What are the chances of carcinoma of the cervix supervening later on?

A.—"Virginal," or "congenital," erosion of the cervix is extremely common, and is sometimes reckoned as being present in one-third of female children at birth. Its pathological

significance is therefore doubtful and there is no reason to believe that it favours the development of carcinoma in later life. Nor as a rule does it lower fertility significantly, although it may do so if it is associated with a change in cervical secretion, or if there is superadded infection. Virginal erosions are usually symptomless but sometimes do cause an increase in the natural discharge, such as appears to be present in this case. However, if it has not already been done, it might be wise to have the discharge fully examined to exclude any infection.

If the amount of discharge is not sufficient to be troublesome no treatment is required, and there would be no harm in waiting to see if fertility is affected. If, for one reason or another, further treatment is necessary, either cauterization or coagulation diathermy should be judiciously applied. It should be possible to obtain a cure by such measures, and the treatment can be carried out without anaesthesia.

Starvation and Anorexia Nervosa

Q.—Has recent clinical experience with cases of starvation led to any advance in the treatment of anorexia nervosa?

A.—Recent clinical experience with cases of starvation has emphasized the value of milk as the most effective single food-stuff. Apart from some observations made during the Bengal famine, no satisfactory results emerged from treating cases with protein hydrolysates. More success resulted from the use of plasma, but the evidence goes to show that even in advanced states of starvation a measure of digestive and absorptive power remains in the alimentary tract.

In anorexia nervosa the digestive and absorptive power of the gut is not likely to be so markedly affected. The difficulty is to retain food long enough to permit of these processes proceeding satisfactorily. It is very doubtful if protein hydrolysates, even when safe to administer intravenously, have any real place in the treatment of this condition unless as a temporary measure in a very severe case. The administration of hydrolysates intravenously might then have a beneficial effect, even apart from the psychological standpoint.

Dysaesthesia in Disseminated Sclerosis

Q.—A patient who has had disseminated sclerosis for 25 years complains of troublesome intermittent deep paraesthesiae. These are of a tingling tickling nature and affect the joints and muscles. They interfere seriously with sleep and intellectual activity. What is the cause of these symptoms and how can the condition be ameliorated?

A.—Defective myelination of projectional fibre tracts may perhaps be responsible for the dysaesthesia encountered in disseminated sclerosis. It is rare for it to be so obtrusive as to render a patient sleepless and to occasion much distress. Amelioration may be difficult, but the problem can be tackled: (1) By treatment of the disease itself—e.g., with arsenic, vitamin B, liver extract, iodides, quinine. (2) By symptomatic remedies—i.e., sedatives combined with analgesic remedies. In this connexion combinations of aspirin and phenobarbital might prove helpful. Tinct. gelsemii is also worth trying. (3) Finally, vasodilator drugs might be of assistance, as in the condition described as "jittery or restless legs" (syn.: *asthenia crurum paraesthetica*). See K. A. Ekbom, *Acta med. scand.* 1944, 118, 197.

INCOME TAX

Mortgage Outside United Kingdom

S. M. has advanced money on mortgage in Eire. He has not received interest since 1939, and has waived his right to receive it. Is he liable to British tax on this interest?

* The liability attaches to interest "arising," but where the interest has been waived, the Revenue authorities will admit exemption from the tax. S. M. should accordingly explain the facts to the tax office dealing with his income tax. Some evidence that he has given up his legal right to payment may be required.

"Initial Allowance" for Car

J. G. asks whether the initial allowance is made only when a car is bought for the first time, or does it apply also to a car bought in replacement of a former car?

* It applies to both categories.

Remittances from Indian Pay

H. S. J. inquires whether an R.A.M.C. officer serving in India on Indian rates of pay who sends money home to his bank account in England is liable to British tax, as well as Indian tax, on the pay so remitted?

* If the officer ranks as a "resident" in the U.K.—e.g., because his family are living here—the remittances are liable to British tax, except as regards a financial year during the whole of which he was absent from the United Kingdom. If the remittances are liable there will be some relief due in respect of the tax paid in India.

Assistant or Partner: Expenses

I. M. is to be a salaried assistant at an "All in" rate with no specified allowances. He is buying the house of a partner and will be responsible for maintaining the surgery there—but not drugs or instruments. What expenses can he claim?

* He can claim the expenses incurred "wholly, exclusively, and necessarily" in the performance of his duties as an assistant, and since those duties include the maintenance of the surgery, running a car, and those normally borne by a partner, it would seem that he can claim to deduct much the same amount as would be deductible under Schedule E. On the other hand, if he becomes a partner he escapes from the rather more rigid rule applying to Schedule E. (e.g., any effect of the word "necessary"), and that alternative is preferable from the income tax standpoint.

Colonial Resident in R.A.M.C.

G. T. is resident and domiciled in the West Indies. Is he liable to British tax on R.A.M.C. pay?

* Yes—if the pay is issued "out of the public revenue of the United Kingdom." (If the service had been in India and the pay issued from Indian sources it would not have been liable to British tax.)

Retirement from Practice Abroad

M. O. has practised abroad for 20 years and proposes to retire in March, 1947. He and his wife have stayed in this country recently—their stay extending into the present financial year. What is the position as regards future remittances?

* Remittances of income will be taxable but *not* remittances of capital. The mode of making the remittances appears to be immaterial. (If the recent visit was made with a view to establishing a residence here the authorities may claim tax—less "Dominion income tax relief"—on the amounts spent here during the visit.)

LETTERS, NOTES, ETC.

Wellcome Historical Medical Museum Library

Dr. E. ASHWORTH UNDERWOOD, the director of the Wellcome Historical Medical Museum, 183-193, Euston Road, London, N.W.1, asks us to announce that a catalogue of the extensive library of the museum is being prepared, but that it will be some time before this work will be published. Meanwhile, if any person who is preparing a bibliography of the works of any writer in the field of medicine or the allied sciences desires to include the location of known copies of the different works, Dr. Underwood will be pleased to send him on request a list of the various works and separate editions of that writer which are in the library of the Wellcome Historical Medical Museum, and applications should be made to him in writing. It is hoped to open the library for the use of students at an early date, and an announcement will be made to that effect, but meanwhile the above particulars will be supplied on request.

Effect of Sweets on Teeth

Miss DOROTHY M. RICHARDSON writes: My attention having been drawn to Dr. H. E. Magee's Milroy lectures (March 30, p. 475) summarizing the results of an experiment in giving to children, as well as an extra ration of sweets, chocolate biscuits to eat at night after the teeth had been cleaned, I am moved, as an interested layman, to suggest that the result—the absence of any deleterious effects upon the children's teeth—is perhaps easily explicable and in no sense destructive of the findings of the dental profession in regard to most sweets and most biscuits. For the only "chocolate biscuits" available during the war have been the kind known as "digestive"—i.e., a rather coarse wholemeal or, alternatively, oatmeal, very thinly coated with a solution of plain chocolate. Each of these three substances is easily soluble and non-adhesive, as are, also, the plain boiled sweets which have been the sole alternative to plain chocolate. To yield convincing results the experiments should surely be made with the popular fine glutinous white-flour biscuits which both clog the gums and lodge in the interstices of the teeth; and with "sweets" of the fudge, fondant, nougat, and chocolate cream variety, all, though readily soluble, apt to cling and to lodge.

Acne and Pimples

Dr. HILTON BROWN (Edinburgh) writes: Those who have examined recruits at medical boards during the past six years must have been struck by the large number of our young men who suffer from acne and pimples. Scrubbing with soap, opening the pores, and applying antiseptic ointment, which is the usual treatment prescribed in textbooks, is worse than useless. I have found the following simple treatment most effective. (1) Use no soap at all unless the face is dirty, in which case be sure to wash off all the soap. Just dip the face in tepid water and don't dry it; let the water evaporate on the skin. On no account be rough with a towel. (2) With a piece of cotton-wool sponge all over the face with methylated spirit (the usual coloured stuff) morning and night. Get someone to sponge it on the back if acne is on the back also. (3) Dust over the hair frequently with a wrung-out sponge or cloth in order to check dandruff. In most cases a few days of this treatment will make a great improvement, and a complete cure is generally rapid.

Chorea

Surg. Lieut. M. G. JACOBY, R.N.V.R., writes from Sunderland: With reference to the answer under "Any Questions?" April 27 p. 670) on calcium balance in chorea, I should like to bring to you notice a paper published by Golla and Walter in the *Practitioner* (May, 1943). According to this there are abnormal electro-encephalographic changes in the brain in chorea similar to those occurring in epilepsy. In other words, chorea may be regarded as a mid-brain epilepsy. Another point made was that "epanutin," unlike bromides and "luminal," reversed the E.C.G. appearances, giving a normal E.C.G. in epileptic cases. As a result of the above I tried a series of six chorea cases with "epanutin," not, however, getting any results to show that this drug influenced the disease. The final comment I should like to make is that cases of chorea vary in their intensity and response to treatment as much as true epilepsy. Also, the tendency is towards cure, whatever the treatment. It is therefore wrong to assume that any treatment is outstandingly successful unless a large number of cases are treated.

Dispensing by Nurses in Hospital

Mr. F. C. WILSON (Member of Council of the Pharmaceutical Society) writes: The death of a hospital patient through a nurse misreading a prescription sign has led to the suggestion that the traditional symbols of the apothecary should now give way to the metric system. In fact the metric system is coming into use, and its further employment depends on the extent to which physicians choose to adopt it in writing prescriptions. How drugs are measured is not, however, the real issue. It is as easy to slip up over a decimal point as over a drachm loop. The real issue is who measures them. In the case in question a pharmacist would have realized that the quantity was greatly in excess of the proper dose. The law should forbid the dispensing of potent drugs in hospitals except by, or under the supervision of, a pharmacist, and so dispense with the incompetent dispenser.

Records of Longevity

Dr. ANDREW ROBERTSON (Ayrshire) writes: Here in tabular form is a record of longevity which may interest readers. Can any of them beat it?

Column 1		Column 2		Column 3	
Age	Died	Age	Died	Age	Died
82	1849	79	1876	Husband:	84 1902
84	1865	85	1886	Wife:	75 1906
Parents of Col. 3 husband		Parents of Col. 3 wife			
Their Family		I know of two sons and three daughters. All had grown-up families when they died		Their Family	
Age	Died			Age	Died
79	1883			Firstborn:	80 1935
66	1873			Third:	80 1937
75	1885			Tenth:	77 25/2/1946
65	1879			Only eleven out of fourteen offspring now alive. The youngest is 71	
80	1895				
84	1902 (See Col. 3)				
81	1901				
32	1856				

Identity Numbers for Health Records?

Dr. W. W. ANDERSON (London, N.W.) writes: I was intrigued by Mr. C. Hamblen-Thomas's suggestion (June 8, p. 902) that identity numbers be impressed on the buttocks of infants. He would he deal with the 45 million people of this country not treated? In the absence of sartorial distinction to-day the prospect of exposure of buttocks in order to establish identity and determine sex would be, to say the least, embarrassing. I can well imagine that some would rather be unconscious during the process of providing identity, and subsequently remain so. Nevertheless, there are possibilities in the idea; the same locality might be used for the hidden display of much more useful information.

